



16<sup>th</sup> Full Bibliometric Report with Reference Data – 2025

Report prepared by Nature Research Intelligence













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# 1 Executive Summary

The Innovative Health Initiative Joint Undertaking (IHI JU) is a public–private partnership in the European Union which funds projects to address public health needs, improve patients' lives, and boost the competitiveness of Europe's health industries. From the initial call for funding in April 2008 through the Innovative Medicines Initiative (IMI), there have been 44 funding calls — 34 for IMI and 10 for IHI JU — for researchers in Europe and across the world.

The funding has resulted in more than 14,600 research publications across the IHI JU and IMI programmes. To date there have been 63 IHI JU funded publications spanning 50 countries and multiple continents. Since 2010, IMI publications have received approximately 700,000 citations, with its field-normalized citation impact (2.20) performing well when compared to the European research average and other European funding programmes, such as the Seventh Framework Programme (FP7) with 2.00 and Horizon 2020 with 1.79. Research funded by the IMI also performs strongly against global health funding bodies with only the Medical Research Council and Wellcome Trust having a better citation impact.

IHI JU and IMI funded research is highly collaborative. There are 50 countries that have at least one publication funded by IHI JU and there are 10 countries that have ten or more IHI funded publications. For IMI, there are 133 countries that have at least one publication and there are 71 countries that have ten or more IMI funded publications. In addition, IMI funded research is characterized by cross-sector collaborations, with almost three-quarters (74%) of the research involving co-authorship across sectors such as education/academia, health care, corporate/industry, government and non-profit organizations.

This is the 16th annual report produced for IHI JU and it has been created by <u>Nature Research Intelligence</u>. It provides a bibliometric analysis of research from 2010 to 2024 funded by the IMI and IHI JU programmes, a benchmarking analysis against European funding programmes, other global health research funders, and a landscape of the collaboration profiles and networks of the publications. The data used to create this report was exported from the Dimensions database on 9 June 2025.

## 1.1 Key findings

#### 1.1.1 Impact of IHI JU funded research

- There have been 63 IHI JU funded publications to date across 49 distinct journals.
- 55 of those publications are peer-reviewed articles and have yielded 472 citations.
- IHI JU publications (2.43) have yielded citation impact more than double that of European publications (1.13).
- More than 80% of all IHI JU funded research to date has been published as open access documents.
- Research has been published across 14 of the IHI JU funded projects. Leading projects to date are PROMINENT (16), PREDICTOM (10) and AD-RIDDLE (7).
- IHI JU funded research spans 50 countries in Europe, North America and the Asia-Pacific region.
- The top five countries publishing IHI JU research are the United Kingdom (37), Germany (27), Sweden (27), the United States (26) and the Netherlands (22).

#### 1.1.2 Collaboration profile of IHI JU funded research

- Almost all IHI JU funded papers are the result of collaborative work, with 96% of the published papers to date involving collaborations between different industrial sectors<sup>1</sup>, institutions and countries.
- Almost 90% of IHI JU funded papers involve international collaboration. The United Kingdom and Sweden
  are the two most represented countries. International collaborations involving Spain are currently
  recording the highest field-normalized citation impact (4.1).
- IHI JU funded papers having five or more affiliated countries are recording citation rates of more than three times the world average (3.27).
- Across IHI JU stakeholders<sup>2</sup>, research organizations have co-authored all IHI funded papers to date (100%), with high collaboration also noted from health-care organizations and providers (94%).
- One third (33.3%) of of IHI JU publications exhibit a collaboration between an academia and the industrial sectors

#### 1.1.3 Impact of IMI funded research

- Since 2010, IMI funded projects have resulted in 14,573 publications.
- Over the past five years, approximately 1,500 publications per year have been generated from IMI funding.
- IMI papers (articles and reviews) have received approximately 700,000 citations, averaging 53.0 citations per paper.
- A 31.0% share of IMI papers are in the top 10% most cited papers worldwide, normalized by subject<sup>3</sup>.
- IMI funded research is cited more than twice as much as the world average (based on its field-normalized citation impact of 2.20) and exceeds the citation impact of research from 27 EU countries and the United Kingdom (EU27+UK 1.20) by 83% based on the citations for publications with the same document type, year of publication and subject area.
- By field-normalized citation impact, IMI1 (2.03) and IMI2 (2.36) projects perform well compared with their EU funding counterparts FP7 (2.00) and Horizon 2020 (1.79).
- IMI funded research performs well compared with EU27+UK research across the top research fields for field-normalized citation impact. The top three disciplines by field-normalized citation impact are genetics (3.04 vs 1.27), cardiovascular medicine and heamatology (2.90 vs 1.22) and public health (2.73 vs 1.20).

<sup>&</sup>lt;sup>1</sup> IHI industrial sectors include: Pharmaceutical, Biopharmaceutical, Medical (and digital health) technology, Biotechnology (non-pharmaceutical)

<sup>&</sup>lt;sup>2</sup> IHI stakeholders include: Research / higher or secondary education organizations, Healthcare professional organization / Healthcare provider, Small & medium enterprise (SME), Large company (for-profit legal entity), Charities and Foundations, Patient / Citizen organization, Public authority, Non-governmental organizations (NGOs), Health care payers

<sup>&</sup>lt;sup>3</sup> The mean Field-Normalized citation impact is calculated by dividing the total citations count by the expected citations count for publications with the same document type, year of publication and subject area. When a publication is assigned to more than one subject area, the harmonic average is used. Values over 1 indicate that publications are cited more than would be expected.

- IMI projects have been published in 2,051 journals to date and the average journal impact factor for IMI funded research is 6.06. In 2024, across the 549 journals featuring IMI funded research, the average journal impact factor was 7.67.
- More than three-quarters (83.8%) of all IMI papers were open access and 31% of IMI papers feature in the top 10% most cited.
- A total of 133 countries have at least one publication funded by IMI and 71 countries have 10 or more funded publications.
- The United Kingdom (6,251), Germany (4,556), the Netherlands (3,836), the United States (3,597) and Sweden (2,278) are the top five countries by publication volume.
- EU-AIMS is the leading IMI project by number of publications (818).

#### 1.1.4 Collaboration profile and geographic spread of IMI funded research

- The majority of IMI funded papers involve cross-sectoral (74%), cross-institutional (86%) and cross-country (65%) collaborations.
- Collaborations across sectors<sup>4</sup> (2.37), institutions (2.27) and countries (2.47) yield a higher field-normalized citation impact than for collaborations which involve a single sector (1.71), a single institution (1.48) and a single country (1.58).
- The academia/education (96%) and healthcare (74% including hospitals and private sector) sectors have the greatest share of IMI funded cross-sectoral collaborative papers among all sector types.
- A positive association exists between the number of countries affiliated on an IMI funded paper and the
  respective field-normalized citation impact for that paper. Where a paper has >5 countries, the fieldnormalized citation impact is almost four times the world average (3.90).
- IMI projects connect EU with research hotspots around the world, strengthening the EU research ecosystem.

# 1.1.5 Benchmarking analysis comparing IMI funded research with ten international research funders

- IMI research publications rank third when comparing the field-normalized citation impact (2.20) with ten international health research funders, only trailing the Medical Research Council (2.31) and the Wellcome Trust (2.30).
- IMI research papers rank first compared to the comparator set based on their share of highly cited papers, which account for almost one-third (31.0%) of papers in the top 10% most cited in the world.
- In 2024, 5.6% of IMI funded research papers are noted in the top 1% highly cited and 30.9% of papers in the top 10% highly cited.
- IMI ranks third among the comparator funders for open access publishing (83.8%), with four of the ten selected funders publishing more than 80% of papers via open access.

<sup>&</sup>lt;sup>4</sup> IMI sectors include: Education, Healthcare, Company, Government, Other (Facility, Nonprofit, Archive, Other), Unknown

# 2 Introduction

### 2.1 Innovative Health Initiative Joint Undertaking (IHI JU)

To ensure that Europe remains at the cutting edge of interdisciplinary, patient-centric health research, the Innovative Health Initiative Joint Undertaking (IHI JU) was launched in November 2021 as a public–private partnership (PPP) between the European Union and European life science industries. With scientific breakthroughs, increasingly involving cross-sectoral discoveries, it is imperative that industrial sectors involved in health research — pharmaceutical, digital, IT, medical devices — work in collaboration rather than isolation.

Pioneering a new, more integrated approach to health research, as well as shifting the focus from disease care to comprehensive health care solutions using data-driven innovation to create real world impact, is central to IHI JU's mission, starting with disease prevention, diagnostics and personalized treatments, and disease management. Using a total budget of €2.4 billion, available from 2021 to 2027, IHI JU projects focus on delivering safe and effective health innovations. Covering the entire spectrum of care is the overriding objective of the IHI JU, particularly in areas where there is an unmet public health need. One example is the validation, deployment, and real-world implementation of a modular toolbox for Alzheimer's disease detection and dementia risk reduction. This cross-sectoral research collaboration is designed to result in tools for earlier detection and accurate diagnosis; validated, novel digital cognitive and blood-based biomarkers and improved access to individualized preventative interventions across diverse populations.<sup>5</sup>

#### 2.2 Transition from the Innovative Medicines Initiative

Ultimately, IHI JU is an evolution of the Innovative Medicines Initiative 1 and 2 Joint Undertaking (IMI1 JU and IMI2 JU), which started life in 2008 as a PPP between the EU and the European pharmaceutical industry. The overarching goal of the IMI programme was to 'significantly improve the efficiency and effectiveness of the drug development process with the long-term aim that the pharmaceutical sector produces more effective and safer innovative medicines. With a combined budget of more than €5.3 billion, the IMI1 (2008–2013) and IMI2 (2014–2020) programmes yielded 182 projects geared towards drug development and vaccine safety.

With the heightened focus on cross-sectoral cooperation and the IMI2 programme ending, the European Commission decided to launch the IHI JU — a new PPP centered on broad, interdisciplinary and patient-centric health research. IHI JU is designed to address the lessons learnt from IMI and leverage the benefits of closer collaboration across diverse sectors and actors in research and innovation to better respond to current and emerging health needs. At the time of writing this report IHI call 11 was open and consisted of a two-stage call with topics on brain dysfunction, the link between infections and non-communicable diseases, pharmacovigilance, type 1 diabetes, and ambulatory surgical centers.

## 2.3 Purpose and scope of this report

The IHI JU commissioned Nature Research Intelligence to produce the 16th bibliometric evaluation of its funded research under a public procurement procedure (reference: IHI.2023.OP.037).

The purpose of this report is to provide a detailed bibliometric evaluation of the research produced by IHI JU funded projects. This report provides an analysis that allows IHI JU to have an impact measurement for the

<sup>&</sup>lt;sup>5</sup> Malzbender *et al.*, Validation, Deployment, and Real-World Implementation of a Modular Toolbox for Alzheimer's Disease Detection and Dementia Risk Reduction: The AD-RIDDLE Project, *The Journal of Prevention of Alzheimer's Disease* (2024)

research that it has funded and to develop strategies to encourage research that benefits the health of the global community.

#### 2.3.1 Significance of bibliometrics

Bibliometric analysis is a quantitative method used to evaluate the impact of research outputs to:

#### 1. Understand trends:

a. **Identification of emerging research fields:** analyzing citation patterns and publication trends allows for the identification of emerging areas of research.

#### 2. Map research landscapes:

- a. **Research output:** providing a comprehensive overview of research output across different fields, institutions and countries.
- b. **Collaboration networks:** by examining collaboration networks, bibliometrics can reveal important partnerships within and across disciplines.
- c. **Funder analysis:** assessing the performance of research that has been awarded grant funding and providing a measure of return on investment.

#### 3. Guiding future research and innovation strategies:

- a. **Strategic planning:** funding bodies can use bibliometric data to make informed decisions about where to allocate resources for maximum impact.
- b. **Policy development:** policymakers can use bibliometrics to develop policies that promote innovation and address gaps in the research landscape.
- c. **Forecasting:** predicting future research trends and identifying potential areas for new breakthroughs.

#### 2.3.2 Scope of this report

Nature Research Intelligence has prepared this report, which is comprised of multiple sections to showcase:

- Impact of IHI JU funded research
  - Exploring publishing trends, open access research, publication output by country and IHI JU project, citation performance benchmarked against publications generated under the Horizon Europe programme, the EU27 and the global view, journal use and research fields.
- Collaboration profile of IHI JU funded research
  - Uncovering the volume and citation impacts of cross-sectoral, cross-industry and international collaborations relating to IHI JU/IMI funded research to create a collaboration profile.
- Impact of IMI funded research
  - Exploring publishing trends, open access research, publication output by country and IMI project, citation performance benchmarked against publications generated under the FP7 and Horizon 2020 programmes, the EU27+UK and the global view, journal use and research fields.

- Collaboration profile and geographic spread of IMI funded research
  - Uncovering the volume and citation impacts of cross-sectoral, cross-industry and international collaborations relating to IHI JU/IMI funded research to create a collaboration profile.
- Benchmarking analysis comparing IMI funded research with ten international research funders
  - Comparing outputs and a series of citation indicators, including field-normalized citation impact, share of highly cited papers (top 10%) and trends in open access research.

# 3 Methodology

#### 3.1 Data sources

Nature Research Intelligence used Dimensions as the main data source for this report. Dimensions is the world's largest curated abstract and indexing database housing more than 157 million research publications – including open access publications – in over 200 sciences, social sciences, arts and humanities disciplines. The database also includes conference proceedings, patents, policy documents, clinical trials and research grants data. Each research output is curated by Dimensions with multiple metadata fields – article title, author name, year of publication, journal name and reference list – which allows for a comprehensive analysis of research output, citation networks and collaboration clustering.

#### 3.2 Data extraction

Data extraction took place on the 9th of June 2025 and encompassed a publication range from 2010 to 2024, meaning that the publications included in the final dataset of this report have a publication date within this range. Publication types included in the dataset consist of articles, reviews, conference abstracts, letters to editor, research chapters, conference papers, editorials, other journal content, correction erratums and reference work.

To maximize the precision, recall and robustness of the analyzed dataset, IHI JU and IMI funded papers were extracted using a combination of the three search strategies outlined below. This approach ensured that the results of this report track the historical data points identified in previous reports. Notably, the combined use of these search strategies resulted in additional publications being identified for almost every year from 2010 when compared to the publications identified in previous bibliometric evaluations.

#### 3.2.1 Search strategies used to identify IHI JU/IMI funded publications

#### IHI JU/IMI-related search

A search was conducted across titles, abstracts, funding section and acknowledgements using the following keywords:

"innovative medicines initiative", "innovative medicine initiative", "innovativemedicine initiative", "innovativemedicines initiative", "innovative medicines initiative", "innovative medicines initiative", "innovative medicines initiative", "innovative medicines joint", "innovative medicines joint", "innovative medicines innitiave", "innovative health initiative", "-imi1", "imi1-", "imi2-", "-imi2 consortium", "-imi2", "eu imi", "eu-imi", "imi funded", "imi-funded", "imi grant", "imi-grant", "imi ju", "imi-ju", "imi2 joint", "imi2 ju", "imi2-ju", "imi2 pro", "-imi2-", "imi project", "imi\_ju", "imi2\_ju", "imi2 grant", "grant imi, "grant imi/", "grant imi-", "grant imi-", "imi, eu-", "imi2, eu-", "imi2, eu-", "imi2, eu"

#### IHI JU/IMI project name search

All IHI JU/IMI funded projects are assigned a unique project name and it is common for researchers to include their project name in associated research publications.

Project names and acronyms were therefore sourced from IHI JU/IMI and searched across titles, abstracts, funding references and acknowledgements.

Some IHI JU/IMI project names, such as Protect, Direct, Decision and Advance are terms commonly used in the titles and abstracts of research publications; these project names were combined with the IHI JU/IMI related keywords listed above to reduce false positives in the dataset.

#### IHI JU/IMI project number search

All IHI JU/IMI funded projects are assigned a unique project number which will often appear in relevant research publications. As with project names, project numbers were sourced from IHI JU/IMI and searched across funding references and acknowledgements.

#### 3.2.2 Process and outcome for creating the final IHI JU/IMI dataset

The 15th IHI JU/IMI bibliometric report, which was published in 2024, included 11,395 publications from Web of Science. In 2025, the evaluation shifted to the Dimensions database, which showed that 235 of these earlier publications were not present in Dimensions. Combining these 11,160 previously known publications with 3,445 new records from Dimensions resulted in 14,605 unique IHI JU and IMI-funded publications. A further 23 publications were identified after this, resulting in a total of 14,628 unique IHI JU/IMI research outputs for inclusion in this annual report.

15<sup>th</sup> Report (2024)
- identified
publications

 A total of 11,395 publications funded or associated with IHI JU and IMI were previously identified from the Web of Science database and evaluated in the 15<sup>th</sup> report (2024).

Interim Report publications (Data cut - 12<sup>th</sup> Feb 2025)

- In 2025, the Dimensions database was used to extract and evaluate publications. Of the 11,395 publications identified in the previous year's Web of Science analysis, 235 (mainly meeting abstracts and letters) were not available in Dimensions.
- A total of 14,605 unique IHI JU and IMI funded publications were identified by combining 11,160 previously known publications with 3,445 newly identified records.

Final Report publications (Data cut - 9<sup>th</sup> June 2025)

- For the final report, the data cut was taken on 9<sup>th</sup> June 2025, identifying 23 new publications related to IHI JU or IMI funded projects.
- Combining the 14,605 publications from the interim report with these 23 new records resulted in a total of 14,628 unique publications.

#### 3.2.3 Process for research attribution for analysis

Publications in Dimensions are indexed with metadata fields based on information supplied by the publisher to the databases directly from the publication. Examples of these fields include research categories or fields, institutions, funder, country and sector or stakeholder. The assignment of metadata fields ensures that publications included in the analysis are directly linked or attributed to these fields for analysis of funder, country, sector/stakeholder comparators. For example, if an IHI JU publication is identified with one author being affiliated to an organization in Sweden, and a second author affiliated to an organization in Australia, this publication would be assigned in the analysis as an international collaboration. However, some publications may not have all metadata fields populated in Dimensions. As a result, a publication with a missing metadata field may not be included for analyses which require this information. For example, if a publication has no 'sector' metadata information, then this publication will not be included in sectoral analyses.

#### 3.2.4 International funder comparators

A benchmarking analysis (see <u>section 8</u>) has been included in this report to compare the bibliometric performance of research funded by other international funders compared to IMI funded research.

To conduct this benchmark analysis, the research output funded by the ten comparative international funders was extracted using data from Dimensions (Table 3.1). Publications for each comparator funders were identified using a search of those respective comparator funders which are mentioned in the Dimensions metadata.

Table 3.1: Comparative international research funders used for 2025 benchmarking analysis

Comparator Funder
Commonwealth Scientific and Industrial Research Organization (CSIRO)
Critical Path Institute (C-Path)
Grand Challenges in Global Health (GCGH)
National Institutes of Health (NIH)
Foundation for the National Institutes of Health (FNIH)
ndian Council of Medical Research (ICMR)
Medical Research Council (MRC)
Wellcome Trust (WT)
National Health and Medical Research Council (NHMRC)
Japan Agency for Medical Research and Development (AMED)

#### 3.2.5 European funding programme comparators

A comparative analysis has been included to assess the research performances of IMI and IHI JU funded publications compared to publications resulting from the European Research Council and European funding programmes; FP7, Horizon 2020 and Horizon Europe. The research output dataset for FP7 and Horizon 2020 was created using a combined approach through official EU project records (CORDIS) and by mining funding references and acknowledgements in the Dimensions database for relevant programme terms (e.g., "FP7", "Horizon 2020" and "Horizon Europe"). This method addresses gaps in metadata and ensures broader, more accurate coverage of EU-funded research, supporting a more robust cross-programme comparison.

#### 3.3 Data analysis

Research performance is commonly assessed using an array of bibliometrics. Research outputs accumulate citations over time when included in a reference list in more recent research, with citations indicating the value or influence that a publication has had on subsequent research. Using the research outputs derived from IHI JU and IMI projects as a starting point, the associated citations they receive from the academic community form the primary analytical method used for this evaluation.

Bibliometric indicators should always be used with a degree of caution as some fields publish at faster rates than others and some fields tend to have higher citation rates. For that reason, it is beneficial to normalize citation data where applicable. Normalization of data has been applied to this report where appropriate and the mean field-normalized citation impact has been used. It is calculated by dividing the total citations count by the expected citations count for publications within the same document type, year of publication and subject area. Values over 1 indicate that publications are cited more than would be expected.

Finally, collaboration analysis was also used in this report and was completed using co-authorship metadata of research papers.

See <u>Annex 1</u> for an overview of the data limitations, a data and metrics glossary, as well as stakeholder type and industry sector classifications.



# 4 Impact of IHI JU funded research

Sections 4.1 to 4.8 of this report showcase the impact of IHI JU funded research publications to date, dissecting IHI JU funded research by document type and exploring open access publishing trends. The geographical landscape of IHI JU project publications is then identified, followed by a breakdown of the IHI JU projects that have generated publications to date. The citation performance of IHI JU funded research is then benchmarked against selected regions (EU27 and the World) and comparative funding programmes (Horizon Europe). The section closes with a view of the journals in which IHI JU publications appear and their associated research disciplines.

#### Key highlights:

- There have been 63 IHI JU funded publications to date across 49 distinct journals.
- Research has been published across 14 funded projects.
- IHI JU publications (2.43) have yielded citation impact more than double that of European (EU27) publications (1.13).
- Close to 90% of IHI JU funded research has been published via open access to date.
- IHI JU funded research already spans 50 countries in Europe, North America and the Asia-Pacific region.
- The top five countries publishing IHI JU funded research are the United Kingdom, Germany, Sweden, the United States and the Netherlands.

## 4.1 Summary analysis for IHI funded research

IHI JU funded research projects have produced 63 publications to date yielding a citation impact more than double the world average (2.43). Of the 55 papers published, almost 90% of papers have been published as open access and almost half (47.3%) of those papers are considered highly cited (Table 4.1.1).

Table 4.1.1: Summary of citation analysis for IHI JU supported research papers, 2023-2024

Number of Publications	Number of Papers	Total Citations of Papers	Raw Citation Impact	Mean Field- Normalized Citation Impact*	Mean Journal Normalized Citation Impact	% of Highly Cited Papers	% of Open Access papers
63	55	472	8.58	2.43	1.39	47.3%	89.1%

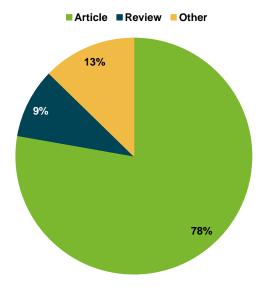
<sup>\*</sup>The mean field-normalized citation impact is calculated by dividing the total citations count by the expected citations count for publications with the same document type, year of publication and subject area. When a publication is assigned to more than one subject area, the harmonic average is used. Values over 1 indicate that publications are cited more than would be expected. Caution should be exercised with the field-normalized citation impact result for IHI JU funded publications given the small number of papers.

See Annex 1 for the data glossary.

## 4.2 IHI JU funded publications by document type

Between 2023 and 2024, more than three quarters (78%) of the publications resulting from IHI JU funding were articles. Of the remaining publications, six were reviews (9%), three were conference abstracts, there was one letter to the editor, one research chapter and one editorial (Figure 4.2.1).

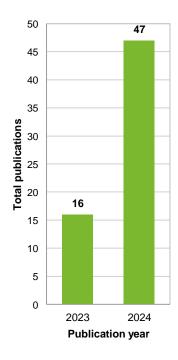
Figure 4.2.1: Percentage of IHI JU project publications by document type, 2023-2024



#### 4.3 Trends in IHI JU funded research

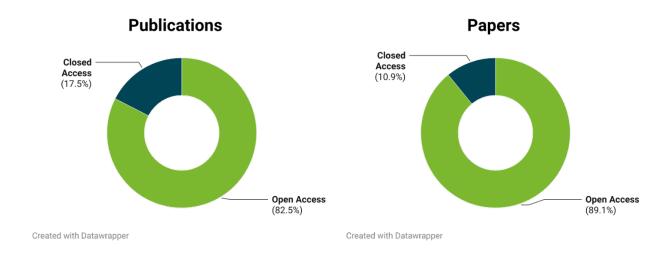
The number of publications for IHI JU funded research increased from 16 in 2023 to 47 in 2024 (Figure 4.3.1).

Figure 4.3.1: Number of publications for IHI JU projects by year, 2023–2024 (total 63)



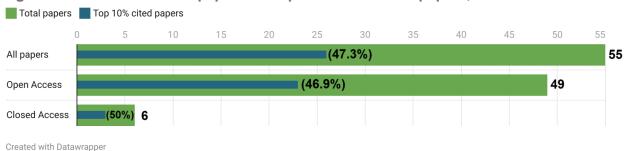
More than 80% of all IHI JU funded research publications (82.5%) are free to read. When considering papers resulting from IHI JU funding almost 90% are open access (Figure 4.3.2). Open access publishing can increase the visibility of IHI JU funded research outside of the academic community.

Figure 4.3.2: Share of open access publishing for IHI JU funded publications and papers<sup>6</sup>, 2023–2024



Almost half (46.9%) of open access papers funded by IHI JU are in the top 10% most cited. Of the six papers published behind a paywall, 50% are in the top 10% most cited.

Fig. 4.3.3: Number of IHI JU papers vs Top 10% cited IHI JU papers, 2023-2024



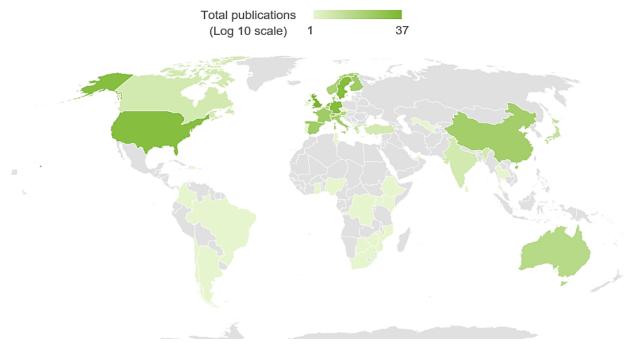
## 4.4 IHI JU funded publications by country

IHI JU funded research displays global reach with **50 countries** with at least one funded publication (Figure 4.4.1). There are **10 countries** which have 10 or more IHI JU funded research publications.

Paper: A subset of publications that only includes substantive research 'articles' and 'reviews' that are peer reviewed.

<sup>&</sup>lt;sup>6</sup> Publication: Includes all content types: articles, reviews, conference abstracts, editorials, letters, conference papers, corrections, other journal content and reference work.

Figure 4.4.1: Map of countries with at least one publication for IHI JU projects, 2023-2024\*.



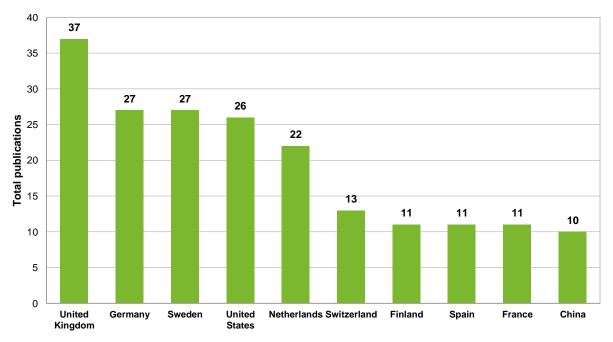
<sup>\*</sup>Publications can be affiliated to multiple countries

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For a full list of all countries with at least one IHI JU project publication between 2023 and 2024, see Annex 2, Table A2.1

The United Kingdom leads the geographical landscape by IHI JU publication volume (37), with Germany (27), Sweden (27), the United States (26) and the Netherlands (22) comprising the top five countries. Aside from the United States, China is the only other non-European country in the top 10 by publication volume with 10 publications (Figure 4.4.2).

Figure 4.4.2: Ten countries with the most IHI JU project publications, 2023–2024\*

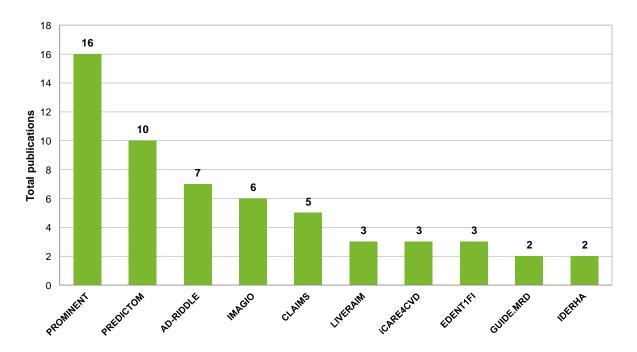


<sup>\*</sup>Publications can be affiliated to multiple countries

# 4.5 IHI JU funded publication output by project

There have been fourteen projects with publications funded by IHI JU. PROMINENT is the project with the highest volume of publications (16). Other projects funded by IHI JU in the top five by publication volume include PREDICTOM, AD-RIDDLE, IMAGIO and CLAIMS (Figure 4.5.1).

Figure 4.5.1 Top ten IHI JU funded projects with the highest number of publications, 2023–2024\*



<sup>\*</sup>Publications can be assigned to multiple projects

Four of the top 10 projects (by publication volume) funded by IHI JU have 100% of papers published as open access. These projects include PREDICTOM, CLAIMS, iCARE4CVD and EDENT1F1 (Table 4.5.1). All other IHI JU projects listed in Table 4.5.1 have published more than 80% of papers open access except for LIVERAIM and GUIDE.MRD.

Table 4.5.1: Top 10 IHI JU projects by publications, open access publishing and impact, 2023–2024\*

Projects	Number of Publications	Number of Papers	Number of Open Access Papers	% of Open Access Papers
PROMINENT	16	16	14	87.5%
PREDICTOM	10	8	8	100.0%
AD-RIDDLE	7	7	6	85.7%
IMAGIO	6	6	5	83.3%
CLAIMS	5	5	5	100.0%
LIVERAIM	3	3	2	66.7%
iCARE4CVD	3	3	3	100.0%
EDENT1FI	3	1	1	100.0%
GUIDE.MRD	2	0	0	0.0%
IDERHA	2	2	2	100.0%

<sup>\*</sup>Mean Field-Normalized Citation Impact of publications and citations per publication are not calculated due to small publication volumes per project.

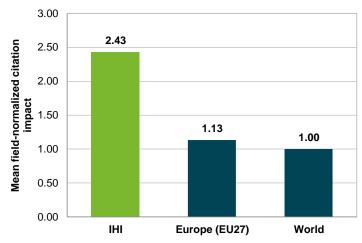
For a listing of all IHI JU funded projects by publications, open access publishing and impact, see Annex 2, Table A2.2.

### 4.6 Citation analysis for IHI JU funded research

The number of citations a paper receives is at least partly determined by the field to which it relates and the year of publication. Papers published about disciplines such as biomedicine and social sciences typically receive more citations than papers published in engineering, and older publications tend to accumulate higher citation counts than more recent research because they have had more time to accrue them. In this analysis, the field-normalized citation impact is used to allow comparison between years and research fields.

IHI JU papers had a field-normalized citation impact more than twice that of the world average (2.43), and more than double that of the EU27 (Figure 4.6.1).

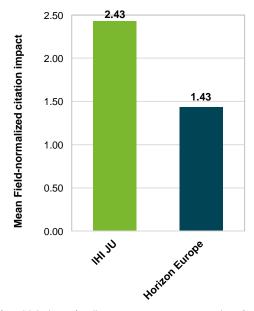
Figure 4.6.1: Field-normalized citation impact for IHI JU supported research papers compared to the average for EU27 and the world, 2023–2024



<sup>\*</sup>Caution should be exercised with the field-normalized citation impact result for IHI JU funded publications given the small number of papers.

Despite the much lower volume of publication than for Horizon Europe, the field-normalized citation impact for IHI JU publications (2.43) is 70% greater than Horizon Europe (Figure 4.6.2).

Figure 4.6.2: Field-normalized citation impact across funding programmes, 2023-2024\*



<sup>\*</sup>Heterogeneity exists in the time periods for which these funding programmes operate; therefore, direct comparisons of publication volumes generated should be approached with caution. Data for the IHI JU programme is collected for 2023-2024, while Horizon Europe covers 2021-2024.

<sup>\*\*</sup> Caution should be exercised with the field-normalized citation impact result for IHI JU funded publications given the small number of papers.

# 4.7 Journals in which IHI JU funded research is most frequently published

IHI JU funded research (63 publications) have been published in 49 distinct journals (Table 4.7.1). All journals from which IHI JU research has been published are in quartile one (Q1) journals – the top 25% of journals in their subject category. Nature Medicine is the highest ranked journal by 2023 impact factor (58.7) to have featured an IHI JU publication.

Table 4.7.1: Summary of journals in which IHI JU project publications appear (ranked by number of publications), 2023-2024\*

Journal	Number of Publications	Number of Papers	Citations per Publication	Journal Impact Factor (2023)	Quartile Rank
The Journal of Prevention of Alzheimer's Disease	4	4	28.75	8.5	Q1
Alzheimer's & Dementia	3	2	25.00	13.1	Q1
The Lancet Diabetes & Endocrinology	2	0	4.50	44	Q1
EBioMedicine	2	2	4.00	9.7	Q1
Alzheimer's Research & Therapy	2	2	1.50	8	Q1
European Journal of Neurology	1	1	88.00	4.5	Q1
Nature Medicine	1	1	77.00	58.7	Q1
Molecular Psychiatry	1	1	72.00	9.6	Q1
JAMA Neurology	1	1	60.00	20.9	Q1
The Lancet Neurology	1	1	44.00	46.6	Q1

<sup>\*</sup>Mean Field-Normalized Citation Impact not calculated due to small publication volumes per journal.

# 4.8 Research fields accounting for the highest volume of IHI JU project publications

The leading five research fields for IHI JU funded research include: Clinical Sciences (34); Neurosciences (13); Biological Psychology (11); Health Services and Systems (7); and Cognitive and Computational Psychology (4). Pharmacology and Pharmaceutical Sciences lead by a measure of citations per publication (35.0), followed by Oncology and Carcinogenesis (13.7) (Table 4.8.1).

Table 4.8.1: Citation indicators of IHI JU funded research across the top 10 research fields (ranked by number of publications), 2023-2024\*

Research field	Number of Publications	Number of Papers	Citations per Publication	Highly cited papers (Top 10% cited)	% Highly cited papers (Top 10% cited)
Clinical Sciences	34	29	7.53	13	44.83%
Neurosciences	13	11	13.46	9	81.82%
Biological Psychology	11	9	9.27	7	77.78%
Health Services and Systems	7	7	5.29	4	57.14%
Cognitive and Computational Psychology	4	4	10.75	4	100.00%
Oncology and Carcinogenesis	3	2	13.67	0	0.00%
Public Health	2	2	8.00	2	100.00%
Allied Health and Rehabilitation Science	2	2	1.00	0	0.00%
Biochemistry and Cell Biology	2	1	1.00	0	0.00%
Pharmacology and Pharmaceutical Sciences	1	1	35.00	1	100.00%

<sup>\*</sup>Publications can be assigned into multiple research fields

# 5 Collaboration profile of IHI JU funded research

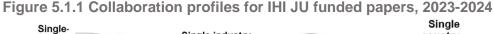
Sections 5.1 to 5.6 of this report showcase the output of IHI JU funded papers by examining their collaboration profile, focusing on collaborations across stakeholder types<sup>7</sup>, industrial sectors<sup>8</sup> and countries. This collaboration profile was assessed by IHI JU project level and contributing sector, stakeholder type and country<sup>9</sup>.

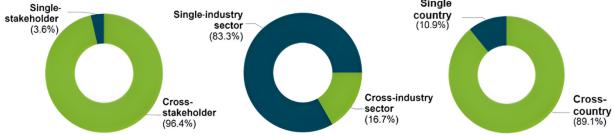
#### Key highlights:

- 96% of IHI JU funded papers are the result of cross-stakeholder collaborative work, driven largely by partnerships between research organizations and healthcare providers.
- Cross-industry sector collaborations only play a marginal role in the production of IHI JU funded papers, accounting for a 17% share.
- IHI JU funded papers having five or more affiliated countries are recording citation rates of more than three times the world average (3.27).
- The United Kingdom and Sweden lead for the number of internationally collaborated IHI JU funded papers. International collaborations involving Spain are currently recording the highest fieldnormalized citation impact (4.1) within the top 10 country-level collaborations.

### 5.1 Collaboration profile of IHI JU funded papers

IHI JU funded papers are the result of collaborative work. Cross-stakeholder collaborations are present in 96% of the published papers and cross-country collaborations in almost 90% (Figure 5.1.1). To date, approximately 17% of papers have a cross-industry collaboration.





<sup>&</sup>lt;sup>7</sup> IHI stakeholders include: Research / higher or secondary education organizations, Healthcare professional organization / Healthcare provider, Small & medium enterprise (SME), Large company (for-profit legal entity), Charities and Foundations, Patient / Citizen organization, Public authority, Non-governmental organizations (NGOs), Health care payers

<sup>&</sup>lt;sup>8</sup> IHI industrial sectors include: Pharmaceutical, Biopharmaceutical, Medical (and digital health) technology, Biotechnology (non-pharma)

<sup>&</sup>lt;sup>9</sup> Publications in Dimensions are indexed with metadata fields based on information supplied by the publisher to the databases directly from the publication. Examples of these fields include research categories or fields, institutions, funder, country and sector or stakeholder. The assignment of metadata fields ensures that publications included in the analysis are directly linked or attributed to these fields for analysis of funder, country, sector/stakeholder comparators. For example, if an IHI JU publication is identified with one author being affiliated to an organization in Sweden, and a second author affiliated to an organization in Australia, this publication would be assigned in the analysis as a cross-country collaboration. However, some publications may not have all metadata fields populated in Dimensions. As a result, a publication with a missing metadata field may not be included for analyses which requires this information. For example, if a publication has no 'sector' metadata information, then this publication will not be included in sectoral analyses.

# 5.2 Collaboration profile of IHI JU funded papers across stakeholder types

IHI JU funded projects exhibit collaboration across stakeholder types. Of all the stakeholders involved thus far, research organizations have contributed the most, co-authoring all 53 (100%) IHI JU funded cross-stakeholder papers to date (Table 5.2.1). High collaboration is also noted by healthcare organizations and providers (94%). There have also been reasonable contributions from small & medium enterprises (19%) and large companies (17%).

Table 5.2.1: Collaboration across stakeholder types for IHI JU funded papers, 2023-2024

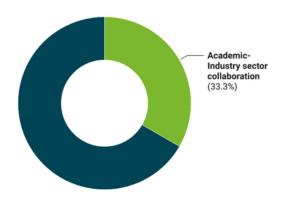
Stakeholder	Number of Cross- Stakeholder Collaborated IHI Papers	% of Cross- Stakeholder Collaborated IHI Papers (n=53)	Mean Field- Normalized Citation Impact
Research / higher or secondary education organizations	53	100.0%	2.35
Healthcare professional organization / Healthcare provider	50	94.3%	2.32
Small & medium enterprise (SME)	10	18.9%	1.19
Large company (for-profit legal entity)	9	17.0%	2.36
Charities and Foundations	7	13.2%	2.34
Patient / citizen organization	3	5.7%	3.38
Public authority	3	5.7%	2.24
Non-governmental organizations (NGOs)	2	3.8%	2.25
Health care payers	1	1.9%	1.73

See Annex 1, Table A1.2 for stakeholder type definitions.

# 5.3 Academic-industrial sector collaboration profile of IHI JU funded papers

An analysis into the collaborations between academia and industry reveals that one third (33.3%) of IHI JU papers consist of co-authorships between institutions in both academia and an industrial sector (Figure 5.3.1).

Figure 5.3.1 Academic-industrial sector collaboration for IHI JU funded papers, 2023-2024



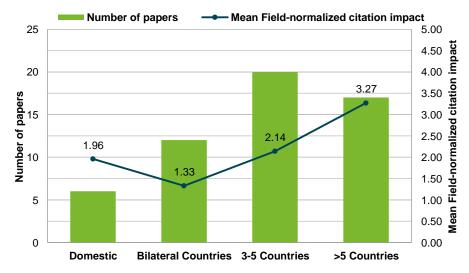
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See Annex 1, Table A1.3 for sector type definitions.

# 5.4 Impact of domestic and international collaboration of IHI JU funded papers

For internationally collaborated papers, a positive relationship exists between the number of countries affiliated with an IHI JU funded research paper and the field-normalized citation impact of that paper, indicating the strength of cross-country research partnerships (Figure 5.4.1). IHI JU funded papers which have five or more affiliated countries have citation rates more than three times the world average (3.27). This citation impact is more than double that of IHI JU funded papers which only feature bilateral collaborators. Interestingly, to date, domestically collaborated papers have recorded a higher citation impact (1.96) than bilateral collaborations (1.33).

Figure 5.4.1: Collaboration citation performance for IHI JU funded papers by number of affiliated countries, 2023–2024

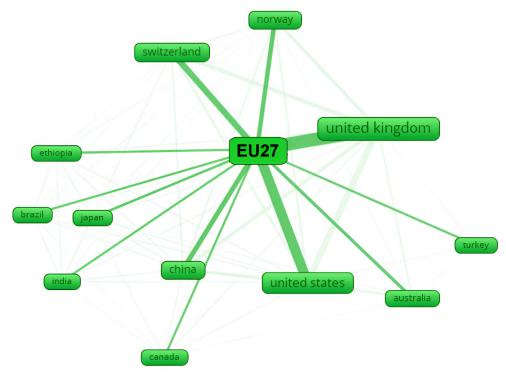


<sup>\*</sup>Caution should be exercised with the field-normalized citation impact result for IHI JU funded publications given the small number of papers.

# 5.5 Collaborations between EU and non-EU countries for IHI JU funded publications

IHI JU projects connect the EU with research hotspots around the world. The United Kingdom (35), United States (25) and Switzerland (13) lead country affiliations from IHI JU funded publications involving collaborations between EU and non-EU countries. China, Norway, Australia, Japan, Turkey, India, and Canada are the other countries to feature in the top ten. Among the top ten non-EU countries, IHI JU funded publications involving collaborations between Turkey and at least one EU country recorded the highest field-normalized citation impact at more than eleven times the world average (11.21), albeit from a very small publication base (n=2). Of the non-EU countries generating at least ten IHI JU funded papers with EU countries, the United States records the highest field-normalized citation impact (3.21). Figure 5.5.1 shows the extent of the collaboration network between EU and non-EU countries for collaborations with at least two publications.

Figure 5.5.1: Collaborations between EU and non-EU countries for IHI JU funded research where there are 2 or more publications, 2023–2024



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See Annex 3, Table A3.2 for a detailed list of the countries collaborating with EU countries ranked by number of publications.

## 5.6 Collaboration profile of IHI JU funded publications across countries

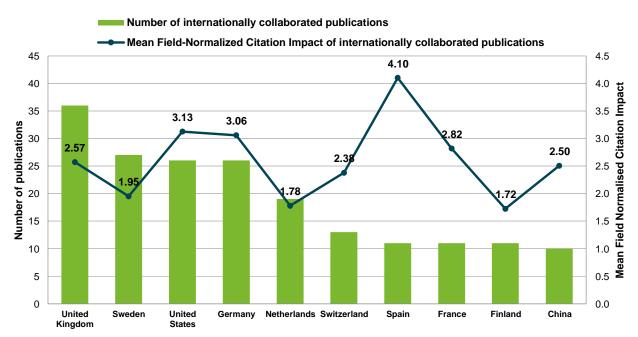
The top five countries contributing to internationally collaborated IHI JU funded publications include: the United Kingdom (36); Sweden (27); United States (26); Germany (26); and the Netherlands (19). Ranking

<sup>\*</sup>The width of the lines indicates the volume of IMI funded research between EU27 and non-EU countries

<sup>\*\*</sup>The data on which this figure is based only includes publications with a DOI

the top ten countries in this landscape by mean field-normalized citation impact shows Spain leading (4.1), followed by the United States (3.13) and Germany (3.06) respectively (Figure 5.6.1).

Figure 5.6.1: Country-level collaborations for IHI JU funded research (ranked by number of publications), 2023–2024



\*Caution should be exercised with the field-normalized citation impact for IHI JU funded publications by country given the small number of papers.

See <u>Annex 3, Table A3.3</u> for the associated data table of countries contributing to internationally collaborated IHI JU funded papers.

See <u>Annex 3</u>, <u>Table A3.4</u> for a list of the top ten city clusters for IHI JU funded research and the volume of international collaboration publications (with a minimum of 5 publications).



# 6 Impact of IMI funded research

Sections 6.1 to 6.9 of this report showcase the impact of IMI funded research publications, dissecting IHI JU funded research by document type and exploring open access publishing trends. The geographical landscape of IMI project publications is then identified, followed by a breakdown of IMI projects that have generated publications. The citation performance of IMI funded research is then benchmarked against selected regions (EU27+UK and the World) and comparative funding programmes (FP7 and Horizon 2020). The section closes with a view of the journals in which IMI publications appear and their associated research disciplines.

#### **Key highlights:**

- IMI2 funded research has been cited at a rate that is twice the global average (2.36), based on comparison with citations for publications with the same document type, year of publication and subject area.
- Approximately 1,500 IMI funded publications were produced per year, on average, in the past five years.
- The United Kingdom drives country-level publishing of IMI funded research, accounting for 43% of the global volume mix.
- EU-AIMS is the leading IMI project by number of affiliated research outputs.
- IMI funded research is cited more than twice as much as the world average (with a normalized citation impact of 2.20) and exceeds the citation impact of research in the EU27+UK by 83%.

## 6.1 Summary analysis for IMI funded research

IMI funded research projects continue to produce a significant number of publications, reaching 14,573 outputs to date. In 2024, IMI projects generated 1,262 publications, and over the past five years, an average of 1,499 publications per year have been produced. IMI2 projects have gathered the highest proportion of highly cited papers at 34.0% (Table 6.1.1).

Table 6.1.1: Summary of citation analysis for IMI supported research papers, 2010-2024

	Number of Publications	Number of Papers	Total Citations of Papers	Raw Citation Impact	Mean Field- Normalized Citation Impact <sup>™</sup>	Mean Journal Normalized Citation Impact	% of Highly Cited Papers	% of Open Access Papers
IMI1	8,002	7,325	483,514	66.01	2.03	1.22	28.3%	77.3%
IMI2	6,574	5,922	201,846	34.08	2.36	1.28	34.0%	93.1%
All IMI*	14,573	13,196	699,943	53.04	2.20	1.25	31.0%	83.8%

<sup>\*484</sup> publications that have been identified as IMI publications do not specify a project in the funding acknowledgements, so these have been labeled as IMI unclassified. Some publications belong to both IMI1 and IMI2.

<sup>\*\*</sup>The mean field-normalized citation impact is calculated by dividing the total citations count by the expected citations count for publications with the same document type, year of publication and subject area. When a publication is assigned to more than one subject area, the harmonic average is used. Values over 1 indicate that publications are cited more than would be expected.

### 6.2 IMI funded research by document type

IMI funded research projects have resulted in 14,573 unique publications. Of these publications, 11,213 were articles (76.9%) and 1,983 were reviews (13.6%) – collectively referred to as 'papers' (Figure 6.2.1). A further 1,377 publications (9.4%) are accounted for by 'other' document types, comprising 448 conference abstracts, 216 letters, 181 research chapters, 137 conference papers, 153 editorials and other journal content, 18 corrections and 14 reference works. There were 210 publications with no document assignment.

article Review Other

Figure 6.2.1: Percentage of IMI funded research publications by document type, 2010–2024

See <u>Annex 4, Figure A4.1</u> for a breakdown of IMI funded research publication share by document type, each year between 2010 and 2024.

#### 6.3 Trends in IMI funded research

The publishing growth of IMI funded research between 2010 and 2024 has been impressive, achieving a 28.0% publication compound annual growth rate (CAGR). As the IMI funding programmes reach maturity, with the IMI2 programme ending in 2020, outputs began to decrease from the 2021 publication peak, falling approximately 25% over the past three years (Figure 6.3.1).

1,800 1.679 1,577 1,548 1,600 1,429 1,400 1,262 1,160 1,202 1,177 1,200 Total publications 1,031 1,000 906 800 606 600 502 400 314 140 200 40

Figure 6.3.1: Number of publications for IMI projects by year, 2010–2024 (total 14,573)

Open access publishing has been strong for IMI funded research, with more than 80% of IMI project publications being free to read (Figure 6.3.2). Avoiding paywalls to view these research outputs is likely to improve the visibility of this research outside of the academic domain.

2016

2017

**Publication year** 

2018

2019

2020

2021

2022

2023

0

2010

2011

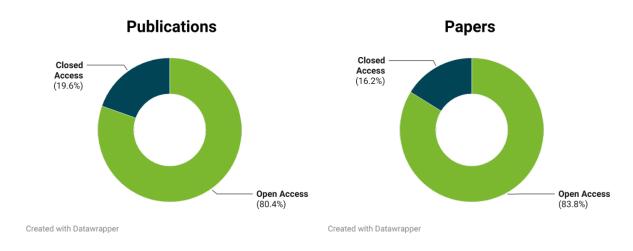
2013

2012

2014

2015

Figure 6.3.2: Share of open access publishing for IMI funded publications and papers<sup>10</sup>, 2010–2024

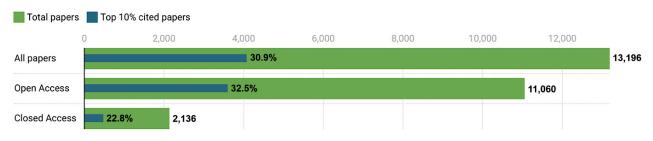


An analysis of IMI funded papers by access type and by top 10% cited papers reveals that the open access papers have a higher proportion of their papers featuring in the top 10% most cited (32.5%) compared to closed access papers (22.8%). This insight highlights the greater impact that is created from publishing via open access (Figure 6.3.3).

Paper: A subset of publications that only includes substantive research 'articles' and 'reviews' that are peer reviewed.

<sup>&</sup>lt;sup>10</sup> Publication: Includes all content types: articles, reviews, conference abstracts, editorials, letters, conference papers, corrections, other journal content and reference work.

Fig. 6.3.3: Number of IMI papers vs Top 10% cited IMI papers, 2010-2024

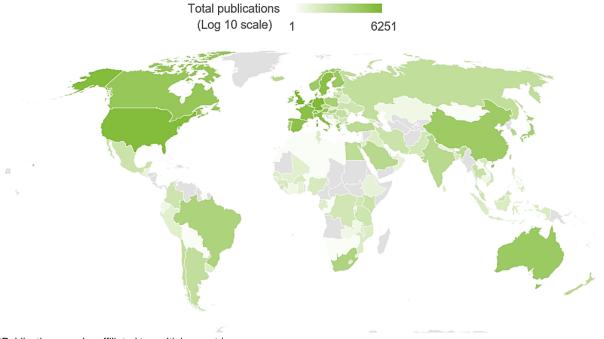


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## 6.4 IMI funded publication output by country

The global reach of IMI's research activities was also analyzed. In total, **133 countries** have at least one paper funded by IMI (Figure 6.4.1) and there are **71 countries** which have 10 or more IMI funded publications (Figure 6.4.2).

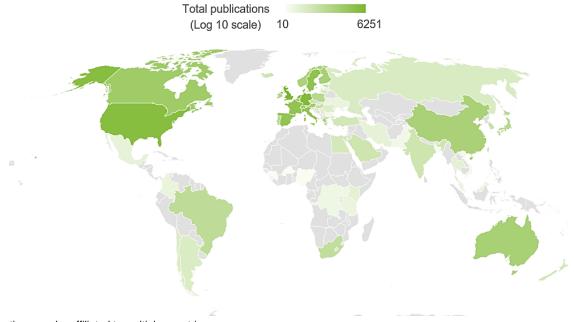
Figure 6.4.1: Map of countries with at least one publication for IMI projects, 2010-2024\*



<sup>\*</sup>Publications can be affiliated to multiple countries

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Figure 6.4.2: Map of countries with at least ten publications for IMI projects, 2010-2024\*



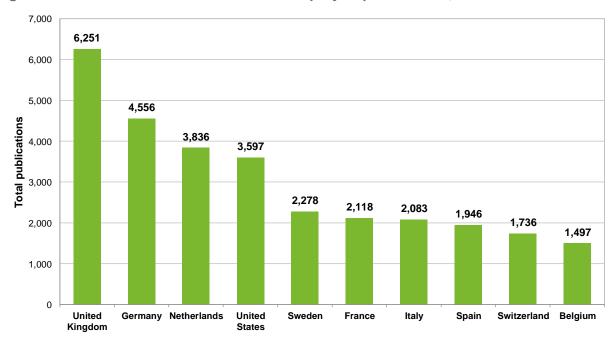
<sup>\*</sup>Publications can be affiliated to multiple countries

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For a full list of countries with at least one IMI project publication between 2010 and 2024, see Annex 4, Table A4.2.

The leading five countries based on publication output include the United Kingdom (6,251), Germany (4,556), the Netherlands (3,836), the United States (3,597) and Sweden (2,278). All countries in the top ten are European with the only exception being the United States (Figure 6.4.3). Other non-European countries that appear in the top 20 include Canada (975), Australia (656) and China (591).

Figure 6.4.3: Ten countries with the most IMI project publications, 2010-2024\*

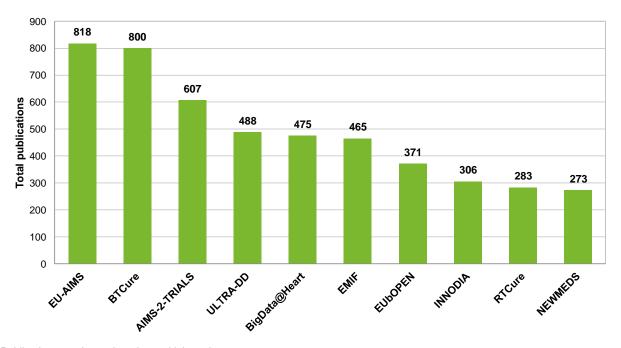


<sup>\*</sup>Publications can be affiliated to multiple countries

### 6.5 IMI funded publication output by project

EU-AIMS is the most productive IMI funded project with 818 publications between 2010 and 2024, closely followed by BTCure with 800 publications (Figure 6.5.1). The top 10 projects account for almost one-third (31.9%) of the total publications.

Figure 6.5.1 Top ten IMI funded projects with the highest number of publications, 2010–2024\*



<sup>\*</sup>Publications can be assigned to multiple projects

EHDEN is the leading project by proportion of papers published via open access (96%), when expanding the analysis to the top 20 IMI projects with the most publications (Table 6.5.1). All other IMI projects listed, except ORBITO (37.8%) and EUROPAIN (47.8%), have more than half of their papers published via open access<sup>11</sup>.

LITMUS moved into the top 20 projects for 2024 and has the highest field-normalized citation impact, with 6.09. Of the top 20 projects, ten have citations that are more than twice the world average when compared with other papers in similar disciplines with the same year of publication. EUROPAIN leads this subset of IMI projects by average citations per publication (112.7), followed by CANCER-ID (102.2) and NEWMEDS (85.7).

<sup>11</sup> It was a requirement for all IMI2 research to be published as open access. The same requirement did not apply for IMI1.

Table 6.5.1: Top 20 IMI projects by publications, open access publishing and impact, 2010–2024

Projects*	Number of Publications	Citations per Publications	Number of Papers	Number of Open Access Papers	% of Open Access Papers	Mean Field- Normalized Citation Impact of publications
EU-AIMS	818	57.25	788	683	86.7%	2.02
BTCure	800	64.09	723	514	71.1%	1.71
AIMS-2-TRIALS	607	34.48	583	554	95.0%	2.52
ULTRA-DD	488	53.92	470	416	88.5%	1.93
BigData@Heart	475	36.81	446	429	96.2%	3.19
EMIF	465	71.32	440	383	87.0%	2.69
EUbOPEN	371	25.02	351	306	87.2%	2.06
INNODIA	306	31.60	279	249	89.2%	1.46
RTCure	283	44.60	241	205	85.1%	2.87
NEWMEDS	273	85.70	261	163	62.5%	2.29
CANCER-ID	246	102.17	204	168	82.4%	2.91
EUROPAIN	223	112.69	205	98	47.8%	3.17
U-BIOPRED	220	43.51	138	105	76.1%	1.91
LITMUS	214	77.14	175	152	86.9%	6.09
STEMBANCC	212	55.05	186	160	86.0%	1.87
BEAT-DKD	204	32.82	190	180	94.7%	1.98
RHAPSODY	198	39.67	188	181	96.3%	1.75
TRANSLOCATION	197	50.95	187	129	69.0%	1.50
EHDEN	193	16.98	167	165	98.8%	1.98
ORBITO	181	45.37	180	68	37.8%	1.33

<sup>\*</sup>Publications can be assigned to multiple projects

For a listing of all IMI funded projects by publications, open access publishing and impact, see Annex 4, Table A4.3.

## 6.6 Citation analysis for IMI funded research

The number of citations a paper receives is at least partly determined by the field to which it relates and the year of publication. Papers published about disciplines such as biomedicine and social sciences typically receive more citations than papers published in engineering, and older publications tend to accumulate higher citation counts than more recent research because they have had more time to accrue them. In this analysis, the field-normalized citation impact is used to allow comparison between years and research fields.

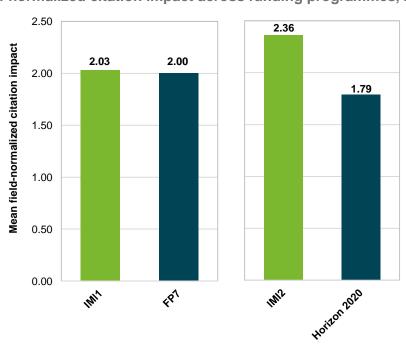
IMI papers had a field-normalized citation impact score more than twice that of the world average (2.20), and 83% greater than the EU27+UK at 1.20 (Figure 6.6.1).

Figure 6.6.1: Field-normalized citation impact for IMI supported research papers compared to the average for EU27+UK and world papers, 2010–2024



Although the total number of publications from IMI projects (IMI1 - 8,002 & IMI2 - 6,574) are considerably smaller than comparative EU funding programmes such as FP7 (343,008) or Horizon 2020 (457,642), the research generated from these projects perform well compared to their counterparts by a measure of field-normalized citation impact (Figure 6.6.2). IMI2 compares favourably to Horizon 2020 against this measure (2.36 vs 1.79). Notably, the field-normalized citation impact increased from 2.03 to 2.36 when transitioning from IMI1 to IMI2. In contrast, a decrease is observed in the citation impact when moving from FP7 to Horizon 2020 funding programmes (2.00 to 1.79).

Figure 6.6.2: Field-normalized citation impact across funding programmes, 2010-2024\*



<sup>\*</sup>Heterogeneity exists in the time periods for which these funding programmes operate; therefore, direct comparisons of publication volumes generated should be approached with caution. The IMI1 programme ran 2008-2013; FP7 2007-2013; IMI2 2014-2020; and Horizon 2020 was 2014-2020

### 6.7 Journals in which IMI funded research is most frequently published

IMI projects have been published in 2,051 journals to date, and the average journal impact factor for IMI funded research is 6.06. In 2024 alone, the average journal impact factor across the 549 journals in which IMI supported research was published was 7.67.

The 20 journals in which IMI project publications appeared most frequently between 2010 and 2024 account for 2,432 (16.7%) of IMI's publications. The leading five journals account for more than 1,000 publications: Annals of the Rheumatic Diseases; Scientific Reports; PLoS ONE; Nature Communications and Frontiers in Immunology (Table 6.7.1).

Eighteen of the top 20 journals for IMI project publications fall into the top quartile by journal impact factor. The Annals of the Rheumatic Diseases leads the top 20 journals publishing IMI project research based on its journal impact factor in 2023 (20.3). However, when citation impacts are normalized by discipline and publication years, the journal Pain achieved the highest mean journal normalized citation impact (2.3). The PAIN journal also leads by a measure of citations per publication (286.4), far ahead of second-ranked Alzheimer's & Dementia (146.3).

Table 6.7.1: Top 20 journals in which IMI project publications appear most frequently, 2010–2024

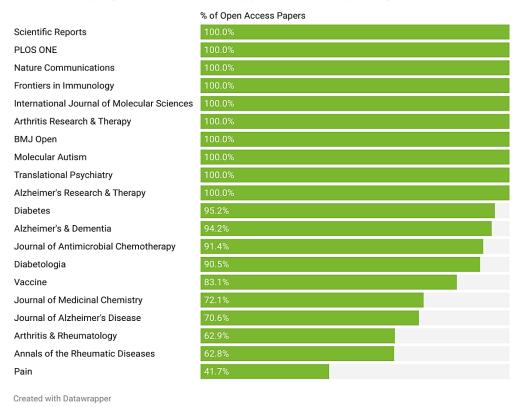
2024						
Journal	Number of Publications	Number of Papers	Citations per Publication	Mean Journal Normalized Citation Impact	Journal Impact Factor (2023)	Quartile Rank
Annals of the Rheumatic Diseases	280	145	60.19	0.95	20.3	Q1
Scientific Reports	263	263	52.92	1.21	3.8	Q1
PLOS ONE	237	235	53.37	1.15	2.9	Q1
Nature Communications	214	212	134.12	1.18	14.7	Q1
Frontiers in Immunology	174	174	35.60	0.83	5.7	Q1
Journal of Medicinal Chemistry	122	122	43.70	1.02	6.9	Q1
Diabetologia	121	116	54.21	0.94	8.4	Q1
Alzheimer's & Dementia	112	86	146.29	1.90	13.1	Q1
International Journal of Molecular Sciences	110	110	47.36	1.06	4.9	Q1
Diabetes	102	62	31.86	0.94	6.2	Q1
Journal of Alzheimer's Disease	86	85	81.49	1.13	3.4	Q2
Arthritis Research & Therapy	80	80	41.65	0.84	4.4	Q1
Arthritis & Rheumatology	72	70	75.85	0.85	11.4	Q1
BMJ Open	68	65	49.84	1.94	2.4	Q1
Pain	67	60	286.37	2.29	5.9	Q1
Vaccine	67	65	51.82	1.42	4.5	Q2
Molecular Autism	66	66	56.50	1.16	6.2	Q1
Translational Psychiatry	65	65	62.08	1.05	5.8	Q1
Journal of Antimicrobial Chemotherapy	63	58	61.84	1.11	3.9	Q1

Alzheimer's Research & Therapy	63	63	56.13	1.07	8	Q1
Потару						

See Annex 4, Table A4.4 detailing the distribution of IMI project publications across top journals by impact factor.

The vast majority of IMI funded research publications across these top 20 journals are published open access (Figure 6.7.1.). In fact, 10 of these top 20 journals published IMI funded research exclusively via open access: Scientific Reports; PLoS ONE; Nature Communications; Frontiers in Immunology; International Journal of Molecular Sciences; Arthritis Research & Therapy; BMJ Open; Molecular Autism; Translational Psychiatry and Alzheimer's Research and Therapy. In fact, only one journal from this subset published less than half of its papers via open access - PAIN, at 41.7%.

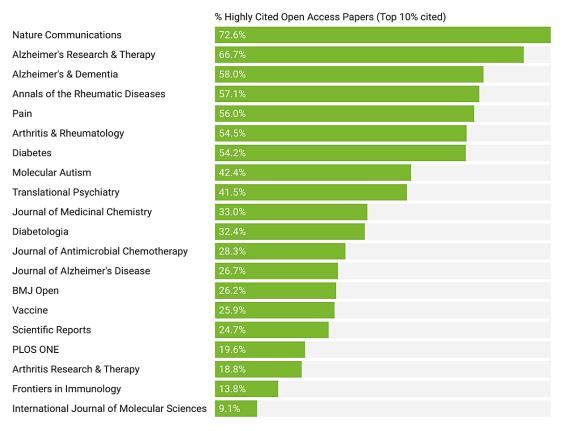
Figure 6.7.1: Proportions of IMI funded papers published open access among the top 20 journals in which IMI project publications appear most frequently, 2010-2024



See Annex 4, Table A4.5 for a breakdown of open access publishing across the top 20 journals.

Open access publishing in Nature Communications and Alzheimer's Research and Therapy lead this subset of journals in a rank of the highest percentage of open access papers which feature in the top 10% highly cited papers for IMI funded research, at 72.6% and 66.7% respectively (Figure 6.7.2).

Figure 6.7.2: Proportions of top 10% cited open access papers published in the top 20 journals in which IMI project publications appear most frequently, 2010-2024

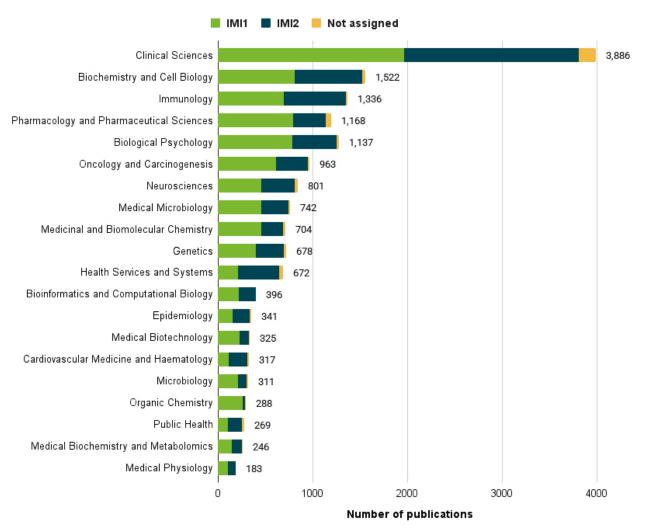


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## 6.8 Research fields accounting for the highest volume of IMI project publications

The leading five research fields for IMI funded research include: Clinical Sciences (3,886); Biochemistry & Cell Biology (1,522); Immunology (1,336); Pharmacology & Pharmaceutical Sciences (1,168) and Biological Psychology (1,137). Combined, these research fields account for more than 9,000 IMI funded publications, which comprises 62% of the 14,573 IMI publications. The data labels below show the total number of IMI project publications across journal categories (Figure 6.8.1).





<sup>\*</sup>Research fields are assigned to publications using a machine learning classification system developed by Dimensions in collaboration with ANZSRC framework based on content and themes. Publications can be assigned to multiple research fields.

Of the top 20 research fields by publication volume for IMI funded research, 11 research fields achieved citation rates more than double the world average for their research field and year of publication. The top 5 research fields by field-normalized citation impact include: Genetics (3.04); Cardiovascular Medicine and Haematology (2.90); Public Health (2.73); Oncology and Carcinogenesis (2.61) and Bioinformatics and Computational Biology (2.60). Almost 50% of IMI papers in Cardiovascular Medicine and Haematology featured in the top 10% most cited (47%) (Table 6.8.1).

Bioinformatics and Computational Biology was the leading research field by average citations per publication (82.7), with all the top 5 journal categories for this measure averaging greater than 55 citations per publication including: Genetics (80.1); Oncology and Carcinogenesis (75.0); Neurosciences (67.3) and Medical Biochemistry and Metabolomics (55.4).

<sup>\*\*</sup>There were 484 publications that were unable to be assigned into either IMI1 or IMI2.

Table 6.8.1: Citation indicators of IMI funded research across the top 20 research fields, 2010-2024\*

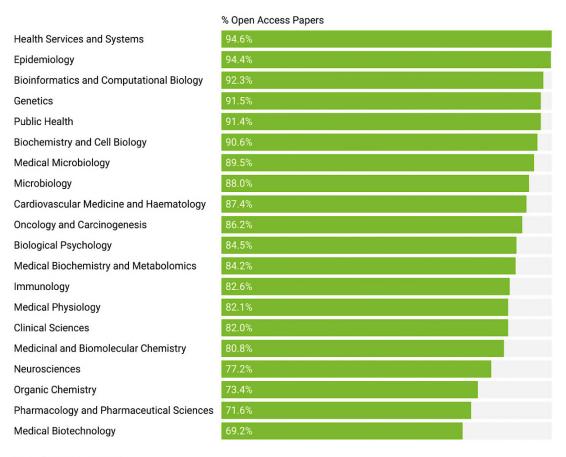
Research Field	Number of Publications	Number of Papers	Citations per Publication	Mean Field- Normalized Citation Impact of Publications	Highly Cited Papers (Top 10% cited)	% Highly Cited Papers (Top 10% cited)
Clinical Sciences	3,886	3,444	51.57	2.57	1,294	37.57%
Biochemistry and Cell Biology	1,522	1,433	52.66	1.75	366	25.54%
Immunology	1,336	1,202	46.61	1.70	297	24.71%
Pharmacology and Pharmaceutical Sciences	1,168	1,083	42.92	1.66	244	22.53%
Biological Psychology	1,137	1,087	49.37	2.06	325	29.90%
Oncology and Carcinogenesis	963	862	74.98	2.61	311	36.08%
Neurosciences	801	734	67.32	2.50	270	36.78%
Medical Microbiology	742	708	54.00	2.18	211	29.80%
Medicinal and Biomolecular Chemistry	704	657	40.63	1.80	148	22.53%
Genetics	678	611	80.11	3.04	154	25.20%
Health Services and Systems	672	611	40.58	2.54	218	35.68%
Bioinformatics and Computational Biology	396	366	82.72	2.60	95	25.96%
Epidemiology	341	322	42.60	1.91	90	27.95%
Medical Biotechnology	325	312	47.40	1.43	55	17.63%
Cardiovascular Medicine and Haematology	317	247	40.14	2.90	116	46.96%
Microbiology	311	301	54.42	1.74	70	23.26%
Organic Chemistry	288	282	34.09	1.23	37	13.12%
Public Health	269	244	53.55	2.73	95	38.93%
Medical Biochemistry and Metabolomics	246	215	55.41	2.37	67	31.16%
Medical Physiology	183	168	40.78	1.87	44	26.19%

<sup>\*</sup>Publications can be assigned into multiple research fields

<sup>\*\*</sup>There were 484 publications that were unable to be assigned into either IMI1 or IMI2.

Sixteen of the top 20 Dimensions research fields have published more than 80% of IMI funded papers via open access. Health Services and Systems is the leading journal category by proportion of IMI papers published via open access, at 94.6% (Figure 6.8.2).

Figure 6.8.2: Proportion of open access papers in the top 20 research fields, 2010-2024

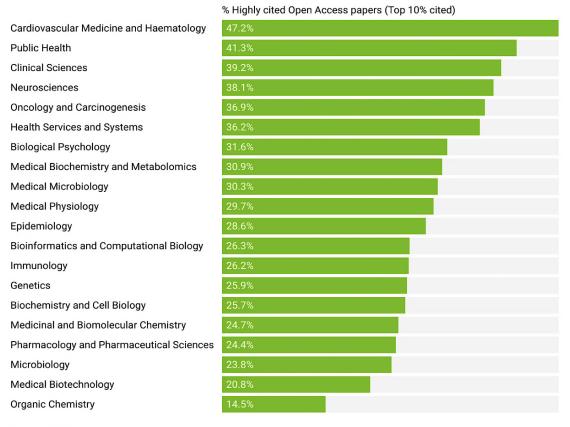


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See Annex 4, Table A4.6 for a breakdown of open access publishing across these top 20 research fields.

Fifteen of the top 20 Dimensions research fields have more than 25% of their published open access papers feature in the top 10% most cited globally. Open access publishing in Cardiovascular Medicine and Haematology (47.2%), Public Health (41.3%) and Clinical Sciences (39.2%) lead this rank (Figure 6.8.3).

Figure 6.8.3: Proportion of top 10% cited open access papers in the top 20 research fields, 2010-2024

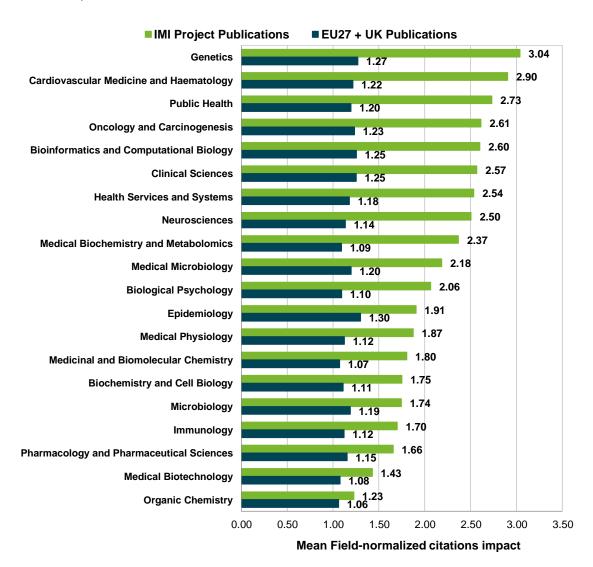


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### 6.9 IMI research fields benchmarked against EU27+UK publications

IMI funded research performed well compared with EU27+UK publications across all top 20 Dimensions research fields when considering the mean field-normalized citation impact (Figure 6.9.1). IMI project publications in 11 of the top 20 research fields achieved citation rates over double the world average of 1.00, including: Genetics (3.04); Cardiovascular Medicine and Haematology (2.90); Public Health (2.73); Oncology and Carcinogenesis (2.61); Bioinformatics and Computational Biology (2.60); Clinical Sciences (2.57); Health Services and Systems (2.54); Neurosciences (2.50); Medical Biochemistry and Metabolomics (2.37); Medical Microbiology (2.18) and Biological Psychology (2.06).

Figure 6.9.1: Benchmarking of IMI funded research with EU27+UK publications in the top 20 research fields, 2010-2024



See <u>Annex 4, Table A4.7</u> for a full comparison of IMI funded research against EU27+UK across these top 20 research fields.

### 7 Collaboration profile and geographical spread of IMI funded research

Sections 7.1 to 7.5 showcase the collaboration and geographical spread of IMI funded papers <sup>12</sup>. The collaboration profile of IMI funded papers is initially examined by sector <sup>13</sup>, institution and country. After this, collaboration is analyzed across sectors, and the relative citation impacts of IMI funded papers for domestic and international collaborations are explored. Finally, country- and city-based collaboration networks of IMI funded papers are examined.

#### Key highlights:

- Most IMI funded papers involve collaboration between sectors (74%), institutions (86%) and countries (65%).
- Collaborations across sectors, institutions and countries are yielding a higher field-normalized citation impact than the IMI average. Papers resulting from these types of collaborations typically record a field-normalized citation impact that is more than double the world average.
- The education (96%) and healthcare (74%) sectors have the greatest share of IMI funded crosssectoral collaborative papers among all sector types.
- A strong positive association exists between the number of countries affiliated on an IMI funded paper and the respective field-normalized citation impact for that paper.
- The United Kingdom is the leading collaborator with EU27 countries for IMI funded papers.
- At a city cluster level, collaborations between Boston + Cambridge (USA) and Berlin have the highest field-normalized citation impact (8.77), almost nine times the world average.

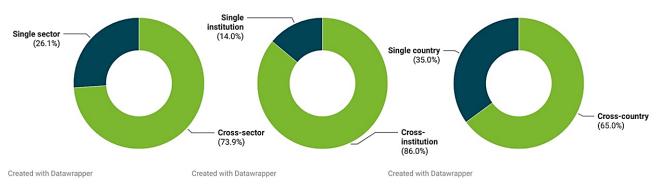
### 7.1 Collaboration profile of IMI funded papers

IMI funded papers continue to demonstrate a large collaborative footprint, characterized by a high proportion of cross-sectoral partnerships (74%) and cross-institution collaborations (86%). Authorship of IMI funded papers also tends to be geographically diverse, with 65% of research papers involving two or more institutions from different countries collaborating on their research (Figure 7.1.1).

<sup>&</sup>lt;sup>12</sup> Publications in Dimensions are indexed with metadata fields based on information supplied by the publisher to the databases directly from the publication. The assignment of metadata fields ensures that publications included in the analysis are directly linked or attributed to these fields for analysis of funder, country, sector/stakeholder comparators. For example, if an IHI JU publication is identified with one author being affiliated to an organization in Sweden, and a second author affiliated to an organization in Australia, this publication would be assigned in the analysis as an international collaboration.

<sup>&</sup>lt;sup>13</sup> IMI sectors include: Education, Healthcare, Company, Government, Other (Facility, Nonprofit, Archive, Other), Unknown

Figure 7.1.1: Collaboration profiles for IMI funded papers, 2010-2024

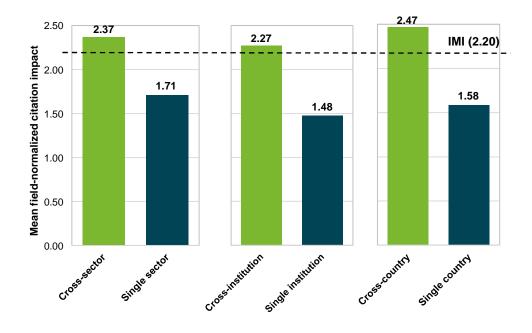


<sup>\*\*</sup>Note, only IMI papers that have sector, institution or country affiliation data available are included in the base numbers for each donut chart.

See <u>Annex 5, Table A5.1</u> for a breakdown of the collaboration profile and associated impact of IMI project papers, 2010-2024.

Collaborations across sectors<sup>14</sup>, institutions and countries have had a positive effect on citation impact scores for IMI funded papers. Papers produced through cross-sectoral, cross-institutional and cross-country collaboration all yield citation impacts above the IMI average for all papers and more than twice the global average (Figure 7.1.2). Papers resulting from international collaborations record a field-normalized citation impact of 2.47, while cross-sector and cross-institution collaborations have citation rates at 2.37 and 2.27 respectively.

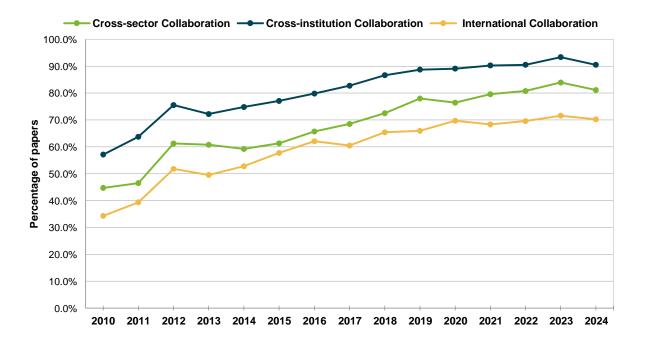
Figure 7.1.2: Citation performance for sectoral, institutional and international collaborations from IMI funded papers, 2010–2024



<sup>&</sup>lt;sup>14</sup> IMI sectors include: Education, Healthcare, Company, Government, Other (Facility, Nonprofit, Archive, Other), Unknown

Over the past decade, IMI funded papers have become increasingly collaborative. The proportion of international collaborations has increased by 35.9% since 2010, while cross-sectoral and cross-institutional collaborations have increased by 36.5% and 33.6%, respectively (Figure 7.1.3). Papers involving cross-institutional collaborations have recorded the highest absolute share of IMI funded papers for any given year, with a 93.4% share in 2023. Modest falls in cross-sector, cross-institutional and international collaborations are noted between 2023 and 2024.

Figure 7.1.3: Yearly trends in cross-sector, cross-institution and international collaborations by percentage share of IMI funded papers, 2010-2024



### 7.2 Collaboration profile of IMI funded papers across sectors

Among IMI funded papers, collaborations across sectors are most prominent for Education (96.0%) and Healthcare (73.5%) (Table 7.2.1). Cross-sectoral collaborations exhibit high field-normalized citation impact rates, with Government papers averaging more than three times the world average (3.1) and all other cross sector collaborations averaging more than twice the world average when compared with papers published in the same year and discipline.

Table 7.2.1: Profile of cross-sector collaborations for IMI funded papers, 2010–2024\*\*

Sector	Number of cross- sector collaborated IMI papers	% of cross-sector papers w.r.t. unique cross-sector collaborated IMI papers (9,754)	Mean Field-Normalized Citation Impact
Education	9,362	96.0%	2.39
Healthcare	7,169	73.5%	2.54
Other (Facility, Non- profit, Archive, Other)	5,478	56.2%	2.64
Company	2,909	29.8%	2.47
Government	1,583	16.2%	3.12

<sup>\*</sup>A single paper may be affiliated to more than two sectors.

<sup>\*\*</sup> Sector and stakeholders are tagged as metadata fields based on information supplied by the publisher to the databases directly from the publication. Each publication is assigned to a sector, and this assignment ensures that all publications included in the analysis can

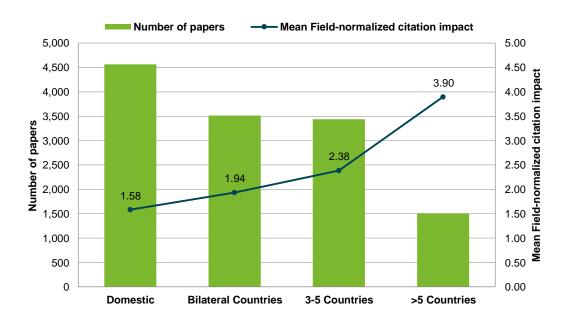
be directly linked to a sector or stakeholder. Some publications may have missing data for this field and these publications are not included in the analysis.

See Annex 1, Table A1.4 for a list of definitions for each sector classification, as defined by Dimensions.

## 7.3 Impact of domestic and international collaboration of IMI funded papers

A positive relationship exists between the number of countries affiliated with an IMI funded research paper and the field-normalized citation impact of that paper, indicating the strength of international collaboration (Figure 7.3.1). IMI funded papers which have five or more affiliated countries have citation rates almost four times the world average (3.90). This citation impact is more than double that of IMI funded papers which only feature domestic collaborators. Bilateral collaborations and those with 3–5 affiliated countries record a higher citation impact than domestic collaborations, at 1.94 and 2.38 respectively.

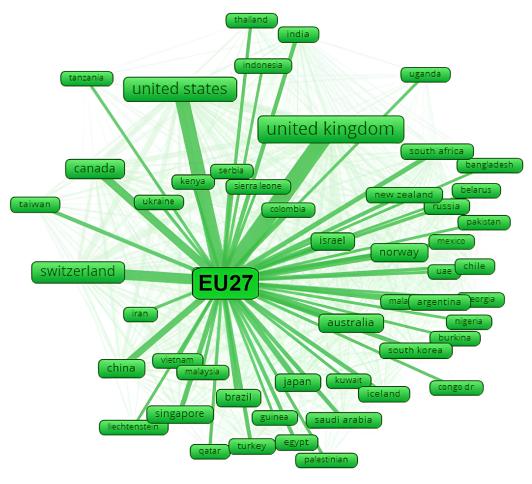
Figure 7.3.1: Collaboration citation performance for IMI funded papers by number of affiliated countries, 2010–2024



## 7.4 Collaborations between EU and non-EU countries for IMI funded publications

IMI projects connect EU with research hotspots around the world. The United Kingdom (4,262), United States (2,988) and Switzerland (1,440) lead non-EU countries collaborating with EU countries on IMI funded publications. Canada, Australia, Norway, China, Japan, Israel and Brazil are the other countries to feature in the top ten. Among the top ten non-EU countries, IMI funded publications involving collaborations between Japan and at least one EU country recorded the highest field-normalized citation impact at more than six times the world average (6.36), followed by China (5.52) and Australia (5.41). Figure 7.4.1 shows the extent of the collaboration network between EU and non-EU countries for collaborations with ten or more publications.

Figure 7.4.1: Collaborations between EU and non-EU countries for IMI funded research where there are 10 or more publications, 2010–2024



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### 7.5 Collaboration networks of IMI funded publications

The top five countries contributing to internationally collaborated<sup>15</sup> IMI funded publications include: the United Kingdom (4,999); Germany (3,569); United States (3,515); the Netherlands (3,191); and Sweden (1,973). Publications from six of the top ten countries with the highest internationally collaborated volume all had mean field-normalized citation impact of at least three times the world average. International collaboration with Italy yielded the highest citation impact (3.40), closely followed by Spain (3.29) (Figure 7.5.1).

<sup>\*</sup>The width of the lines indicates the volume of IMI funded research between EU27 and non-EU countries

<sup>\*\*</sup>The data on which this figure is based only includes publications with a DOI

<sup>&</sup>lt;sup>15</sup> International collaboration refers to a publication that includes affiliations from two or more countries

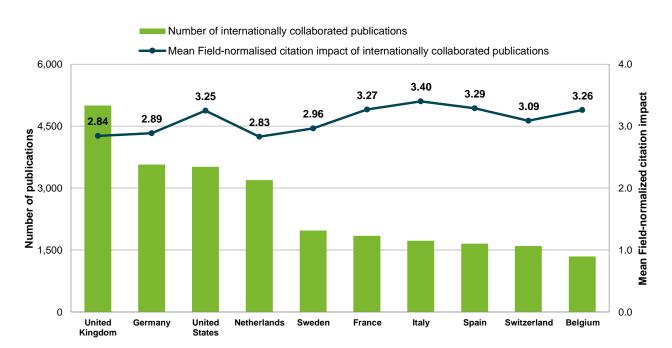


Figure 7.5.1: Internationally collaborative publications for IMI funded research, 2010–2024

The following subsections draw out a detailed collaboration network analysis, starting at a country level for the top five countries outlined above and city pairwise clustering for the top cities in these countries by publication volume which are London (3,303), Stockholm (1,370), Amsterdam (1,234) Berlin (792) and Boston + Cambridge (USA) (725). A city cluster is created by aggregating all IMI funded research from that city.

See <u>Annex 5, Table A5.4</u> for a list of the top city clusters for IMI funded research and the associated volumes of internationally collaborated publications (with a minimum of 100 publications).

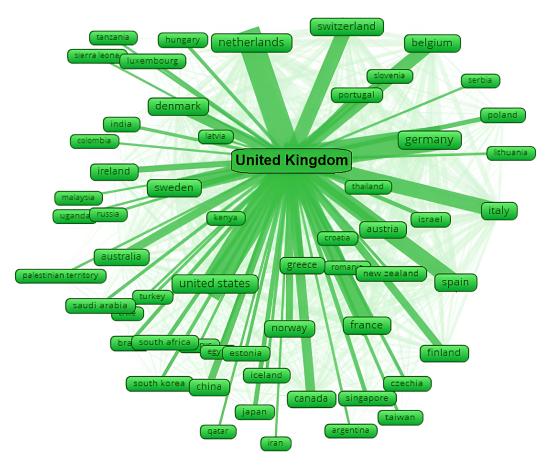
For each city cluster collaboration analysis, a view of the top five organizations based on IMI publication volume are drawn out.

See <u>Annex 5</u>, <u>Table A5.5</u> for a list of the top organizations in each city cluster for IMI funded research (with a minimum of ten publications).

#### **United Kingdom collaboration network**

With the United Kingdom as the leading collaborator publishing IMI funded research with 4,999 publications, a country level collaboration network analysis reveals the United States (2,056), the Netherlands (2,006) Germany (1,937) and Sweden (1,153) to be the top countries collaborating with the United Kingdom, based on the number of publications co-authored with researchers based in UK institutions (Figure 7.5.2). Of all the international partners with a minimum of 50 IMI funded publications produced in collaboration with the United Kingdom, collaborative publications between UK and South Korean institutions garnered the highest field-normalized citation impact (12.5) from 99 publications. Using 50 publications for this analysis ensures greater stability of the normalized citation impact metric.

Figure 7.5.2: Collaborations between the United Kingdom and the rest of the world for IMI funded research where there are ten or more publications, 2010–2024



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#### London city cluster collaboration

London has more than 3,300 internationally collaborated publications attributed to IMI funding and collaborations with 1,200 cities worldwide. Within the top 10 collaborating cities, Cambridge and Oxford feature as domestic collaborators. The remaining eight collaborating cities in the top 10 span across the EU. When considering these top 10 cities, two international collaborations with London – Berlin (5.39) and Paris (5.06) – had the highest field-normalized citation impact, which are more than five times the world average (Figure 7.5.3).

Within the London city cluster, the top five organizations based on publication volume include King's College London (1,347), University College London (966), Imperial College London (827), GlaxoSmithKline (228) and the London School of Hygiene & Tropical Medicine (181).

<sup>\*</sup>The width of the lines indicates the volume of IMI funded research between the United Kingdom and other countries

<sup>\*\*</sup>Note: The data on which this figure is based only includes publications with a DOI

■ Number of collaborated publications —— Mean Field-Normalized Citation Impact of collaborated publications 700 7.0 Mean Field-Normalized Citation Impact 6.0 600 5.39 5.06 Number of publications 4.86 4.71 500 5.0 4.46 4.39 4.38 4.18 3.95 4.0 400 3.35 300 3.0 200 2.0 100 1.0 0 0.0 Cambridge Amsterdam Oxford Stockholm **Paris** Barcelona Utrecht Madrid Milan + Berlin (Germany) (United (Netherlands) (United (Sweden) (France) (Spain) (Netherlands) (Spain) Brescia

Figure 7.5.3: Top city collaborations for IMI funded research from London, 2010–2024

\*Blue columns indicate a domestic city collaboration; green columns indicate an international city cluster

Kingdom)

#### Germany collaboration network

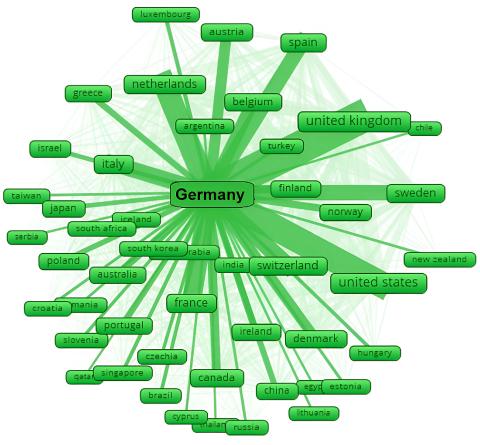
Kingdom)

Germany also displays an extensive collaboration network for IMI funded publications (Figure 7.5.4). The top five countries collaborating with Germany include the United Kingdom (1,937); United States (1,458); the Netherlands (1,208); France (972); and Switzerland (860). Of all the countries collaborating with Germany and considering a minimum of 50 IMI funded publications, collaborations with South Korea (18.88), South Africa (14.95) and Estonia (11.51) have yielded the highest field-normalized citation impact.

(Italy)

See Annex 5, Table A5.8 for a detailed list of the top countries collaborating with Germany ranked by number of publications. Only countries with a minimum of 10 publications are displayed.

Figure 7.5.4: Collaborations between Germany and the rest of the world for IMI funded research where there are ten or more publications, 2010–2024



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#### Berlin city cluster collaboration

Berlin has the most collaboration on IMI publications with London (311). Within the top 10, more than half of the city cluster collaborations for IMI funded research with Berlin are domestic and include Hamburg (211), Mannheim (144), Munich (129), Dresden (125), Heidelberg (113) and Braunschweig (112) (Figure 7.5.5). Among the top 10 cities collaborating with Berlin, publications with Munich had the highest field-normalized citation impact at almost seven times the world average (6.79), followed by Heidelberg (6.70) and Paris (6.66).

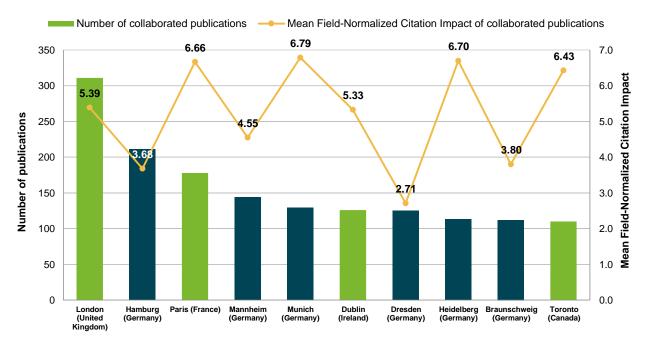
The top five organizations producing IMI funded research include Charité — Berlin University Medicine (412), German Centre for Cardiovascular Research (140), Berlin Institute of Health at Charité — Berlin University Medicine (75), Humboldt University of Berlin (69) and the German Rheumatism Research Centre Berlin (58). The Berlin Institute of Health at Charité — Berlin University Medicine had the highest field-normalized citation impact at almost nine times the world average (8.71), closely followed by Humboldt University of Berlin (8.51).

See Annex 5, Table A5.9 for a list of the top 50 cities collaborating with Berlin, ranked by number of publications.

<sup>\*</sup>The width of the lines indicates the volume of IMI funded research between Germany and other countries

<sup>\*\*</sup>The data on which this figure is based only includes publications with a DOI

Figure 7.5.5: Top city collaborations for IMI funded research from Berlin, 2010-2024



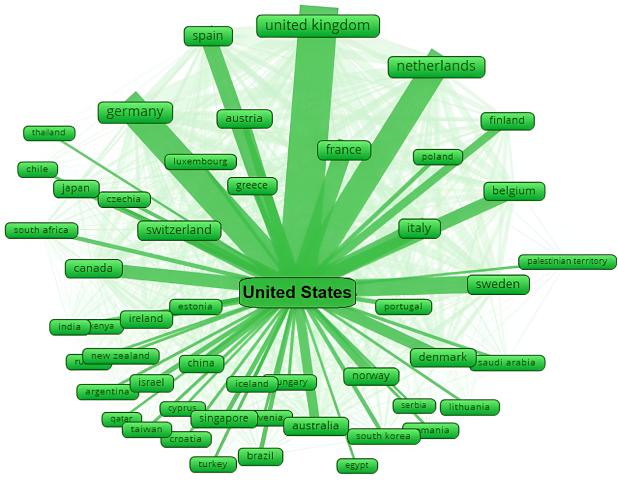
<sup>\*</sup>Blue columns indicate a domestic city collaboration; green columns indicate an international city cluster

#### **United States collaboration network**

When considering a minimum of 10 internationally collaborated publications, the United States has collaborated with 55 other countries on IMI funded research. The top 10 countries collaborating with the United States on IMI funded research are led by the United Kingdom and feature a number of other European countries (Germany, the Netherlands, Sweden, France, Italy, Spain, Switzerland and Belgium). The only non-European country to feature in the top 10 countries with the United States was Canada, which ranked ninth. Among the top ten countries collaborating with the United States, Belgium had the highest field-normalized citation impact, at 5.30 (Figure 7.5.6).

See Annex 5, Table A5.10 for a detailed list of the top countries collaborating with the United States, ranked by number of publications. Only countries with a minimum of ten publications are displayed.

Figure 7.5.6: Collaborations between the United States and the rest of the world for IMI funded research where there are ten or more publications, 2010–2024



<sup>\*</sup>Created with VoSViewer

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#### Boston + Cambridge (USA) city cluster collaboration

International collaborations for IMI funded research dominate the collaboration profile of Boston + Cambridge. In fact nine of the top 10 cities collaborating with Boston + Cambridge are located in Europe. Domestically, Boston + Cambridge (USA) collaborates the most on IMI funded publications with New York (148) and yielded a field-normalized citation impact of 6.49. However, collaborations between Boston + Cambridge (USA) and Berlin generated the highest field-normalized citation impact (8.77), followed by Amsterdam (7.09) and Utrecht (7.06) (Figure 7.5.7).

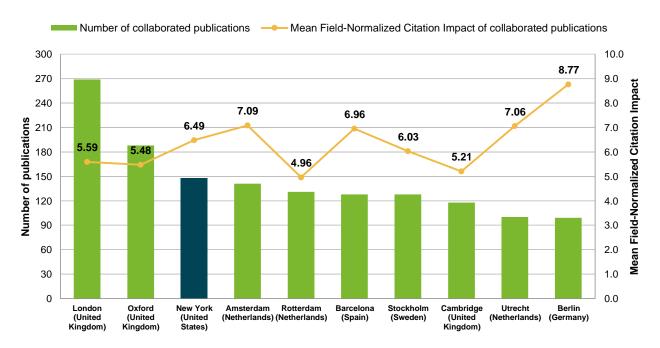
In Boston, the top five research organizations by publication volume include Harvard University (449), Massachusetts General Hospital (208), the Broad Institute (136), Brigham and Women's Hospital (114) and Boston University (91)

See Annex 5, Table A5.11 for a list of the top 50 cities collaborating with Boston, ranked by number of publications.

<sup>\*</sup>The width of the lines indicates the volume of IMI funded research between the United States and other countries

<sup>\*\*</sup>The data on which this figure is based only includes publications with a DOI

Figure 7.5.7: Top city collaborations for IMI funded research from Boston + Cambridge, 2010–2024



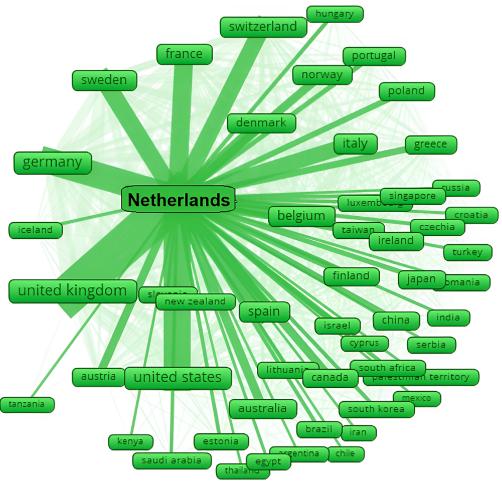
<sup>\*</sup>Blue columns indicate a domestic city collaboration; green columns indicate an international city cluster

#### The Netherlands collaboration network

When considering a minimum of 10 internationally collaborated publications, the Netherlands has collaborated with 52 other countries on IMI funded research. In their top ten collaboration network, the United Kingdom, the United States and Switzerland are the only countries outside the EU (Figure 7.5.8). Among collaborating countries with 50 or more IMI publications, South Korea (15.58), South Africa (13.43), Portugal (11.54) and Singapore (10.00) all yielded field-normalized citation impacts of at least 10 times the world average.

See Annex 5, Table A5.12 for a detailed list of the top countries collaborating with the Netherlands, ranked by number of publications. Only countries with a minimum of ten publications are displayed.

Figure 7.5.8: Collaborations between the Netherlands and the rest of the world for IMI funded research where there are ten or more publications, 2010–2024



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#### Amsterdam city cluster collaboration

The Amsterdam city cluster collaborated with London on 582 publications, almost 300 papers more than Stockholm (284), which ranks second. In fact, Amsterdam's international collaborations are dominated by partnerships across Europe including other cities such as Barcelona (249), Oxford (216), Madrid (174), Milan + Brescia (172) and Copenhagen (165) (Figure 7.5.9). Among the top 10 city collaborations, IMI funded research between Amsterdam and Milan + Brescia yielded the highest field-normalized citation impact (7.99). Amsterdam is like Berlin in that it has a strong domestic collaboration profile for IMI funded research, with collaborations in the top 10 including Maastricht (273), Utrecht (234) and Leiden (219).

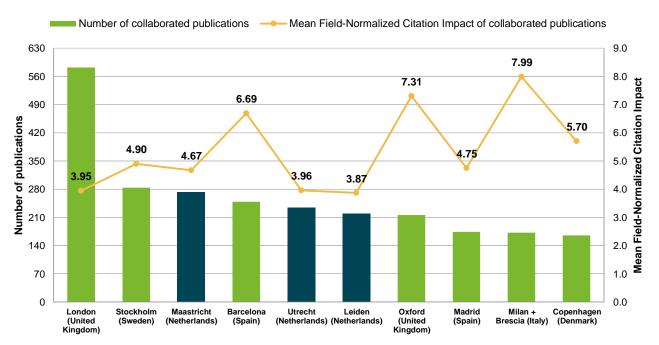
The leading organizations for IMI funded publications in the Amsterdam cluster include Vrije Universiteit Amsterdam (354), VU University Medical Centre (352), University of Amsterdam (286), Amsterdam Neuroscience (277) and the Academic Medical Centers (159).

See Annex 5, Table A5.13 for a list of the top 50 cities collaborating with Amsterdam ranked by number of publications.

<sup>\*</sup>The width of the lines indicate the volume of IMI funded research between the Netherlands and other countries

 $<sup>\</sup>ensuremath{^{**}}\xspace$  The data on which this figure is based only includes publications with a DOI

Figure 7.5.9: Top city collaborations for IMI funded research from Amsterdam, 2010–2024



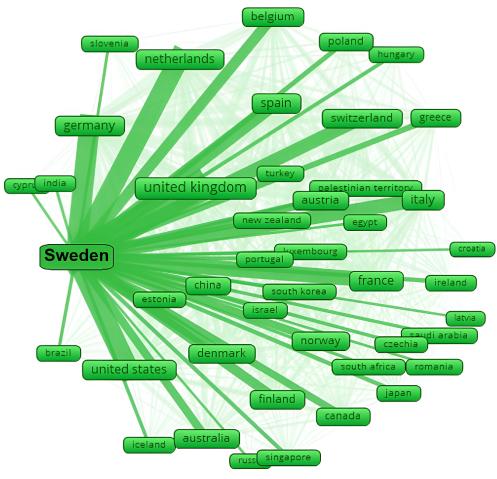
<sup>\*</sup>Blue columns indicate a domestic city collaboration; green columns indicate an international city cluster

#### Sweden collaboration network

Much like the countries noted above, the top ten collaborating countries working with Sweden on IMI funded research are dominated by EU countries — Germany, the Netherlands, France, Italy, Spain, Denmark and Belgium — with the United Kingdom, the United States and Switzerland rounding out this leading group (Figure 7.5.10). Among this subset of countries collaborating with Sweden, collaborations with Switzerland (4.79) and Denmark (4.35) have the highest field-normalized citation impact.

See Annex 5, Table A5.14 for a detailed list of the top countries collaborating with Sweden ranked by number of publications. Only countries with a minimum of 10 publications are displayed.

Figure 7.5.10: Collaborations between Sweden and the rest of the world for IMI funded research where there are ten or more publications, 2010–2024



<sup>\*</sup>Created with VoSViewer

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#### Stockholm city cluster collaboration

The Stockholm city cluster has the most collaborations with London (465) and eight of the top ten city collaborations are international. Uppsala (278) and Molndal + Gothenburg (141) comprise the domestic collaborators in the top ten (Figure 7.5.11). Collaborations between Stockholm and Paris (6.58) and Oxford (6.18) have the highest field-normalized citation impact.

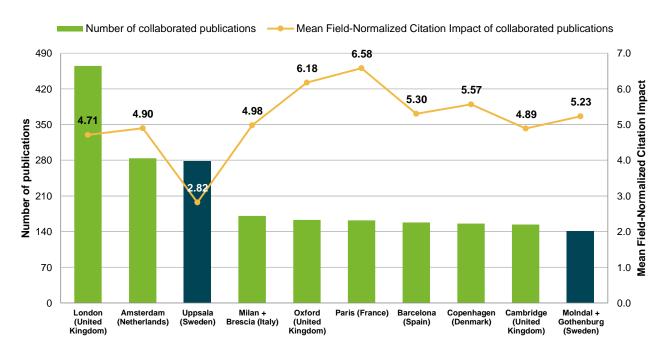
Karolinska Institute (1,137), Karolinska University Hospital (423), KTH Royal Institute of Technology (103), Stockholm Regional Council (83) and Stockholm University (77) are the leading organizations within the Stockholm cluster for IMI funded research.

See Annex 5, Table A5.15 for a list of the top 50 cities collaborating with Stockholm ranked by number of publications.

<sup>\*</sup>The width of the lines indicates the volume of IMI funded research between Sweden and other countries

<sup>\*\*</sup>The data on which this figure is based only includes publications with a DOI

Figure 7.5.11: Top city collaborations for IMI funded research from Stockholm, 2010–2024



<sup>\*</sup>Blue columns indicate a domestic city collaboration; green columns indicate an international city cluster

# 8 Benchmarking analysis comparing IMI funded research with ten international research funders

Section 8.1 to 8.6 compares IMI funded research with the research generated from a selection of ten international research funders and the European Research Council (ERC). This benchmarking exercise starts with a comparison of publication output and publishing trends over time before using a series of indicators to measure citation impact. These indicators include field-normalized citation impact and the proportions of papers that are highly cited. The section concludes with a comparative analysis of open access publishing.

#### Key highlights:

- IMI research papers rank third when comparing the field-normalized citation impact (2.20) across ten international research funders, only trailing the Medical Research Council (2.31) and the Wellcome Trust (2.30).
- IMI research papers rank first based on their share of highly cited papers, which account for almost one third (31.0%) of papers in the top 10% most cited in the world.
- In 2024, 5.6% of IMI funded research papers are noted in the top 1% highly cited and 30.9% of papers in the top 10% highly cited.
- IMI ranks third among the comparator funders for open access publishing (83.8%), with 4 of the 10 selected comparator funders publishing more than 80% of papers via open access.

## 8.1 Summary of bibliometric indicators comparing IMI funded research with selected comparators

Although IMI has only been funding research for slightly more than a decade, its performance compares well with established funders who have been active for much longer. This is evident in the summary of bibliometric indicators, where IMI is compared against ten international health research funders which have been used to benchmark research supported by IMI (Table 8.1.1). These comparators span multiple regions of the world, including Europe, North America, and the Asia–Pacific region.

Table 8.1.1: Summary of bibliometric indicators comparing IMI funded research against ten selected comparators, 2010–2024

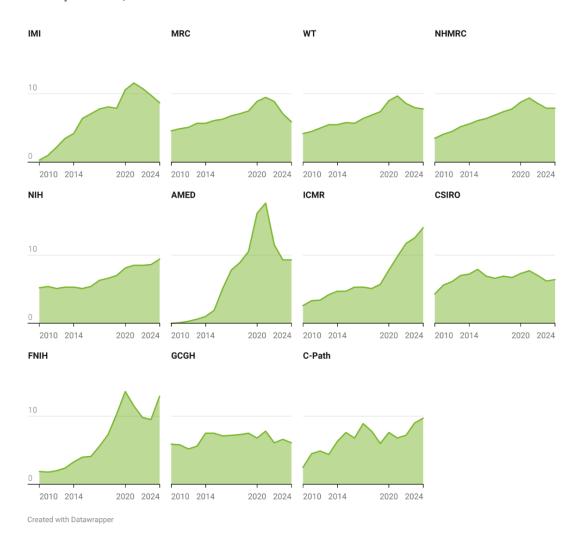
Comparator	Country	Region	Number of Publications	Number of Papers	Mean Field- Normalized citation impact of Publications	% of Highly Cited Papers	% of Open Access Papers
Innovative Medicines Initiative (IMI)	Belgium	Europe	14,573	13,196	2.20	31.0%	83.8%
Medical Research Council (MRC)	United Kingdom	Europe	220,410	197,342	2.31	29.1%	87.4%

Wellcome Trust (WT)	United Kingdom	Europe	166,657	155,426	2.30	29.2%	92.4%
National Health and Medical Research Council (NHMRC)	Australia	Australia	110,746	103,784	1.79	23.5%	70.0%
National Institutes of Health (NIH)	United States	North America	94,735	80,000	1.78	24.2%	83.2%
Japan Agency for Medical Research and Development (AMED)	Japan	Asia	54,280	50,503	1.36	17.4%	73.3%
Indian Council of Medical Research (ICMR)	India	Asia	29,522	27,710	0.96	12.0%	47.6%
Commonwealth Scientific and Industrial Research Organization (CSIRO)	Australia	Australia	25,188	23,348	1.58	22.1%	53.9%
Foundation for the National Institutes of Health (FNIH)	United States	North America	10,057	9,530	1.91	28.6%	83.2%
Grand Challenges in Global Health (GCGH)	United States	North America	2,590	2,411	1.84	23.1%	79.6%
Critical Path Institute (C-Path)	United States	North America	834	752	1.52	17.8%	66.0%

## 8.2 Trends in research output comparing IMI funded research with selected comparators

The contribution of IMI funded research to the total number of papers supported across the ten comparators included in the benchmarking analysis has grown over the 2010–2024 (Figure 8.2.1). Although IMI funded research contributed only 0.15% of total papers among the comparator set, between 2010 and 2024 IMI funded research has a compound annual growth rate (CAGR) of 27.6%. The Japan Agency for Medical Research and Development (AMED) is the only comparator with a higher CAGR for that period at 57.7%. With a CAGR of 12.8%, the Indian Council of Medical Research (ICMR) places third.

Figure 8.2.1: Trends in share of paper volume comparing IMI funded research against ten selected comparators, 2010–2024

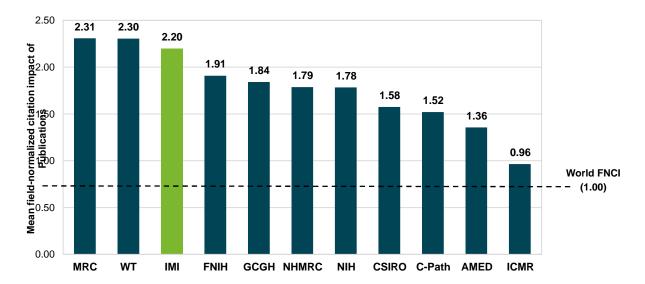


See Annex 6, Table A6.1 for a breakdown of the total number of papers for IMI compared with the selected comparators in this analysis for every year between 2010 and 2024.

## 8.3 Field-normalized citation impact comparing IMI funded research with selected comparators

A comparison of the total volume of publications between 2010 and 2024 for IMI funded research (13,196) against that of the ten comparators indicates that IMI ranks eighth for total volume. The MRC (197,358), the WT (155,458) and the NHMRC (103,786) have close to 15 times, 12 times and 8 times the volume of funded publications, respectively. Figure 8.3.1 shows that although IMI funded research has not been produced at the same volume as some of the comparators, the field-normalized citation impact for IMI funded publications sits third at 2.20, narrowly behind the MRC (2.31) and WT (2.30).

Figure 8.3.1: Mean field-normalized citation impact for IMI funded research compared with the ten selected comparators, 2010–2024

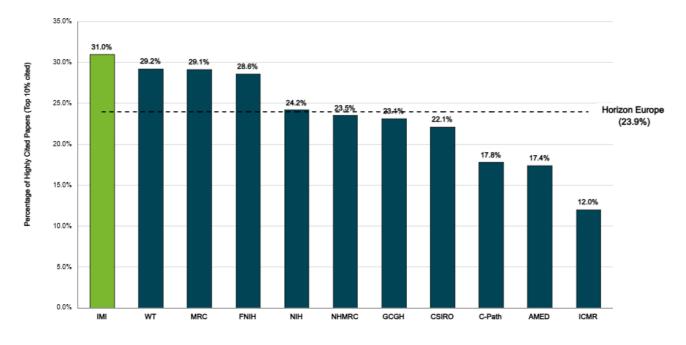


See Annex 6, Table A6.2 for a breakdown of the field-normalized citation impact for IMI compared with the selected comparators in this analysis, for each year between 2010 and 2024.

## 8.4 Highly cited research (top 10%) comparing IMI funded research with selected comparators

IMI ranks first among the comparator set for highly cited papers. Almost one-third (31.0%) of all IMI funded research papers between 2010 and 2024 are in the top 10% most cited paper globally in their research field (Figure 8.4.1). WT (29.2%), the MRC (29.1%), the FNIH (28.6%) and the NIH (24.2%) round out the top five.

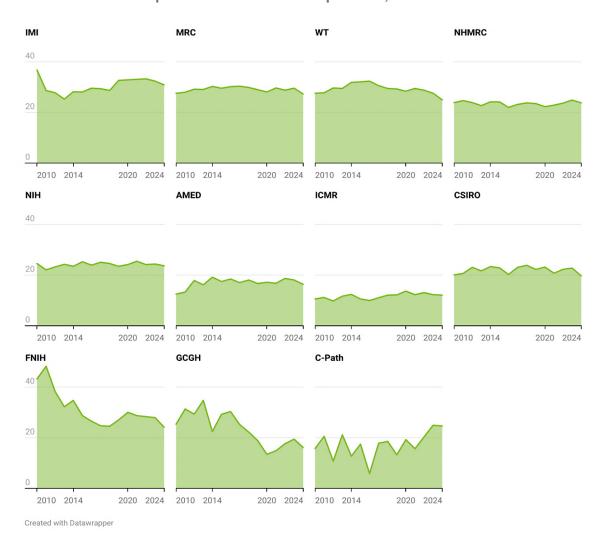
Figure 8.4.1: Percentage of highly cited papers – IMI funded research compared with selected comparators<sup>16</sup>, 2010–2024



<sup>&</sup>lt;sup>16</sup> Horizon Europe has been included in this benchmark analysis as a funding program rather than as a funding organisation

Since 2019, IMI has ranked first among the ten selected comparators for its share of highly cited papers per year, with the yearly share of papers that are highly cited peaking in 2022 at 33.3% (Figure 8.4.2). Sitting in second and third, Wellcome Trust (WT) and MRC each have had individual years in which they were ranked first for share of highly cited papers prior to 2019.

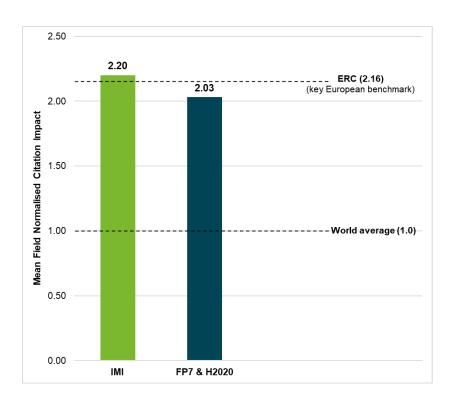
Figure 8.4.2: Trends in share of highly cited papers from total number of papers per year — IMI funded research compared with selected comparators, 2010–2024



See Annex 6, Table A6.3 for a breakdown of the percentage of highly cited papers (top 10%) from the total number of papers published for each year between 2010 and 2024, comparing IMI with the ten selected comparators in this analysis.

With a mean field-normalized citation impact of 2.20, IMI compares well to the ERC (2.16) and the combined result for the funding programmes FP7 and H2020 (2.03) (Figure 8.4.3).

Figure 8.4.3 Mean field-normalized citation impact for IMI funded research benchmarked with the European Research Council and European funding programmes, 2010-2024

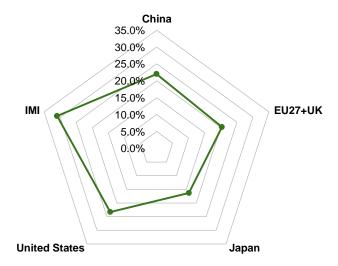


## 8.5 Highly cited research (top 1% & 10%) comparing IMI funded research with selected regions

Almost one-third (31.0%) of all IMI funded research papers between 2010 and 2024 are featured in the top 10% most cited papers globally in their research field. IMI ranks first among the selected comparator regions by this measure, followed by the United States with 23.3% and China with 22.0% highly cited papers (Figure 8.5.1)<sup>17</sup>.

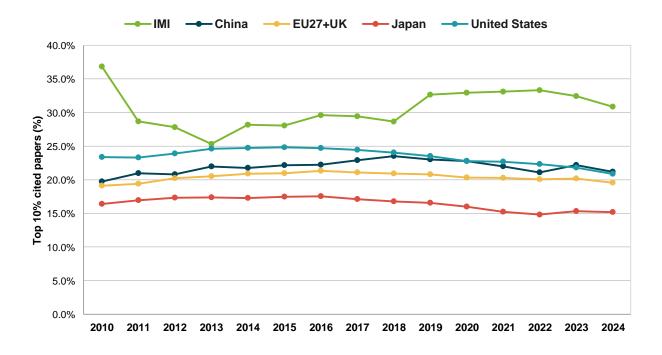
<sup>&</sup>lt;sup>17</sup> Data criteria: To compare against the selected comparator regions for highly cited papers (top 1% and 10% most cited), only articles and reviews published in journals housing IMI or IHI papers have been included.

Figure 8.5.1: Percentage of highly cited (top 10%) papers – IMI funded research compared with selected comparators regions, 2010–2024



IMI ranked first among the selected comparator regions based on the share of its funded research papers featuring in the top 10% most cited papers globally in their research field throughout the analyzed period (Figure 8.5.2). In 2022, 33.3% of IMI funded papers were in the top 10% highly cited papers.

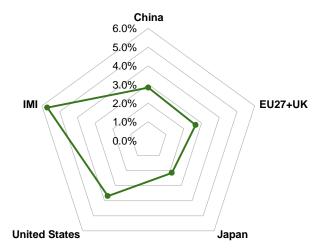
Figure 8.5.2: Trends in share of highly cited (top 10%) papers from total number of papers per year — IMI funded research compared with selected comparators regions, 2010–2024



See Annex 6, Table A6.4 for a breakdown of the percentage of highly cited papers (top 10%) from the total number of papers published for each year between 2010 and 2024, comparing IMI with the selected comparator regions in this analysis.

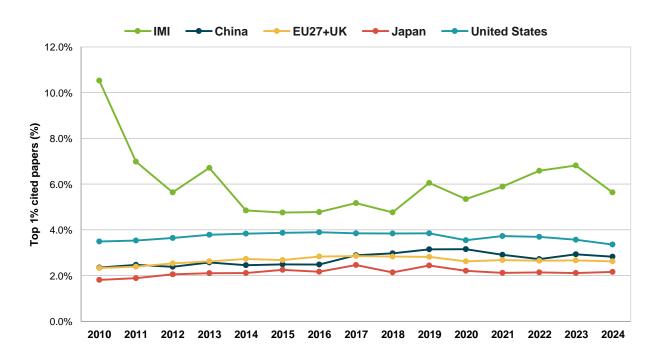
Of all IMI funded research papers published between 2010 and 2024, 5.6% are featured in the top 1% most cited papers globally in their research field (Figure 8.5.3). IMI ranks first among the selected comparator regions by this measure, followed by the United States with 3.7% and China with 2.8% highly cited papers (top 1%).

Figure 8.5.3: Percentage of highly cited (top 1%) papers – IMI funded research compared with selected comparators regions, 2010–2024



IMI consistently ranks first among the selected comparator regions based on the share of its funded research papers featuring in the top 1% most cited papers globally in their research field across the analyzed period (Figure 8.5.4). Over the past 5 years, the highest proportion of IMI funded research papers appearing in the top 1% highly cited occurred in 2023, at 6.8%. Of note, the relatively small sample size of IMI funded papers published in 2010 can be interpreted as an outlier in this trend analysis.

Figure 8.5.4: Trends in share of highly cited (top 1%) papers from total number of papers per year — IMI funded research compared with selected comparators regions, 2010–2024

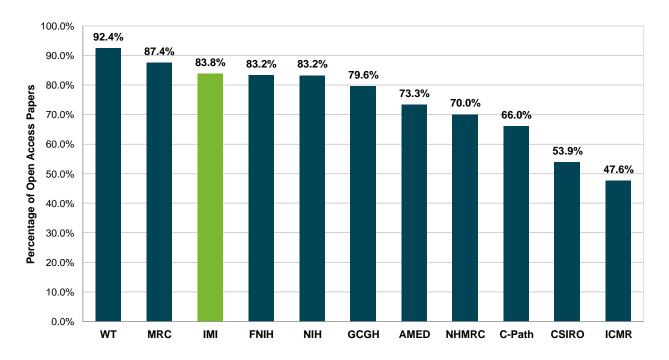


See Annex 6, Table A6.5 for a breakdown of the percentage of highly cited papers (top 1%) from the total number of papers published for each year between 2010 and 2024, comparing IMI with the selected comparator regions in this analysis.

## 8.6 Trends on open access publishing comparing IMI funded research with selected comparators

Research funded by the WT leads by proportion of open access publishing at 92.4% for papers published between 2010 and 2024 (Figure 8.6.1). For four of the ten comparative funders, more than 80% of their respective funded research papers are published via open access — WT, MRC, FNIH and NIH. IMI funded research ranks third in open access publishing against the comparator set, at 83.8%.

Figure 8.6.1: Total percentage of open access papers – IMI research compared with selected comparators, 2010–2024



See Annex 6, Table A6.6 for a breakdown of the percentages of open access papers from the total number of papers published for each year between 2010 and 2024, comparing IMI with the ten selected comparators in this analysis.



### **Annex 1: Data limitations and glossary**

#### **Data limitations**

Bibliometric and citation analysis originated in the 1950s<sup>18</sup>. Since then, citation analysis has been used as a proxy to measure the impact and quality of research. Citation analysis is based on researchers referencing or 'citing' other academic literature that is relevant to their own work and builds on the scientific literature in that field or discipline.

While citation analysis should be considered a valuable indicator of research quality and impact, there are limitations that are important to be aware of when assessing bibliometrics. These include:

- Database used: There is no database which captures all scientific literature<sup>19</sup>
- **Subject field**: Citation rates vary between disciplines and this can affect results, for example medicine research is cited far more than economics.<sup>20</sup>
- Type of publication Among the varying publication types, some, such as reviews, are cited far more frequently than others.<sup>21</sup>
- Publication date: Older papers will inherently have more citations than papers published more recently
- **Citation distribution:** Some publications are very highly cited, and many get cited rarely or never.<sup>22</sup> Very highly cited research is often a recognition of the significance of that research to the field.
- Research volume: The number of publications and papers produced from funded research is a measure
  of productivity, however, small sample sizes of papers can have significant effects on citation and fieldnormalized citation analysis. The addition of a small subset of highly cited publications can lead to
  substantial changes in impact indicators.
- **Subject categorization**: There are multiple methods to classify research output into different fields, such as journal classification and fields of research classification. Assignment of a complete journal to a classification field assumes that the content of every article in the journal is aligned to that research field.<sup>23</sup>
- **Using one indicator in isolation**: Each indicator has its own set of limitations, for example an output volume provides a measure of productivity but no indication of quality or impact.

All things considered, citation analysis is a valuable tool to support research evaluations and should ideally be coupled with some form of qualitative assessment or expert review of the research. This is in line with the recommendations of the San Francisco Declaration on Research Assessment.<sup>24</sup>

The limitations outlined above can be minimized by using large datasets of literature, the application of normalized metrics, such as the field-normalized citation impact, and the use of multiple metrics together to diminish the effect of using any one metric in isolation.

<sup>18</sup> Garfield, E. Citation Indexes for Science - New dimension in documentation through association of ideas. Science 122, 108-1-11.(1995)

<sup>&</sup>lt;sup>19</sup> Agarwal A, et al. Bibliometrics: tracking research impact by selecting the appropriate metrics. Asian J Androl. 18, 296–309. (2016).

<sup>&</sup>lt;sup>20</sup> Dorta-González, P., Dorta-González, M. Citation differences across research funding and access modalities. JAL 49, 4. 102734 (2023).

<sup>&</sup>lt;sup>21</sup> Miranda R., Garcia-Carpintero E. Overcitation and overrepresentation of review papers in the most cited papers. *J Infometrics*. 12, 4 (2018).

<sup>&</sup>lt;sup>22</sup> Jamjoom HZ, Gahtani AY, Jamjoom AB. Predictors of citation rates for research publications in Neurosciences. *Neurosciences (Riyadh)*. **27**, 2 (2022).

<sup>&</sup>lt;sup>23</sup> Shu, F, et al. Comparing journal and paper level classifications of science. J Infometrics. 13, 1 (2019).

<sup>&</sup>lt;sup>24</sup> San Francisco Declaration on Research Assessment <a href="https://sfdora.org/read/">https://sfdora.org/read/</a>

For this bibliometric assessment, Nature Research Intelligence has employed a multifaceted approach to creating the dataset used for the analysis. All avenues have been exhausted to ensure that the recall and precision of the dataset is optimal. It is difficult to judge how many publications that should be attributed to IMI or IHI JU projects have not been captured. Nature Research Intelligence does not consider this to have had any effect on the overall results or trends noted in the report.

Some slight variations in year-on-year publication numbers are noted from the previous annual bibliometric reports, which results from academic publishers altering the publication date and this information feeding into Web of Science. These changes are minimal and have no effect on the overall identified trends.

This report is designed to be a bibliometric report and does not provide context on the societal impact of the research used in the dataset. There is a growing drive for research to be linked with its broader impact on communities and such research which has had positive effects is considered of high value. Broader impacts are often part of funding agencies' review criteria for research grants.<sup>25</sup> Societal impact is difficult to attribute using citation counts as citations are mostly used for measuring academic impact. Citations have high importance to reflect intra-scientific use, however, the application of the research is far less likely to be captured by citation counts in such journals<sup>26</sup>.

#### **Glossary**

Table A1.1 Data and metrics glossary

Data and metric	Definition <sup>27</sup>		
Publication type	Classification of the content, for example article, review, conference abstract, letter to editor, research chapter, conference paper, editorial, other journal content, correction erratum, reference work		
Research area	Research areas constitute a subject categorization scheme. As a result, you can identify, retrieve and analyze documents about the same subject.		
Institution assignment  A publication is assigned to each institution whose address appears at least once for any author An institution assignment can only be counted once for each paper so if two Harvard University researchers appear in a publication, the publication is counted only once for Harvard University We have applied no weighting or fractionalized 'share' for an institution.			
Country assignment	A publication is assigned to each country whose address appears at least once for any author. Country assignment can only be counted once for each paper, so if two researchers from Belgium appear on a publication, the publication is counted only once for Belgium. We have applied no weighting or fractionalized 'share' for a country.		
Publications  Includes all content types: Article, Review, Conference Abstract, Letter to Editor, Research Chapter, Conference Paper, Editorial, Other Journal Content, Correction Erratum, Reference Paper, Editorial, Other Editorial			
Paper	A subset of publications that only includes substantive research 'Article' and 'Review' that are peer reviewed.		
Article	Literature which reports research on original works. Includes research papers, features, brief communications, case reports, technical notes, chronology, and full papers that were published in a journal and/or presented at a symposium or conference.		
Review	A study of previously published literature. Includes review articles and surveys. It usually does not present any new information on a subject.		
Open access	Open access (OA) refers to the free, immediate, online availability of research outputs such as journal articles or books, combined with the rights to use these outputs fully in the digital environment. OA content is open to all and has no access fees.		
Citation	When a publication appears in the reference list of another publication.		

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<sup>&</sup>lt;sup>25</sup> Langfeldt L., Scordato L. Assessing the broader impacts of research: A review of methods and practices (NIFU Working Paper 8/2015). Oslo (2015). <sup>26</sup> Aksnes, D.W., Langfeldt, L., Wouters, P. Citations, citation indicators, and research quality: an overview of basic concepts and theories. Sage Open 9 https://doi.org/10.1177/2158244019829575 (2019).

Citation count	The aggregate number of academic citations a given publication or group of publications has received.
Uncited publication/paper	A publication or paper that has not appeared in the reference list of another publication.
Average citations per paper/publication	Dividing the sum of citations by the total number of papers/publications in any given dataset.
Collaboration	Publication with more than one author.
Domestic collaboration	Research partnership between co-authors affiliated with a single country.
International collaboration	Research partnership between co-authors affiliated with two or more countries.
Cross-sector collaboration	Research partnership between co-authors affiliated with two or more sectors.
Single sector collaboration	Research partnership between co-authors affiliated with a single sector.
Cross-institution collaboration	Research partnership between co-authors affiliated with two or more institutions.
Single institution collaboration	Research partnership between co-authors affiliated with a single institution.
Cross-stakeholder collaboration	Research partnership between co-authors affiliated with two or more stakeholders.
Single stakeholder collaboration	Research partnership between co-authors affiliated with a single stakeholder.
Cross-industry sector collaboration	Research partnership between co-authors affiliated with two or more industry sectors.
Single industry sector collaboration	Research partnership between co-authors affiliated with a single industry sector.
Academic-Industry collaboration	Publications with at least one author from an academic institution and one author from a corporate entity.
Field-normalized citation impact (FNCI)	The ratio of the number of times a publication is cited compared to the number of expected citations. Anything over 1 means it was cited more than expected.  The ratio is calculated by dividing an actual citation count by an expected citation rate for documents with the same document type, year of publication and subject area.  The expected citation rate is calculated by dividing the actual citation count by the citation count per document type, year and subject area.  When a document is assigned to more than one subject area, the harmonic average is used. The category normalized citation impact (CNCI) of a set of documents is the average of the CNCI values for all the documents in the set
Hot publications/papers	Publications/papers that received enough citations to place them in the top 0.1% of papers in their research field, year of publication and document type.
Highly cited publications/papers	Publications/papers that have received enough citations to place them in the top 10% of papers in their research field, year of publication and document type.
Journal impact factor	Impact factors are commonly used to evaluate the relative importance of a journal within its field and to measure the frequency with which the 'average article' in a journal has been cited in a particular period.  Example:  2022 impact factor =A/B <sup>28</sup> where A is the number of times articles published in 2019 and 2020 were cited by indexed journals during 2021. B is the total number of citable items published by that journal in 2019 and 2020.
Compound annual growth rate (CAGR)	The compound annual growth rate (CAGR) is the annualized average rate of publication growth between two given years, assuming growth takes place at an exponentially compounded rate. The CAGR between years X and Z, where $Z - X = N$ , is the number of years between the two given years and is calculated as follows:  CAGR, year X to year $Z = [(value in year Z/value in year X)^ (1/N)-1]$

<sup>&</sup>lt;sup>28</sup> Sharma M, Sarin A, Gupta P, Sachdeva S, Desai AV. et al. Journal impact factor: its use, significance and limitations. World J Nucl Med. 13, (2):146 (2014)

### **Stakeholders and Industry Sector Classifications**

Table A1.2 IHI JU - Stakeholder types definitions (as provided by IHI JU)

Types of IHI stakeholder	Definitions						
	Organization type:	Organization type:					
1) Research / higher or secondary education organizations (private or	a) Universities b) Research and Technology organizations (RTOs) c) Other  Definitions:						
public)		demic disciplines. Univ	ersities typically offer	esearch which awards ac both undergraduate and ng.			
	RTOs: RTOs tend to be development and techr		-	nat provide a range of res governments.	search,		
	Small and medium-size recommendation 2003/ Staff headcount Either turnover or balar	361. The main factors		e defined in the <u>EU</u> an enterprise is an SME	are		
2) Small and medium-sized	Company category	Staff headcount	Turnover	Balance sheet total			
enterprises (SME)	Medium-sized	< 250	≤ € 50 M	≤ € 43 M			
	Small	< 50	≤ € 10 M	≤€ 10 M			
	Micro	< 10	≤ € 2 M	≤ € 2 M			
3) Mid-caps companies				n EUR 500 million and nannual turnover of EUR 5			
4) Large company (for-profit legal entity)	Company (for profit leg	al entity) with an annua	al turnover of EUR 50	0 million or more			
If 2) SME, 3) Mid-Cap or 4) Large company is selected	Specify which Health	care industry sector i	t belongs to (Level 2	2):			
a) Pharmaceutical (incl. vaccine)	The <b>pharmaceutical</b> industry discovers, develops, produces, and markets drugs or pharmaceutical drugs for use as medications to be administered (or self-administered) to patients, with the aim to cure them, vaccinate them, or alleviate the symptoms.						
b) Biopharmaceutical	The <b>biopharmaceutical</b> industry discovers, develops, produces, and markets biologic(al) medical drugs, or biologic. A biologic is any pharmaceutical drug product manufactured in, extracted from, or semi synthesized from biological sources. Different from totally synthesized pharmaceuticals, they include vaccines, whole blood, blood components, allergenics, somatic cells, gene therapies, tissues, recombinant therapeutic protein, and living medicines used in cell therapy. Biologics can be composed of sugars, proteins, nucleic acids, or complex combinations of these substances, or may be living cells or tissues. They (or their precursors or components) are isolated from living sources—human, animal, plant, fungal, or microbial. They can be used in both human and animal medicine.						

### c) Medical (and digital health) technology

**Medical (and digital health) technologies** are products, services or solutions used in a healthcare setting. These can be instruments, equipment, appliances, software, implants, reagents, materials, or other articles intended by the manufacturer to be used along the continuum of care. Examples include pregnancy tests, ultrasound equipment, plasters, glasses, stents, MRI, hospital information systems, heart monitor apps, fertility apps, etc.

#### → Drop-down under "Medical Technology" (Level 3):

#### Subset areas:

• <u>Medical imaging</u> is the discipline in charge of generating internal images of the body. It contributes to better, more accurate diagnoses from the outset and, through ongoing monitoring and measuring, allowing for improved care decisions and more effective treatments and outcomes.

X-ray, Computer Tomography (CT), and Nuclear Medicine [Positron emission tomography (PET) and Single-photon emission computerized tomography (SPECT)] all use Ionizing radiation, directing high energy particles (photons), to create anatomical, physiological, or functional, images.

Magnetic Resonance Imaging (MRI) uses radio waves and a magnetic field to provide detailed images of organs and tissues. Diagnostic ultrasound uses high frequency sound waves to create images of the inside of the body.

- <u>Radiation therapy (RT)</u> uses photons from X-rays to impact the tumours and destroy its genetic material avoiding its further growth
- <u>Digital Health (including artificial intelligence, AI)</u> describes the application of Information and communication technologies (ICT) across the whole range of functions that affect the health sector. It includes tools for health authorities and professionals as well as personalised health systems for patients and citizens.

The broad range of health digital products and services includes hospital information systems, electronic medical records and other specialty clinical information systems, integrated health information exchange networks, telemedicine and mobile health, secondary usage non-clinical systems (data analytics, public health, biomedical research)

- <u>Electromedical</u> equipment includes all the electronic devices that are intended for medical use. They span from machines monitoring patient's health in intensive care units, like vital signs monitors also used during surgery, to simple devices which monitor single variables like blood pressure devices or glucometers that can be used by the patient himself.
- <u>Medical devices (MD)</u>: 'medical device' means any instrument, apparatus, appliance, software, implant, reagent, material or other article intended by the manufacturer to be used, alone or in combination, for human beings for one or more of the following specific medical purposes:
- diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease,
- diagnosis, monitoring, treatment, alleviation of, or compensation for, an injury or disability.
- investigation, replacement or modification of the anatomy or of a physiological or pathological process or state,
- providing information by means of in vitro examination of specimens derived from the human body, including organ, blood and tissue donations, and which does not achieve its principal intended action by pharmacological, immunological or metabolic means, in or on the human body, but which may be assisted in its function by such means.
- In vitro diagnostics (IVD): 'in vitro diagnostic medical device' means any medical device which is a reagent, reagent product, calibrator, control material, kit, instrument, apparatus, piece of equipment, software or system, whether used alone or in combination, intended by the manufacturer to be used in vitro for the examination of

specimens, including blood and tissue donations, derived from the human body, solely or principally for the purpose of providing information on one or more of the following: (a) concerning a physiological or pathological process or state; (b) concerning congenital physical or mental impairments; (c) concerning the predisposition to a medical condition or a disease; (d) to determine the safety and compatibility with potential recipients; (e) to predict treatment response or reactions; (f) to define or monitoring therapeutic measures. Specimen receptacles shall also be deemed to be in vitro diagnostic medical devices; Biotechnology (non-pharma) sector includes companies that apply science and technology to d) Biotechnology (nonliving organisms to alter living or non-living materials for the production of knowledge, nonpharmaceutical goods and services. Examples are modification of plant genomes for disease resistance or nutrient enhancement, use of genetically modified microorganisms to produce innovative food and feed ingredients plus other product components such as fragrances, cultivated meat, production of biooils with photosynthetic micro-algae, biofuel produced through contemporary processes from biomass, etc. 5) Non-governmental Non-profit, voluntary citizens' groups, principally independent from government, which are organized on a local, national or international level to address issues in support of the public good. 6) Healthcare professional Healthcare providers encompass organizations that deliver healthcare goods and services. Typical healthcare providers are hospitals, long-term care facilities, providers of ambulatory healthcare, laboratories, nursing care facilities, pharmacies, etc. Patients' organizations are defined as not-for-profit organizations which are patient focused, and where patients and/or carers (the latter when patients are unable to represent themselves) represent a majority of members in governing bodies. These could be: 7) Patient / citizen • General umbrella organizations (e.g. representing either European organizations and/or national umbrella organizations), or • European disease specific organizations (i.e. representing national organizations or individual patients on acute and/or chronic diseases). Regulators refers in this document to the different bodies involved in the processes regulating medical products (e.g., scientific assessment, production of scientific guidelines, scientific advice to manufacturers, granting/refusal/suspension of marketing authorisations, post-market surveillance, withdrawing/recalling of devices put on the market, authorisation and oversight of clinical trials). It includes the European Commission, National Competent Authorities (NCA), the Medical Device Coordination Group (MDCG), and the European Medicines Agency (EMA). Notified Bodies, while designated to perform a regulatory function (verification of medical device/invitro diagnostics conformity), cannot be considered as regulators in the strict sense of this definition. However, the potential input and expertise of Notified Bodies may still be relevant for the design and implementation of the activities of the proposed initiative. A notified body is an organization designated - in accordance with (EU) 2017/745 or (EU) 2017/746 - by an EU country to assess the conformity of certain products before being placed on the market. 9) Notified Body These bodies carry out tasks related to conformity assessment procedures set out in the applicable legislation, when a third party is required. The European Commission publishes a list of such notified bodies. Health technology assessment (HTA) is an evidence-based multidisciplinary process that summarises information about the medical, social, economic and ethical issues related to the use 10) Health technology of a health technology in a systematic, transparent, unbiased, robust manner. Its aim is to inform the formulation of safe, effective health policies that are patient focused and seek to achieve best value. HTA focuses specifically on the added value of a new health technology in comparison to the existing standard of care in the healthcare system. HTA is not only used to inform local/national

	pricing and reimbursement decisions but also to support the development of evidence based clinical guidelines and public health recommendations.
11) Health care payers	Payers denote tax-funded national/regional payers and statutory/mandatory health insurance funds (social health insurance, SHI), National Health Services (NHS) and SHI ensuring publicly financed health care (the "benefits package"). In some Member States, additional products and services can be covered by voluntary complementary/supplementary private health insurance
12) Charities and Foundations	Associations typically promote the trade or professional interests of their members, whereas foundations spend their funds on projects or activities that benefit the public.  The main characteristics of foundations are:  • they are run by appointed trustees  • their capital is supplied through donations and gifts  • they may finance and undertake research  • they may support international, national, and local projects  • they may provide grants to meet the needs of individuals  • they may fund voluntary work, healthcare, and elderly care.
13) Public authority	Public authority means: (a) any government or other public administration, including public advisory bodies, at national, regional or local level; (b) any natural or legal person performing public administrative functions under national law, including specific duties, activities or services in relation to the environment; and(c) any natural or legal person having public responsibilities or functions, or providing public services relating to the environment under the control of a body or person falling within (a) or (b).

Table A1.3 IHI JU – Healthcare industrial sector classification definitions (as provided by IHI JU)

Health industry sector	Definitions
Pharmaceutical (incl. vaccine)	The <b>pharmaceutical</b> industry discovers, develops, produces, and markets drugs or pharmaceutical drugs for use as medications to be administered (or self-administered) to patients, with the aim to cure them, vaccinate them, or alleviate the symptoms.
Biopharmaceutical	The <b>biopharmaceutical</b> industry discovers, develops, produces, and markets biologic(al) medical drugs, or biologic. A biologic is any pharmaceutical drug product manufactured in, extracted from, or semi synthesized from biological sources. Different from totally synthesized pharmaceuticals, they include vaccines, whole blood, blood components, allergenics, somatic cells, gene therapies, tissues, recombinant therapeutic protein, and living medicines used in cell therapy. Biologics can be composed of sugars, proteins, nucleic acids, or complex combinations of these substances, or may be living cells or tissues. They (or their precursors or components) are isolated from living sources—human, animal, plant, fungal, or microbial. They can be used in both human and animal medicine.
Medical (and digital health) technology	<b>Medical (and digital health) technologies</b> are products, services or solutions used in a healthcare setting. These can be instruments, equipment, appliances, software, implants, reagents, materials, or other articles intended by the manufacturer to be used along the continuum of care. Examples include pregnancy tests, ultrasound equipment, plasters, glasses, stents, MRI, hospital information systems, heart monitor apps, fertility apps, etc.
	→ Drop-down under "Medical Technology" (Level 3):
	Subset areas:
	<ul> <li><u>Medical imaging</u> is the discipline in charge of generating internal images of the body. It contributes to better, more accurate diagnoses from the outset and, through ongoing monitoring and measuring, allowing for improved care decisions and more effective treatments and outcomes.</li> </ul>
	X-ray, Computer Tomography (CT), and Nuclear Medicine [Positron emission tomography (PET) and Single-photon emission computerized tomography (SPECT)] all use Ionizing radiation, directing high energy particles (photons), to create anatomical, physiological, or functional, images.
	Magnetic Resonance Imaging (MRI) uses radio waves and a magnetic field to provide detailed images of organs and tissues. Diagnostic ultrasound uses high frequency sound waves to create images of the inside of the body.
	<ul> <li>Radiation therapy (RT) uses photons from X-rays to impact the tumors and destroy its genetic material avoiding its further growth</li> </ul>
	<ul> <li><u>Digital Health (including artificial intelligence, AI)</u> describes the application of Information and communication technologies (ICT) across the whole range of functions that affect the health sector. It includes tools for health authorities and professionals as well as personalized health systems for patients and citizens.</li> </ul>
	The broad range of health digital products and services includes hospital information systems, electronic medical records and other specialty clinical information systems, integrated health information exchange networks, telemedicine and mobile health, secondary usage non-clinical systems (data analytics, public health, biomedical research)
	<ul> <li><u>Electromedical</u> equipment includes all the electronic devices that are intended for medical use. They span from machines monitoring patient's health in intensive care units, like vital signs monitors also used during surgery, to simple devices which monitor single variables like blood pressure devices or glucometers that can be used by the patient himself.</li> </ul>

- <u>Medical devices (MD)</u>: 'medical device' means any instrument, apparatus, appliance, software, implant, reagent, material or other article intended by the manufacturer to be used, alone or in combination, for human beings for one or more of the following specific medical purposes:
  - diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease.
  - diagnosis, monitoring, treatment, alleviation of, or compensation for, an injury or disability,
  - investigation, replacement or modification of the anatomy or of a physiological or pathological process or state,
  - providing information by means of in vitro examination of specimens derived from the human body, including organ, blood and tissue donations, and which does not achieve its principal intended action by pharmacological, immunological or metabolic means, in or on the human body, but which may be assisted in its function by such means.
- In vitro diagnostics (IVD): 'in vitro diagnostic medical device' means any medical device which is a reagent, reagent product, calibrator, control material, kit, instrument, apparatus, piece of equipment, software or system, whether used alone or in combination, intended by the manufacturer to be used in vitro for the examination of specimens, including blood and tissue donations, derived from the human body, solely or principally for the purpose of providing information on one or more of the following:
- (a) concerning a physiological or pathological process or state;
- (b) concerning congenital physical or mental impairments;
- (c) concerning the predisposition to a medical condition or a disease;
- (d) to determine the safety and compatibility with potential recipients;
- (e) to predict treatment response or reactions;
- (f) to define or monitoring therapeutic measures. Specimen receptacles shall also be deemed to be in vitro diagnostic medical devices

Biotechnology (nonpharma) **Biotechnology (non-pharma)** sector includes companies that apply science and technology to living organisms to alter living or non-living materials for the production of knowledge, non-pharmaceutical goods and services. Examples are modification of plant genomes for disease resistance or nutrient enhancement, use of genetically modified microorganisms to produce innovative food and feed ingredients plus other product components such as fragrances, cultivated meat, production of biooils with photosynthetic micro-algae, biofuel produced through contemporary processes from biomass, etc.

#### Table A1.4 IMI - Sector classification definitions

Organization type	Sector	Definition <sup>29</sup>			
Education	Education	An educational institution where research takes place and which can grant degrees and may have faculties, departments, and schools.			
Healthcare	Healthcare	A health-related facility where primarily patients are treated. Includes hospitals, medical centers, health centers, treatment centers. Also includes trusts and healthcare systems.			
Company	Company	A legal entity with the aim of engaging in business and gaining profit.			
Government	Government	An organization operated mainly by the government of one or multiple countries / territories.			
Facility, Nonprofit, Archive, Other	Other	<b>Archive:</b> Repository of documents, artifacts, or specimens. Includes libraries and museums that are not part of a university.			

<sup>29</sup> How are organizations represented in Dimensions <a href="https://dimensions.freshdesk.com/support/solutions/articles/23000025993-how-are-organizations-represented-in-dimensions-telepresented-i

		<b>Facility:</b> A building or facility dedicated to research within a specific area. Usually contains specialized equipment. Includes specialist research institutes as well as laboratories and large infrastructures such as astronomical observatories and particle accelerators.
		<b>Nonprofit:</b> An organization that uses its surplus revenue to achieve its goals. Includes charities and other non-government research funding bodies.
		<b>Other:</b> Anything not belonging to any of the other categories, or where the primary function is unclear.
NULL	Unknown	If the affiliation is not available in the dataset, then it is assigned as unknown.

## Annex 2: Data tables - Impact of IHI JU funded research

Table A2.1: Total number of publications from IHI JU projects by country between 2023 and 2024

Country	Number of Publications
United Kingdom	37
Germany	27
Sweden	27
United States	26
<b>N</b> etherlands	22
Switzerland	13
Finland	11
Spain	11
France	11
China	10
Denmark	9
Italy	9
Belgium	8
Norway	8
Luxembourg	7
Austria	6
Australia	5
Japan	3
Slovenia	3
Greece	3
India	2
Turkey	2
Canada	2
Singapore	1
Portugal	1
Argentina	1
North Macedonia	1

Nigeria	1
Tunisia	1
Brazil	1
Botswana	1
Dominican Republic	1
Ghana	1
Kenya	1
South Africa	1
Mozambique	1
Sri Lanka	1
Zimbabwe	1
Democratic Republic of the Congo	1
Ethiopia	1
Chile	1
Jamaica	1
Ireland	1
Uzbekistan	1
Uganda	1
Colombia	1
Thailand	1
Czechia	1
Albania	1
United Arab Emirates	1

Table A2.2: Total number of IHI JU funded publications, papers and open access papers and impact by project between 2023 and 2024

Projects	Number of Publications	Citations per publications	Number of papers	Number of open access papers	% of open access papers	Mean Field-Normalized Citation Impact of publications
PROMINENT	16	3.31	16	14	87.5%	1.15
PREDICTOM	10	17.60	8	8	100.0%	4.84
AD-RIDDLE	7	8.14	7	6	85.7%	2.18
IMAGIO	6	7.33	6	5	83.3%	2.21
CLAIMS	5	2.60	5	5	100.0%	0.91
LIVERAIM	3	9.67	3	2	66.7%	2.33

iCARE4CVD	3	7.00	3	3	100.0%	2.30
EDENT1FI	3	3.00	1	1	100.0%	1.15
GUIDE.MRD	2	22.00	0	0	0.0%	6.75
IDERHA	2	12.00	2	2	100.0%	3.12
GRIPonMASH	2	1.50	2	2	100.0%	0.45
VICT3R	1	3.00	1	0	0.0%	0.99
IMPROVE	1	1.00	1	1	100.0%	0.26
PaLaDin	1	0.00	0	0	0.0%	0.00

## Annex 3: Data tables – Collaboration profile of IHI JU funded research

Table A3.1: Collaboration profiles for IHI JU funded papers

Collaboration types	Total papers	Percentage	Mean Field-Normalized Citation Impact
Cross-stakeholder	53	96.4%	2.35
Single stakeholder	2	3.6%	0.66
Cross-industry	3	16.7%	1.54
Single industry	15	83.3%	1.76
Cross-country	49	89.1%	2.36
Single country	6	10.9%	1.96

Table A3.2: Countries collaborating with EU27 countries for IHI JU funded research, 2023-2024

Top Countries collaborated with Europe (EU27) countries	Number of Publications	Mean Field-Normalized Citation Impact
United Kingdom	35	2.62
United States	25	3.21
Switzerland	13	2.38
China	10	2.50
Norway	8	0.64
Australia	5	7.72
Japan	3	3.92
Turkey	2	11.21
India	2	3.92
Canada	2	2.78
Brazil	2	4.23
Ethiopia	2	4.23
United Arab Emirates	1	5.50
North Macedonia	1	4.23
Argentina	1	4.23
Tunisia	1	4.23
Nigeria	1	4.23
Botswana	1	4.23

Dominican Republic	1	4.23
Ghana	1	4.23
Kenya	1	4.23
South Africa	1	4.23
Mozambique	1	4.23
Sri Lanka	1	4.23
Zimbabwe	1	4.23
Democratic Republic of the Congo	1	4.23
Albania	1	5.50
Chile	1	4.23
Jamaica	1	4.23
Uzbekistan	1	4.23
Uganda	1	4.23
Colombia	1	4.23
Singapore	1	3.60
Thailand	1	0.00

Table A3.3: Countries contributing to internationally collaborated IHI JU funded papers

Country	Number of internationally collaborated publications	Mean Field-Normalized Citation Impact of internationally collaborated publications
United Kingdom	36	2.57
Sweden	27	1.95
United States	26	3.13
Germany	26	3.06
Netherlands	19	1.78
Switzerland	13	2.38
Spain	11	4.10
France	11	2.82
Finland	11	1.72
China	10	2.50
Italy	8	1.58
Belgium	8	1.54
Denmark	8	1.36

Norway	8	0.64
Luxembourg	7	5.91
Austria	6	2.13
Australia	5	7.72
Japan	3	3.92
Greece	3	2.82
Slovenia	3	2.07
Turkey	2	11.21
India	2	3.92
Canada	2	2.78
Brazil	2	4.23
Ethiopia	2	4.23
United Arab Emirates	1	5.50
Argentina	1	4.23
North Macedonia	1	4.23
Nigeria	1	4.23
Tunisia	1	4.23
Portugal	1	22.17
Botswana	1	4.23
Dominican Republic	1	4.23
Ghana	1	4.23
Kenya	1	4.23
South Africa	1	4.23
Mozambique	1	4.23
Sri Lanka	1	4.23
Zimbabwe	1	4.23
Democratic Republic of the Congo	1	4.23
Nigeria	1	5.50
Chile	1	4.23
Jamaica	1	4.23
Ireland	1	4.23
Uzbekistan	1	4.23

Uganda	1	4.23
Colombia	1	4.23
Singapore	1	3.60
Czechia	1	2.63
Thailand	1	0.00

Table A3.4: City clusters for IHI JU funded research, 2023-24 (5 publications minimum)

City	Country	Region	Number of publications	Mean Field- Normalized Citation Impact of publications	Number of internationally collaborated publications
London	United Kingdom	Europe	31	2.78	30
Munich	Germany	Europe (EU27)	17	3.90	16
Molndal + Gothenburg	Sweden	Europe (EU27)	17	2.39	17
Amsterdam	Netherlands	Europe (EU27)	14	2.45	13
Stockholm	Sweden	Europe (EU27)	14	1.65	14
Bonn	Germany	Europe (EU27)	11	4.49	11
Sheffield	United Kingdom	Europe	9	4.84	9
Madrid	Spain	Europe (EU27)	9	4.76	9
Berlin	Germany	Europe (EU27)	8	5.29	8
Barcelona	Spain	Europe (EU27)	8	4.95	8
Madison	United States	North America	8	2.30	8
Hong Kong	China	Asia	8	2.30	8
Maastricht	Netherlands	Europe (EU27)	7	2.87	5
Luxembourg	Luxembourg	Europe (EU27)	6	6.97	6
Boston USA + Cambridge USA	United States	North America	6	1.92	6
Bern	Switzerland	Europe	5	3.20	5
Utrecht	Netherlands	Europe (EU27)	5	2.93	3
Lund	Sweden	Europe (EU27)	5	2.10	5
Kuopio	Finland	Europe (EU27)	5	1.93	5
Basel	Switzerland	Europe	5	1.63	5
Paris	France	Europe (EU27)	5	1.20	5
Oxford	United Kingdom	Europe	5	1.14	5
Copenhagen	Denmark	Europe (EU27)	5	0.94	4
Tampere	Finland	Europe (EU27)	5	0.79	5

## Annex 4: Data tables - Impact of IMI funded research

Figure A4.1: Percentage of IMI funded research publications by document type, each year between 2010 and 2024

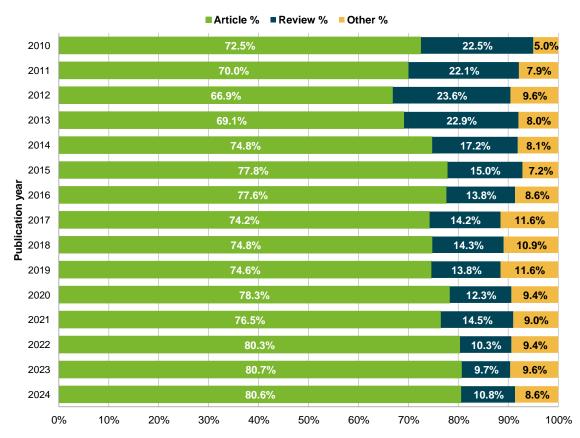


Table A4.2: Total number of publications from IMI projects by country between 2010 and 2024

Country	Number of Publications
United Kingdom	6,251
Germany	4,556
Netherlands	3,836
United States	3,597
Sweden	2,278
France	2,118
Italy	2,083
Spain	1,946
Switzerland	1,736
Belgium	1,497
Denmark	1,111
Canada	975
Austria	886
Finland	665
Australia	656
China	591
Norway	539
Greece	385

Ireland	378
Portugal	294
	282
Japan	282
Poland Israel	282
Brazil	211
Singapore	196
South Africa	180
Hungary	141
Czechia	127
Luxembourg	122
Estonia	119
South Korea	119
Saudi Arabia	97
lceland	94
India	94
Taiwan	81
Turkey	78
Slovenia	78
New Zealand	71
Croatia	70
Egypt	69
Lithuania 	69
Russia	53
Argentina	50
Chile	49
Cyprus	49
Romania	45
Serbia	39
Thailand	32
Kenya	30
Qatar	28
Iran	28
Mexico	26
Latvia	26
Palestinian Territory	24
Ukraine	23
Colombia	23
Tanzania	22
Malaysia	21
Uganda	18
Democratic Republic of the Congo	18
Sierra Leone	16
Pakistan	16
Bulgaria	16

Vietnam	15
Kuwait	15
Liechtenstein	13
Bangladesh	12
Guinea	11
Georgia	11
Nigeria	11
Burkina Faso	10
Malawi	9
Mozambique	9
Indonesia	9
Slovakia	9
Belarus	8
Senegal	8
Gabon	8
United Arab Emirates	8
Gambia	8
Malta	8
Iraq	8
Uruguay	8
Tunisia	8
Lebanon	8
Philippines	8
Sri Lanka	7
Jordan	7
Mali	6
Peru	6
North Macedonia	6
Ghana	5
Guatemala	4
Ethiopia	4
Moldova	4
Oman	4
Nepal	4
El Salvador	4
Jamaica	3
Bosnia and Herzegovina	3
Kosovo	3
Liberia	3
Ivory Coast	2
Rwanda	2
Cambodia	2
Albania	2
Faroe Islands	2
Monaco	2

Ecuador	2
Zambia	2
Kazakhstan	2
Armenia	2
Suriname	1
Montenegro	1
Cuba	1
Libya	1
Algeria	1
Laos	1
Botswana	1
Gibraltar	1
Bolivia	1
Bahrain	1
Republic of the Congo	1
Fiji	1
Paraguay	1
Morocco	1
Bhutan	1
Mongolia	1
Namibia	1
Samoa	1
Zimbabwe	1
Niger	1
Benin	1

Table A4.3: Total number of IMI funded publications, papers and open access papers and impact by project between 2010 and 2024

Projects	Number of Publications	Citations per publications	Number of papers	Number of open access papers	% of open access papers	Mean Field- Normalized Citation Impact of publications
EU-AIMS	818	57.25	788	683	86.7%	2.02
BTCure	800	64.09	723	514	71.1%	1.71
AIMS-2-TRIALS	607	34.48	583	554	95.0%	2.52
ULTRA-DD	488	53.92	470	416	88.5%	1.93
BigData@Heart	475	36.81	446	429	96.2%	3.19
EMIF	465	71.32	440	383	87.0%	2.69
EUbOPEN	371	25.02	351	306	87.2%	2.06
INNODIA	306	31.60	279	249	89.2%	1.46
RTCure	283	44.60	241	205	85.1%	2.87
NEWMEDS	273	85.70	261	163	62.5%	2.29
CANCER-ID	246	102.17	204	168	82.4%	2.91
EUROPAIN	223	112.69	205	98	47.8%	3.17
U-BIOPRED	220	43.51	138	105	76.1%	1.91
LITMUS	214	77.14	175	152	86.9%	6.09

BEAT-OKO         204         32.82         190         180         94.7%         1.98           RIAPSODY         188         39.67         188         181         96.3%         1.75           TRANSLOCATION         197         50.95         187         129         69.8%         1.98           CRBITO         181         45.37         180         68         37.8%         1.33           SUMMIT         178         46.65         167         135         80.8%         1.83           SUMMIT         178         46.65         167         135         80.8%         1.83           COMBACTE-NET         171         32.55         148         133         80.8%         1.83           COMBACTE-NET         154         38.47         135         127         94.1%         1.11           IMIDIA         154         73.93         149         128         85.9%         1.93           OHEBIZI         151         71.12         141         79         95.0%         2.28           SPRINTT         148         70.03         139         100         71.9%         2.43           PRISM         140         19.76         125 <t< th=""><th>STEMBANCC</th><th>212</th><th>55.05</th><th>186</th><th>160</th><th>86.0%</th><th>1.87</th></t<>	STEMBANCC	212	55.05	186	160	86.0%	1.87
RHAPSODY							
TRANSLOCATION							
EHDEN							
ORBITO         181         45.37         180         68         37.8%         1.33           SUMMIT         173         46.65         167         135         80.8%         1.83           COMBACTE-NET         171         32.55         148         133         89.9%         1.70           PRIDICT-TB         154         36.47         135         127         94.1%         1.11           IMIDIA         154         73.93         149         128         85.9%         1.93           CHEM21         151         71.12         141         79         66.0%         2.28           RADAR-CNS         151         32.91         108         101         93.5%         2.38           PRISIM         146         71.19         135         118         87.4%         4.02           ELF         140         35.20         138         121         87.7%         1.08           MOBILISE-D         140         19.76         125         115         92.0%         1.75           COMBACTE-MAGNET         139         47.07         125         108         86.4%         1.66           EPAD         138         33.09         130         1							
SUMMIT   178							
COMBACTE-NET         171         32.55         148         133         89.9%         1.70           PreDICT/TB         154         36.47         136         127         94.1%         1.11           IMIDIA         154         73.83         149         128         85.9%         1.93           CHEM21         151         71.12         141         79         56.0%         2.28           RADAR-CNS         151         32.91         108         101         93.5%         2.38           SPRINTT         148         70.03         139         100         71.9%         2.43           PRISM         146         71.19         135         118         87.4%         4.02           ELF         140         35.20         138         121         87.7%         1.08           MOBILISED         140         19.76         125         116         92.0%         1.75           COMBACTE-MAGNET         139         47.07         125         108         86.4%         1.66           EPAD         138         33.09         130         118         90.0%         2.24           AMYPAD         136         34.78         129         1							
PreDICT-TB   154   36.47   135   127   94.1%   1.11   IMIDIA   154   73.93   149   128   85.9%   1.93   1.93   1.94   1.94   1.95   1							
MIDIA							
CHEM21         151         71.12         141         79         56.0%         2.28           RADAR-CNS         151         32.91         108         101         93.5%         2.38           SPRINTI         148         70.03         139         100         71.9%         2.43           PRISM         146         71.19         135         118         87.4%         4.02           ELF         140         35.20         138         121         87.7%         1.08           MOBILISE-D         140         19.76         125         115         92.0%         1.75           COMBACTE-MAGNET         139         47.07         126         108         86.4%         1.66           EPAD         138         33.09         130         118         90.8%         2.34           AMYPAD         136         34.78         129         124         96.1%         2.72           3TR         135         25.59         111         02         91.9%         4.63           MIPPIDI         128         47.73         116         80         69.0%         1.47           INNODIA HARVEST         128         19.61         118         114 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
RADAR-CNS  SPRINTT  148  70.03  139  100  71.9%  2.43  PRISM  146  71.19  135  118  87.4%  4.02  ELF  140  35.20  138  121  87.7%  1.08  MOBILISE-D  140  19.76  125  115  92.0%  1.75  COMBACTE-MAGNET  139  47.07  125  108  88.4%  1.66  EPAD  138  33.09  130  118  90.8%  2.34  AMYPAD  136  34.78  129  124  96.1%  2.72  3TR  135  25.59  111  102  91.9%  4.63  MIP-DILI  128  47.73  116  80  69.0%  1.47  IMNODIA HARVEST  128  19.61  118  114  96.6%  1.43  IMPRIND  126  99.20  115  106  92.2%  4.51  PROTECT  124  33.56  120  71  59.2%  0.87  SOPHIA  122  20.61  112  106  94.6%  2.25  DIRECT  120  114.83  113  93  82.3%  4.52  APPROACH  116  53.97  85  71  83.5%  1.65  RESCEU  116  74.72  106  102  96.2%  4.48  Quic-Concept  115  216.01  110  90  81.8%  3.30  ABIRISK  112  34.13  100  65  65.0%  1.14  COMPACT  110  76.24  107  66  60.7%  2.05  4.08  PRECISESADS  108  23.51  84  60  71.49  86.8%  2.74  DRAGON  103  36.42  91  79  86.8%  2.74  DRAGON  103  36.42  91  77  99  84.59  86  85  98.8%  3.37  2APP-RAGON  103  36.42  91  77  77  88.5%  3.50  AETIONOMY  94  53.59  90  75  88  30.7%  2.74  DRAGON  103  36.42  91  77  77  88.5%  3.50  AETIONOMY  94  53.59  90  75  88  30.7%  2.74  DRAGON  103  36.42  91  77  77  88.5%  3.50  AETIONOMY  94  53.59  90  75  88  30.7%  2.74  DRAGON  103  36.42  91  77  77  88.5%  3.50  AETIONOMY  94  53.59  90  75  88  30.7%  2.74  DRAGON  103  36.42  91  77  77  88.5%  3.50  AETIONOMY  94  53.59  90  75  88  30.7%  2.74  DRAGON  100  89.92  72  70  97.2%  1.00  Onco Track  89  81.24  72  54  75.5%  1.06  Onco Track  89  81.24  72  54  75.5%  1.56							
SPRINTT         148         70.03         139         100         71.9%         2.43           PRISM         146         71.19         135         118         87.4%         4.02           ELF         140         35.20         138         121         87.7%         1.08           MOBILISE-D         140         19.76         125         115         92.0%         1.75           COMBACTE-MAGNET         139         47.07         125         108         86.4%         1.66           EPAD         138         33.09         130         118         90.8%         2.34           AMYPAD         136         34.78         129         124         96.1%         2.72           3TR         135         25.59         111         102         91.9%         4.63           MIP-DILI         128         47.73         116         80         69.0%         1.47           INNODIA HARVEST         128         19.61         118         114         96.6%         1.43           IMPRINO         126         99.20         115         106         92.2%         4.51           PROTECT         124         33.56         125         10<							
PRISM							
ELF							
MOBILISE-D         140         19.76         125         115         92.0%         1.75           COMBACTE-MAGNET         139         47.07         125         108         86.4%         1.66           EPAD         138         33.09         130         118         90.8%         2.34           AMYPAD         136         34.78         129         124         96.1%         2.72           3TR         135         25.59         111         102         91.9%         4.63           MIP-DILI         128         47.73         116         80         69.0%         1.47           INNODIA HARVEST         128         19.61         118         114         96.6%         1.43           INPRIND         126         99.20         115         106         92.2%         4.51           PROTECT         124         33.56         120         71         59.2%         0.87           SOPHIA         122         20.61         112         106         94.6%         2.25           DIRECT         120         114.83         113         93         82.3%         4.52           APPROACH         116         53.97         85							
COMBACTE-MAGNET         139         47.07         125         108         86.4%         1.66           EPAD         138         33.09         130         118         90.8%         2.34           AMYPAD         136         34.78         129         124         96.1%         2.72           3TR         135         25.59         111         102         91.9%         4.63           MIP-DILI         128         47.73         116         80         69.0%         1.47           INNODIA HARVEST         128         19.61         118         114         96.6%         1.43           IMPRIND         126         99.20         115         106         92.2%         4.51           PROTECT         124         33.56         120         71         59.2%         0.87           SOPHIA         122         20.61         112         106         94.6%         2.25           DRECT         120         114.83         113         93         82.3%         4.52           APPROACH         116         53.97         85         71         83.5%         1.65           RESCEU         116         74.72         106         102 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
EPAD							
AMYPAD         136         34.78         129         124         96.1%         2.72           3TR         135         25.59         111         102         91.9%         4.63           MIP-DILI         128         47.73         116         80         69.0%         1.47           INNODIA HARVEST         128         19.61         118         114         96.6%         1.43           IMPRIND         126         99.20         115         106         92.2%         4.51           PROTECT         124         33.56         120         71         59.2%         0.87           SOPHIA         122         20.61         112         106         94.6%         2.25           DIRECT         120         114.83         113         93         82.3%         4.52           APPROACH         116         53.97         85         71         83.5%         1.65           RESCEU         116         74.72         106         102         96.2%         4.48           Quic-Oncept         115         216.01         110         90         81.8%         5.38           DDMore         113         37.07         108         82			-				
3TR         135         25.59         111         102         91.9%         4.63           MIP-DILI         128         47.73         116         80         69.0%         1.47           INNODIA HARVEST         128         19.61         118         114         96.6%         1.43           IMPRIND         126         99.20         115         106         92.2%         4.51           PROTECT         124         33.56         120         71         59.2%         0.87           SOPHIA         122         20.61         112         106         94.6%         2.25           DIRECT         120         114.83         113         93         82.3%         4.52           APPROACH         116         53.97         85         71         83.5%         1.65           RESCEU         116         74.72         106         102         96.2%         4.48           Quic-Concept         115         216.01         110         90         81.8%         5.38           DDMoRe         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
MIP-DILI         128         47.73         116         80         69.0%         1.47           INNODIA HARVEST         128         19.61         118         114         96.6%         1.43           IMPRIND         126         99.20         115         106         92.2%         4.51           PROTECT         124         33.56         120         71         59.2%         0.87           SOPHIA         122         20.61         112         106         94.6%         2.25           DIRECT         120         114.83         113         93         82.3%         4.52           APPROACH         116         53.97         85         71         83.5%         1.65           RESCEU         116         74.72         106         102         96.2%         4.48           Quic-Concept         115         216.01         110         90         81.8%         5.38           DDMoRe         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65         65.0%         1.14           COMPACT         110         76.24         107         65<	AMYPAD						
INNODIA HARVEST   128	3TR						
IMPRIND	MIP-DILI	128	47.73	116	80	69.0%	
PROTECT         124         33.56         120         71         59.2%         0.87           SOPHIA         122         20.61         112         106         94.6%         2.25           DIRECT         120         114.83         113         93         82.3%         4.52           APPROACH         116         53.97         85         71         83.5%         1.65           RESCEU         116         74.72         106         102         96.2%         4.48           Quic-Concept         115         216.01         110         90         81.8%         5.38           DDMoRe         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65         65.0%         1.14           COMPACT         110         76.24         107         65         60.7%         2.05           eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52	INNODIA HARVEST	128	19.61	118	114	96.6%	1.43
DIRECT   120	IMPRIND	126	99.20	115	106	92.2%	4.51
DIRECT         120         114.83         113         93         82.3%         4.52           APPROACH         116         53.97         85         71         83.5%         1.65           RESCEU         116         74.72         106         102         96.2%         4.48           Quic-Concept         115         216.01         110         90         81.8%         5.38           DDMORE         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65         65.0%         1.14           COMPACT         110         76.24         107         65         60.7%         2.05           eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79	PROTECT	124	33.56	120	71	59.2%	0.87
APPROACH         116         53.97         85         71         83.5%         1.65           RESCEU         116         74.72         106         102         96.2%         4.48           Quic-Concept         115         216.01         110         90         81.8%         5.38           DDMoRe         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65         65.0%         1.14           COMPACT         110         76.24         107         65         60.7%         2.05           eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77	SOPHIA	122	20.61	112	106	94.6%	2.25
RESCEU         116         74.72         106         102         96.2%         4.48           Quic-Concept         115         216.01         110         90         81.8%         5.38           DDMoRe         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65         65.0%         1.14           COMPACT         110         76.24         107         65         60.7%         2.05           eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75	DIRECT	120	114.83	113	93	82.3%	4.52
Quic-Concept         115         216.01         110         90         81.8%         5.38           DDMORe         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65         65.0%         1.14           COMPACT         110         76.24         107         65         60.7%         2.05           eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85	APPROACH	116	53.97	85	71	83.5%	1.65
DDMoRe         113         37.07         108         82         75.9%         1.13           ABIRISK         112         34.13         100         65         65.0%         1.14           COMPACT         110         76.24         107         65         60.7%         2.05           eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85         98.8%         3.37           CARE         90         28.38         88         83         94.3% </th <th>RESCEU</th> <th>116</th> <th>74.72</th> <th>106</th> <th>102</th> <th>96.2%</th> <th>4.48</th>	RESCEU	116	74.72	106	102	96.2%	4.48
ABIRISK 112 34.13 100 65 65.0% 1.14  COMPACT 110 76.24 107 65 60.7% 2.05  eTOX 109 72.79 101 70 69.3% 2.13  PRECISESADS 108 23.51 84 60 71.4% 1.04  Pharma-Cog 105 55.26 98 52 53.1% 1.24  TransQST 105 59.83 97 88 90.7% 2.74  DRAGON 103 36.42 91 79 86.8% 2.96  Open PHACTS 96 125.14 87 77 88.5% 3.50  AETIONOMY 94 53.59 90 75 83.3% 1.90  ZAPI 90 84.59 86 85 98.8% 3.37  CARE 90 28.38 88 83 94.3% 2.42  Hypo-RESOLVE 90 8.92 72 70 97.2% 1.00  Onco Track 89 81.24 72 54 75.0% 2.07  K4DD 88 45.32 81 62 76.5% 1.56	Quic-Concept	115	216.01	110	90	81.8%	5.38
COMPACT         110         76.24         107         65         60.7%         2.05           eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85         98.8%         3.37           CARE         90         8.92         72         70         97.2%         1.00           Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5%	DDMoRe	113	37.07	108	82	75.9%	1.13
eTOX         109         72.79         101         70         69.3%         2.13           PRECISESADS         108         23.51         84         60         71.4%         1.04           Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85         98.8%         3.37           CARE         90         28.38         88         83         94.3%         2.42           Hypo-RESOLVE         90         8.92         72         70         97.2%         1.00           Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5% <th>ABIRISK</th> <th>112</th> <th>34.13</th> <th>100</th> <th>65</th> <th>65.0%</th> <th>1.14</th>	ABIRISK	112	34.13	100	65	65.0%	1.14
PRECISESADS       108       23.51       84       60       71.4%       1.04         Pharma-Cog       105       55.26       98       52       53.1%       1.24         TransQST       105       59.83       97       88       90.7%       2.74         DRAGON       103       36.42       91       79       86.8%       2.96         Open PHACTS       96       125.14       87       77       88.5%       3.50         AETIONOMY       94       53.59       90       75       83.3%       1.90         ZAPI       90       84.59       86       85       98.8%       3.37         CARE       90       28.38       88       83       94.3%       2.42         Hypo-RESOLVE       90       8.92       72       70       97.2%       1.00         Onco Track       89       81.24       72       54       75.0%       2.07         K4DD       88       45.32       81       62       76.5%       1.56	COMPACT	110	76.24	107	65	60.7%	2.05
Pharma-Cog         105         55.26         98         52         53.1%         1.24           TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85         98.8%         3.37           CARE         90         28.38         88         83         94.3%         2.42           Hypo-RESOLVE         90         8.92         72         70         97.2%         1.00           Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5%         1.56	еТОХ	109	72.79	101	70	69.3%	2.13
TransQST         105         59.83         97         88         90.7%         2.74           DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85         98.8%         3.37           CARE         90         28.38         88         83         94.3%         2.42           Hypo-RESOLVE         90         8.92         72         70         97.2%         1.00           Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5%         1.56	PRECISESADS	108	23.51	84	60	71.4%	1.04
DRAGON         103         36.42         91         79         86.8%         2.96           Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85         98.8%         3.37           CARE         90         28.38         88         83         94.3%         2.42           Hypo-RESOLVE         90         8.92         72         70         97.2%         1.00           Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5%         1.56	Pharma-Cog	105	55.26	98	52	53.1%	1.24
Open PHACTS         96         125.14         87         77         88.5%         3.50           AETIONOMY         94         53.59         90         75         83.3%         1.90           ZAPI         90         84.59         86         85         98.8%         3.37           CARE         90         28.38         88         83         94.3%         2.42           Hypo-RESOLVE         90         8.92         72         70         97.2%         1.00           Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5%         1.56	TransQST	105	59.83	97	88	90.7%	2.74
AETIONOMY       94       53.59       90       75       83.3%       1.90         ZAPI       90       84.59       86       85       98.8%       3.37         CARE       90       28.38       88       83       94.3%       2.42         Hypo-RESOLVE       90       8.92       72       70       97.2%       1.00         Onco Track       89       81.24       72       54       75.0%       2.07         K4DD       88       45.32       81       62       76.5%       1.56	DRAGON	103	36.42	91	79	86.8%	2.96
ZAPI       90       84.59       86       85       98.8%       3.37         CARE       90       28.38       88       83       94.3%       2.42         Hypo-RESOLVE       90       8.92       72       70       97.2%       1.00         Onco Track       89       81.24       72       54       75.0%       2.07         K4DD       88       45.32       81       62       76.5%       1.56	Open PHACTS	96	125.14	87	77	88.5%	3.50
CARE       90       28.38       88       83       94.3%       2.42         Hypo-RESOLVE       90       8.92       72       70       97.2%       1.00         Onco Track       89       81.24       72       54       75.0%       2.07         K4DD       88       45.32       81       62       76.5%       1.56	AETIONOMY	94	53.59	90	75	83.3%	1.90
Hypo-RESOLVE         90         8.92         72         70         97.2%         1.00           Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5%         1.56	ZAPI	90	84.59	86	85	98.8%	3.37
Onco Track         89         81.24         72         54         75.0%         2.07           K4DD         88         45.32         81         62         76.5%         1.56	CARE	90	28.38	88	83	94.3%	2.42
K4DD 88 45.32 81 62 76.5% 1.56	Hypo-RESOLVE	90	8.92	72	70	97.2%	1.00
	Onco Track	89	81.24	72	54	75.0%	2.07
ADAPTED 00 04.00 00 77 00.00	K4DD	88	45.32	81	62	76.5%	1.56
ADAPTED 88 31.86 83 // 92.8% 2.04	ADAPTED	88	31.86	83	77	92.8%	2.04

COMBACTE-CARE         85         55.21         71         59         8.31%         2.39           EMABLE         84         44 62         81         70         86.4%         1.58           BIOMARP         84         20.55         79         76         96.2%         1.76           BIOMARD         84         20.55         79         76         96.2%         1.76           BIOMARGAR         84         20.55         79         76         96.2%         1.76           IABC         78         20.37         56         45         80.8%         1.27           PHAGO         75         75.13         75         74         98.7%         3.23           MILLIAN         61         54         88.5%         1.74           MARCAR         69         17.33         61         54         88.5%         2.08           MARCAR         68         34.65         64         47         73.4%         0.79           ***TEVEOR**         68         53.54         55         50         90.9%         1.76           DINE-AB         67         46.21         61         51         88.5%         1.78 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>							
BIOMAP         B4         20.55         79         76         96.2%         1.76           BIOVacSaie         79         59.94         74         62         83.8%         1.37           IABC         78         20.37         56         45         80.4%         2.12           PHAGO         75         75.13         75         74         98.7%         3.23           IMIPACT         71         17.18         61         54         98.5%         1.74           IM2PACT         71         22.01         68         64         94.1%         1.70           TEVOLVE         69         17.33         61         54         98.5%         0.79           OTRIKS         68         53.54         55         50         90.9%         1.76           OTRIKS         68         20.18         52         47         90.4%         1.85           DRIVE-AB         67         46.21         61         51         33.6%         1.53           HARMONY         67         31.90         55         50         90.9%         1.26           PETRAST         66         56.94         51         51         77         77.7% </th <th>COMBACTE-CARE</th> <th>85</th> <th>55.21</th> <th>71</th> <th>59</th> <th>83.1%</th> <th>2.39</th>	COMBACTE-CARE	85	55.21	71	59	83.1%	2.39
BIOVACESATE   79   59.94   74   62   83.8%   1.37     IABC	ENABLE	84	44.62	81	70	86.4%	1.58
TABC   TABLE   TABLE	BIOMAP	84	20.55	79	76	96.2%	1.76
PHAGO	BioVacSafe	79	59.94	74	62	83.8%	1.37
MI-PainCare   74	iABC	78	20.37	56	45	80.4%	2.12
MAPACT   71   22.01   68   64   94.1%   1.70   12EVOLVE   69   17.33   61   54   88.5%   2.08   MARCAR   68   34.65   64   47   73.4%   0.79   6TRIKS   68   53.54   55   50   90.9%   1.76   10EA-FAST   68   20.18   52   47   90.4%   1.85   DRIVE-AB   67   46.21   61   51   83.6%   1.53   HARMONY   67   31.90   55   50   90.9%   3.35   FLUCOP   66   37.23   65   57   87.7%   1.79   6TRANSAFE   65   56.94   55   50   90.9%   3.35   Predect   62   100.87   53   47   88.7%   5.38   EU-PEARL   60   19.45   51   44   86.3%   2.01   ConcePTION   60   10.85   55   54   99.2%   1.39   MOPEAD   55   50   90.9%   1.78   MOPEAD   55   50   90.9%   2.62	PHAGO	75	75.13	75	74	98.7%	3.23
TREVOLVE	IMI-PainCare	74	17.18	61	54	88.5%	1.74
MARCAR         68         34.65         64         47         73.4%         0.79           oTRIKS         68         53.54         55         50         90.9%         1.76           IDEA-FAT         68         20.18         52         47         90.4%         1.86           DRIVE-AB         67         46.21         61         51         83.6%         1.53           HARMONY         66         37.23         65         50         90.9%         3.35           FLUCOP         66         37.23         65         57         90.9%         2.62           EUCALID         64         26.59         62         68         93.5%         1.33           Predect         62         100.87         53         47         88.7%         5.38           EU-PEAL         60         19.45         51         44         86.9%         2.01           MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         <	IM2PACT	71	22.01	68	64	94.1%	1.70
Fire	T2EVOLVE	69	17.33	61	54	88.5%	2.08
DEA-FAST	MARCAR	68	34.65	64	47	73.4%	0.79
DRIVE-AB   67   46.21   61   51   83.6%   1.53     HARMONY   67   31.90   55   50   90.9%   3.35     FLUCOP   66   37.23   65   57   87.7%   1.79     GTRANSAFE   65   56.94   55   50   90.9%   2.62     EUCÂLID   64   26.59   62   58   93.5%   1.33     Predect   62   100.87   53   47   88.7%   3.38     EU-PEARL   60   19.45   51   44   86.3%   2.01     ConcePTION   60   10.85   55   54   98.2%   1.39     MOPEAD   59   18.66   56   52   92.9%   1.78     HIPPOCRATES   57   14.60   43   32   74.4%   1.94     PREFER   57   19.84   46   46   100.0%   1.40     RAPP-ID   53   31.47   48   35   72.9%   0.92     PERISCOPE   53   17.55   51   48   94.1%   1.40     MAD-GOV 2   52   34.98   51   49   96.1%   1.39     EBOVAC1   50   41.86   48   45   93.8%   1.33     GETREAL   49   44.10   44   34   77.3%   1.37     IPIE   49   42.08   47   34   72.3%   1.34     ImSAVAR   49   11.61   46   46   100.0%   1.22     ERA4TB   49   20.02   39   37   94.9%   1.69     InnotYac   47   7.64   47   45   95.7%   1.11     EBISC   44   10.14   40   35   87.5%   1.13     TransBloLine   44   27.32   41   37   90.2%   2.11     ReSOLUTE   44   12.89   43   42   97.7%   1.25     OPTIMA   43   19.56   40   40   100.0%   1.63     EPND   42   8.19   39   36   92.3%   9.60     RADAR-AD   42   17.48   27   26   96.3%   1.79     DRIVE   42   13.07   41   39   95.1%   0.90     ARDAT   40   16.75   39   34   87.2%   1.88     TRISTAN   40   30.38   39   39   100.0%   1.14     EQIPD   39   42.92   33   31   93.9%   2.80	eTRIKS	68	53.54	55	50	90.9%	1.76
HARMONY	IDEA-FAST	68	20.18	52	47	90.4%	1.85
FLUCOP         66         37.23         65         57         87.7%         1.79           eTRANSAFE         65         56.94         55         50         90.9%         2.62           EUCÂYLID         64         26.59         62         58         93.5%         1.33           Prodect         62         100.87         53         47         88.7%         5.38           EU-PEARL         60         19.45         51         44         86.3%         2.01           ConcePTION         60         10.85         55         54         98.2%         1.39           MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         72.9%         0.92           PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-Cov 2         52         34.98         51         49         96.1% <th>DRIVE-AB</th> <th>67</th> <th>46.21</th> <th>61</th> <th>51</th> <th>83.6%</th> <th>1.53</th>	DRIVE-AB	67	46.21	61	51	83.6%	1.53
eTRANSAFE         65         56.94         55         50         90.9%         2.62           EUC¹LID         64         26.59         62         58         93.5%         1.33           Predect         62         100.87         53         47         88.7%         5.38           EU-PEARL         60         19.45         51         44         86.3%         2.01           ConcePTION         60         10.85         55         54         98.2%         1.39           MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         1.40           RAPPID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVACI         49         41.10         44         34         77.3% <th>HARMONY</th> <th>67</th> <th>31.90</th> <th>55</th> <th>50</th> <th>90.9%</th> <th>3.35</th>	HARMONY	67	31.90	55	50	90.9%	3.35
EUCÂPLID         64         26.59         62         58         93.5%         1.33           Predect         62         100.87         53         47         88.7%         5.38           EU-PEARL         60         19.45         51         44         86.3%         2.01           ConcePTION         60         10.85         55         54         98.2%         1.39           MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.88         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.34           Implemental         49         20.02         39         37         94.9%         1.6	FLUCOP	66	37.23	65	57	87.7%	1.79
Predect         62         100.87         53         47         88.7%         5.38           EU-PEARL         60         19.45         51         44         86.3%         2.01           ConcePTION         60         10.85         55         54         98.2%         1.39           MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         42.08         47         34         72.3%         1.34           Impact Solution         49         11.61         46         46         100	eTRANSAFE	65	56.94	55	50	90.9%	2.62
EU-PEARL         60         19.45         51         44         86.3%         2.01           ConcePTION         60         10.85         55         54         98.2%         1.39           MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           Inno4Vac         47         7.64         47         45         95.7%	EUCÂ <sup>2</sup> LID	64	26.59	62	58	93.5%	1.33
ConcePTION         60         10.85         55         54         98.2%         1.39           MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           Impact         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%	Predect	62	100.87	53	47	88.7%	5.38
MOPEAD         59         18.66         56         52         92.9%         1.78           HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           ImSAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%	EU-PEARL	60	19.45	51	44	86.3%	2.01
HIPPOCRATES         57         14.60         43         32         74.4%         1.94           PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           ImmSAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%	ConcePTION	60	10.85	55	54	98.2%	1.39
PREFER         57         19.84         46         46         100.0%         1.40           RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           ImSAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           C4c         44         10.14         40         35         87.5%         1.13	MOPEAD	59	18.66	56	52	92.9%	1.78
RAPP-ID         53         31.47         48         35         72.9%         0.92           PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           ImsAVAR         49         11.61         46         46         100.0%         1.22           ERAATB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           C4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2% <td< th=""><th>HIPPOCRATES</th><th>57</th><th>14.60</th><th>43</th><th>32</th><th>74.4%</th><th>1.94</th></td<>	HIPPOCRATES	57	14.60	43	32	74.4%	1.94
PERISCOPE         53         17.55         51         48         94.1%         1.40           MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           ImsAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           C4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7% <t< th=""><th>PREFER</th><th>57</th><th>19.84</th><th>46</th><th>46</th><th>100.0%</th><th>1.40</th></t<>	PREFER	57	19.84	46	46	100.0%	1.40
MAD-CoV 2         52         34.98         51         49         96.1%         2.89           EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           iPIE         49         42.08         47         34         72.3%         1.34           imSAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           C4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         28.74         39         36         92.3%         9	RAPP-ID	53	31.47	48	35	72.9%	0.92
EBOVAC1         50         41.86         48         45         93.8%         1.93           GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           imsAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           c4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60<	PERISCOPE	53	17.55	51	48	94.1%	1.40
GETREAL         49         44.10         44         34         77.3%         1.37           IPIE         49         42.08         47         34         72.3%         1.34           imSAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           c4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79	MAD-CoV 2	52	34.98	51	49	96.1%	2.89
iPiE         49         42.08         47         34         72.3%         1.34           imSAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           C4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           RESOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79           NeuroDeRisk         42         8.19         39         35         89.7%         0	EBOVAC1	50	41.86	48	45	93.8%	1.93
imSAVAR         49         11.61         46         46         100.0%         1.22           ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           C4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79           NeuroDeRisk         42         8.19         39         35         89.7%         0.95           DRIVE         42         13.07         41         39         95.1%	GETREAL	49	44.10	44	34	77.3%	1.37
ERA4TB         49         20.02         39         37         94.9%         1.69           Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           C4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79           NeuroDeRisk         42         8.19         39         35         89.7%         0.95           DRIVE         42         13.07         41         39         95.1%         0.90           ARDAT         40         16.75         39         34         87.2%         1.8	iPiE	49	42.08	47	34	72.3%	1.34
Inno4Vac         47         7.64         47         45         95.7%         1.11           EBISC         45         118.51         44         41         93.2%         3.69           c4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           RESOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79           NeuroDeRisk         42         8.19         39         35         89.7%         0.95           DRIVE         42         13.07         41         39         95.1%         0.90           ARDAT         40         16.75         39         34         87.2%         1.88           TRISTAN         40         30.38         39         39         100.0%         1	imSAVAR	49	11.61	46	46	100.0%	1.22
EBISC         45         118.51         44         41         93.2%         3.69           c4c         44         10.14         40         35         87.5%         1.13           TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79           NeuroDeRisk         42         8.19         39         35         89.7%         0.95           DRIVE         42         13.07         41         39         95.1%         0.90           ARDAT         40         16.75         39         34         87.2%         1.88           TRISTAN         40         30.38         39         39         100.0%         1.14           EQIPD         39         42.92         33         31         93.9%         2.8	ERA4TB	49	20.02	39	37	94.9%	1.69
C4C       44       10.14       40       35       87.5%       1.13         TransBioLine       44       27.32       41       37       90.2%       2.11         ReSOLUTE       44       12.89       43       42       97.7%       1.25         OPTIMA       43       19.56       40       40       100.0%       1.63         EPND       43       28.74       39       36       92.3%       9.60         RADAR-AD       42       17.48       27       26       96.3%       1.79         NeuroDeRisk       42       8.19       39       35       89.7%       0.95         DRIVE       42       13.07       41       39       95.1%       0.90         ARDAT       40       16.75       39       34       87.2%       1.88         TRISTAN       40       30.38       39       39       100.0%       1.14         EQIPD       39       42.92       33       31       93.9%       2.80	Inno4Vac	47	7.64	47	45	95.7%	1.11
TransBioLine         44         27.32         41         37         90.2%         2.11           ReSOLUTE         44         12.89         43         42         97.7%         1.25           OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79           NeuroDeRisk         42         8.19         39         35         89.7%         0.95           DRIVE         42         13.07         41         39         95.1%         0.90           ARDAT         40         16.75         39         34         87.2%         1.88           TRISTAN         40         30.38         39         39         100.0%         1.14           EQIPD         39         42.92         33         31         93.9%         2.80	EBiSC	45	118.51	44	41	93.2%	3.69
ReSOLUTE       44       12.89       43       42       97.7%       1.25         OPTIMA       43       19.56       40       40       100.0%       1.63         EPND       43       28.74       39       36       92.3%       9.60         RADAR-AD       42       17.48       27       26       96.3%       1.79         NeuroDeRisk       42       8.19       39       35       89.7%       0.95         DRIVE       42       13.07       41       39       95.1%       0.90         ARDAT       40       16.75       39       34       87.2%       1.88         TRISTAN       40       30.38       39       39       100.0%       1.14         EQIPD       39       42.92       33       31       93.9%       2.80	c4c	44	10.14	40	35	87.5%	1.13
OPTIMA         43         19.56         40         40         100.0%         1.63           EPND         43         28.74         39         36         92.3%         9.60           RADAR-AD         42         17.48         27         26         96.3%         1.79           NeuroDeRisk         42         8.19         39         35         89.7%         0.95           DRIVE         42         13.07         41         39         95.1%         0.90           ARDAT         40         16.75         39         34         87.2%         1.88           TRISTAN         40         30.38         39         39         100.0%         1.14           EQIPD         39         42.92         33         31         93.9%         2.80	TransBioLine	44	27.32	41	37	90.2%	2.11
EPND       43       28.74       39       36       92.3%       9.60         RADAR-AD       42       17.48       27       26       96.3%       1.79         NeuroDeRisk       42       8.19       39       35       89.7%       0.95         DRIVE       42       13.07       41       39       95.1%       0.90         ARDAT       40       16.75       39       34       87.2%       1.88         TRISTAN       40       30.38       39       39       100.0%       1.14         EQIPD       39       42.92       33       31       93.9%       2.80	ReSOLUTE	44	12.89	43	42	97.7%	1.25
RADAR-AD       42       17.48       27       26       96.3%       1.79         NeuroDeRisk       42       8.19       39       35       89.7%       0.95         DRIVE       42       13.07       41       39       95.1%       0.90         ARDAT       40       16.75       39       34       87.2%       1.88         TRISTAN       40       30.38       39       39       100.0%       1.14         EQIPD       39       42.92       33       31       93.9%       2.80	OPTIMA	43	19.56	40	40	100.0%	1.63
NeuroDeRisk         42         8.19         39         35         89.7%         0.95           DRIVE         42         13.07         41         39         95.1%         0.90           ARDAT         40         16.75         39         34         87.2%         1.88           TRISTAN         40         30.38         39         39         100.0%         1.14           EQIPD         39         42.92         33         31         93.9%         2.80	EPND	43	28.74	39	36	92.3%	
DRIVE       42       13.07       41       39       95.1%       0.90         ARDAT       40       16.75       39       34       87.2%       1.88         TRISTAN       40       30.38       39       39       100.0%       1.14         EQIPD       39       42.92       33       31       93.9%       2.80	RADAR-AD				26		
ARDAT       40       16.75       39       34       87.2%       1.88         TRISTAN       40       30.38       39       39       100.0%       1.14         EQIPD       39       42.92       33       31       93.9%       2.80	NeuroDeRisk	42	8.19	39	35	89.7%	0.95
TRISTAN       40       30.38       39       39       100.0%       1.14         EQIPD       39       42.92       33       31       93.9%       2.80	DRIVE	42	13.07		39	95.1%	
<b>EQIPD</b> 39 42.92 33 31 93.9% 2.80	ARDAT	40	16.75	39	34	87.2%	
	TRISTAN		30.38			100.0%	
PD-MitoQUANT 39 35.10 34 34 100.0% 1.96						93.9%	
	PD-MitoQUANT	39	35.10	34	34	100.0%	1.96

ROADMAP	38	32.58	31	31	100.0%	1.74
PROACTIVE	37	73.59	32	28	87.5%	2.29
IMMUCAN	37	19.27	20	20	100.0%	1.78
CARDIATEAM	36	67.47	33	31	93.9%	2.86
Immune-Image	36	11.19	31	29	93.5%	1.23
EBOVAC3	36	15.22	36	35	97.2%	1.81
SAFE-T	33	46.21	30	15	50.0%	1.56
NECESSITY	32	19.03	26	24	92.3%	2.44
PRISM 2	32	3.31	28	26	92.9%	0.95
VAC2VAC	32	9.97	32	31	96.9%	0.67
VITAL	31	13.39	30	30	100.0%	1.13
EBOVAC2	31	37.94	31	30	96.8%	1.72
ADVANCE	30	30.47	29	26	89.7%	1.08
ITCC-P4	30	33.17	28	26	92.9%	1.91
EbolaMoDRAD	26	29.23	26	18	69.2%	1.08
iCONSENSUS	25	11.12	23	21	91.3%	1.03
KRONO	24	17.54	20	20	100.0%	1.47
VALUE-Dx	24	21.50	23	23	100.0%	1.39
MACUSTAR	23	19.57	22	21	95.5%	1.75
EHR4CR	23	39.73	20	16	80.0%	1.73
BIGPICTURE	21	42.95	17	16	94.1%	3.02
PROMISE	21	17.24	16	14	87.5%	2.87
WEB-RADR	20	40.55	18	16	88.9%	1.67
VSV-EBOPLUS	20	28.65	19	16	84.2%	1.11
COMBACTE-CDI	19	16.37	17	16	94.1%	1.36
Screen4Care	18	9.89	16	16	100.0%	1.46
FAIRplus	18	40.56	17	17	100.0%	2.55
COMBACTE	17	154.53	17	12	70.6%	3.63
Trials@Home	17	18.29	14	14	100.0%	2.56
PIONEER	17	14.12	15	13	86.7%	0.93
PREMIER	17	15.88	17	17	100.0%	1.25
ImmUniverse	16	15.81	15	15	100.0%	1.68
HARMONY PLUS	15	9.00	11	11	100.0%	1.38
UNITE4TB	15	23.60	14	14	100.0%	2.68
MELLODDY	15	19.40	12	10	83.3%	1.95
DECISION	15	11.87	13	13	100.0%	1.29
EUPATI	14	23.64	12	11	91.7%	2.24
PERSIST-SEQ	14	31.79	13	12	92.3%	3.15
EBiSC2	13	15.23	13	12	92.3%	1.06
VSV-EBOVAC	13	31.46	12	9	75.0%	0.63
H2O	12	3.67	10	10	100.0%	0.90
VHFMoDRAD	11	44.00	11	11	100.0%	2.17
Eu2P	10	26.80	9	7	77.8%	1.89
Impentri	10	11.50	9	8	88.9%	1.93
FACILITATE	10	7.30	7	7	100.0%	1.93
PACILITATE	10	1.30	,	1	100.0%	1.22

EBODAC	10	50.10	10	9	90.0%	2.50
COVID-RED	10	16.80	9	9	100.0%	1.98
BEAMER	9	1.67	2	2	100.0%	1.28
PARADIGM	9	24.56	9	9	100.0%	1.45
PriMAVeRa	7	4.00	6	6	100.0%	0.76
DO->IT	7	67.14	6	5	83.3%	4.82
RespiriTB	7	18.00	7	7	100.0%	0.95
Pharmatrain	6	14.67	6	5	83.3%	0.43
SafeSciMET	6	48.67	6	3	50.0%	0.65
EBOMAN	6	66.00	6	5	83.3%	3.35
RealHOPE	6	4.67	6	6	100.0%	0.75
RespiriNTM	6	23.67	6	5	83.3%	1.13
NGN-PET	6	15.33	6	6	100.0%	1.24
NEURONET	6	9.50	5	5	100.0%	0.64
REsolution	5	14.60	4	4	100.0%	2.03
STOPFOP	5	16.20	5	5	100.0%	1.26
ND4BB	4	75.50	4	4	100.0%	0.91
ADAPT-SMART	4	15.75	4	4	100.0%	0.69
COMBINE	4	14.00	4	4	100.0%	0.76
Gravitate-Health	4	5.25	4	4	100.0%	0.88
EMTRAIN	3	2.67	3	1	33.3%	0.07
PharmaLedger	3	5.33	1	1	100.0%	1.10
GetReal Initiative	3	5.33	3	3	100.0%	0.40
ESCulab	3	6.67	3	2	66.7%	0.37
PROTECT-trial	3	8.00	2	2	100.0%	1.15
SISAQOL-IMI	3	17.33	3	3	100.0%	1.33
PEVIA	3	17.33	2	2	100.0%	0.60
GNA NOW	2	3.50	2	2	100.0%	2.02
RAPID-COVID	2	1.00	2	2	100.0%	0.25
TRIC-TB	2	3.50	2	2	100.0%	0.94
EBOVAC	1	71.00	1	1	100.0%	3.12
FILODIAG	1	22.00	1	1	100.0%	0.82

Table A4.4: Total number of IMI funded publications and papers across top journals by impact factor between 2010 and 2024

Journal	Number of Publications	Number of Papers	Citations per Publication	Mean Journal Normalized Citation Impact	Journal Impact Factor (2023)	Quartile Rank
Nature Reviews Drug Discovery	20	14	239.15	1.43	122.8	Q1
The Lancet	23	17	446.26	1.49	98.4	Q1
New England Journal of Medicine	4	3	513.00	2.62	96.3	Q1
The BMJ	17	17	295.00	2.02	93.7	Q1
Nature Reviews Molecular Cell Biology	2	2	829.00	0.59	81.4	Q1

Nature Reviews Clinical Oncology	11	11	985.73	1.93	81.1	Q1
Nature Reviews Disease Primers	3	3	3515.00	2.52	79	Q1
Nature Reviews Cancer	2	2	316.50	0.64	72.5	Q1
Nature Reviews Microbiology	3	3	550.00	1.12	69.2	Q1
Nature Reviews Immunology	5	5	344.40	0.96	67.7	Q1
JAMA	9	7	485.56	1.45	63.5	Q1
World Psychiatry	1	1	336.00	1.49	60.5	Q1
Nature Medicine	36	27	275.42	0.99	58.7	Q1
Annals of Oncology	24	11	81.08	0.55	56.7	Q1
Chemical Reviews	4	4	448.50	0.74	51.5	Q1
Nature	37	28	778.95	1.99	50.5	Q1
Nature Reviews Methods Primers	1	1	15.00	0.22	50.1	Q1
Cancer Cell	14	13	157.57	0.76	48.8	Q1
The Lancet Neurology	30	25	446.60	1.08	46.6	Q1
Nature Reviews Gastroenterology & Hepatology	6	6	370.50	1.59	46.4	Q1

Table A4.5: Total number of IMI funded papers published open access across top journals by IMI project publications between 2010 and 2024

Journal	Number of Publications	% of Open Access Publications	Number of Papers	% of Open Access Papers	Citations per Publication	Mean Journal Normalized Citation Impact	Journal Impact Factor (2023)	Quartile Rank
Annals of the Rheumatic Diseases	280	57.5%	145	62.8%	60.19	0.95	20.3	Q1
Scientific Reports	263	100.0%	263	100.0%	52.92	1.21	3.8	Q1
PLOS ONE	237	100.0%	235	100.0%	53.37	1.15	2.9	Q1
Nature Communications	214	100.0%	212	100.0%	134.12	1.18	14.7	Q1
Frontiers in Immunology	174	100.0%	174	100.0%	35.60	0.83	5.7	Q1
Journal of Medicinal Chemistry	122	72.1%	122	72.1%	43.70	1.02	6.9	Q1
Diabetologia	121	90.1%	116	90.5%	54.21	0.94	8.4	Q1
Alzheimer's & Dementia	112	88.4%	86	94.2%	146.29	1.90	13.1	Q1

International Journal of Molecular Sciences	110	100.0%	110	100.0%	47.36	1.06	4.9	Q1
Diabetes	102	59.8%	62	95.2%	31.86	0.94	6.2	Q1
Journal of Alzheimer's Disease	86	70.9%	85	70.6%	81.49	1.13	3.4	Q2
Arthritis Research & Therapy	80	100.0%	80	100.0%	41.65	0.84	4.4	Q1
Arthritis & Rheumatology	72	63.9%	70	62.9%	75.85	0.85	11.4	Q1
BMJ Open	68	100.0%	65	100.0%	49.84	1.94	2.4	Q1
Pain	67	38.8%	60	41.7%	286.37	2.29	5.9	Q1
Vaccine	67	82.1%	65	83.1%	51.82	1.42	4.5	Q2
Molecular Autism	66	100.0%	66	100.0%	56.50	1.16	6.2	Q1
Translational Psychiatry	65	100.0%	65	100.0%	62.08	1.05	5.8	Q1
Journal of Antimicrobial Chemotherapy	63	88.9%	58	91.4%	61.84	1.11	3.9	Q1
Alzheimer's Research & Therapy	63	100.0%	63	100.0%	56.13	1.07	8	Q1

Table A4.6: Total number of IMI funded papers published open access and impact by top 20 research fields between 2010 and 2024

Research field	Number of Publications	Number of Open Access Papers	% Open Access Papers	Mean Field- Normalized Citation Impact of Open Access Papers	Highly Cited Open Access Papers (Top 10% cited)	% Highly cited Open Access papers (Top 10% cited)
Clinical Sciences	3886	2,824	82.0%	2.63	1,107	39.2%
Biochemistry and Cell Biology	1522	1,298	90.6%	1.77	333	25.7%
Immunology	1336	993	82.6%	1.55	260	26.2%
Pharmacology and Pharmaceutical Sciences	1168	775	71.6%	1.83	189	24.4%
Biological Psychology	1137	919	84.5%	2.12	290	31.6%
Oncology and Carcinogenesis	963	743	86.2%	2.53	274	36.9%
Neurosciences	801	567	77.2%	2.55	216	38.1%
Medical Microbiology	742	634	89.5%	2.18	192	30.3%

Medicinal and Biomolecular Chemistry	704	531	80.8%	2.02	131	24.7%
Genetics	678	559	91.5%	3.26	145	25.9%
Health Services and Systems	672	578	94.6%	2.60	209	36.2%
Bioinformatics and Computational Biology	396	338	92.3%	2.77	89	26.3%
Epidemiology	341	304	94.4%	1.94	87	28.6%
Medical Biotechnology	325	216	69.2%	1.58	45	20.8%
Cardiovascular Medicine and Haematology	317	216	87.4%	3.21	102	47.2%
Microbiology	311	265	88.0%	1.58	63	23.8%
Organic Chemistry	288	207	73.4%	1.14	30	14.5%
Public Health	269	223	91.4%	2.95	92	41.3%
Medical Biochemistry and Metabolomics	246	181	84.2%	2.12	56	30.9%
Medical Physiology	183	138	82.1%	1.71	41	29.7%

<sup>\*</sup>Note: publications can be assigned into multiple research fields

Table A4.7: Comparison of IMI funded research against EU27+UK by top 20 research fields between 2010 and 2024

Research field	IMI Number of Publications	IMI Number of Papers	IMI publications Mean Field- Normalized Citation Impact	Europe (EU27) + UK Number of Publications	Europe (EU27) + UK Number of Papers	Europe (EU27) + UK publications Mean Field-Normalized Citation Impact
Clinical Sciences	3,886	3,444	2.57	1,916,662	1,279,451	1.25
Biochemistry and Cell Biology	1,522	1,433	1.75	430,141	355,349	1.11
Immunology	1,336	1,202	1.70	227,006	153,718	1.12
Pharmacology and Pharmaceutical Sciences	1,168	1,083	1.66	210,900	161,924	1.15
Biological Psychology	1,137	1,087	2.06	240,771	183,548	1.10
Oncology and Carcinogenesis	963	862	2.61	533,892	363,021	1.23
Neurosciences	801	734	2.50	202,465	127,756	1.14
Medical Microbiology	742	708	2.18	161,796	138,123	1.20
Medicinal and Biomolecular Chemistry	704	657	1.80	104,040	89,681	1.07
Genetics	678	611	3.04	225,834	195,489	1.27
Health Services and Systems	672	611	2.54	379,148	285,216	1.18

Bioinformatics and Computational Biology	396	366	2.60	97,229	82,842	1.25
Epidemiology	341	322	1.91	80,618	51,695	1.30
Medical Biotechnology	325	312	1.43	83,874	65,256	1.08
Cardiovascular Medicine and Haematology	317	247	2.90	343,862	180,672	1.22
Microbiology	311	301	1.74	210,869	188,404	1.19
Organic Chemistry	288	282	1.23	139,862	118,004	1.06
Public Health	269	244	2.73	228,268	171,169	1.20
Medical Biochemistry and Metabolomics	246	215	2.37	42,827	32,100	1.09
Medical Physiology	183	168	1.87	96,345	70,284	1.12

<sup>\*</sup>Note: publications can be assigned into multiple research fields.

# Annex 5: Data tables – Collaboration profile and geographical spread of IMI funded research

Table A5.1: Collaboration profile of IMI funded papers, 2010-2024

Collaboration types	Total papers	Percentage	Mean Field-Normalized Citation Impact
Cross-sector	9,754	73.9%	2.37
Single sector	3,442	26.1%	1.71
Cross-institution	11,210	86.0%	2.27
Single institution	1,819	14.0%	1.48
Cross-country	8,463	65.0%	2.47
Single country	4,566	35.0%	1.58

Table A5.2: Top countries collaborating with EU27 countries for IMI funded research, 2010-2024 (10 publications minimum)

Countries displayed have a minimum of 10 publications which have a European collaboration partner

Top Countries collaborating with Europe (EU27) countries	Number of Publications	Mean Field-Normalized Citation Impact
United Kingdom	4,262	2.88
United States	2,988	3.33
Switzerland	1,440	3.20
Canada	713	4.52
Australia	583	5.41
Norway	463	4.06
China	438	5.52
Japan	249	6.36
Israel	182	4.65
Brazil	171	4.34
Singapore	170	6.70
South Africa	145	8.88
South Korea	109	11.52
Iceland	87	6.92
Saudi Arabia	85	3.09
India	80	6.87
Turkey	73	13.28

Taiwan	70	9.62
Egypt	59	9.93
New Zealand	57	7.66
Chile	47	15.90
Russia	47	10.22
Argentina	45	18.38
Serbia	38	3.23
Thailand	29	6.56
Kenya	26	9.34
Iran	26	8.89
Mexico	24	24.39
Palestinian Territory	24	1.99
Qatar	23	4.32
Colombia	20	3.30
Ukraine	20	3.25
Malaysia	18	4.78
Democratic Republic of the Congo	18	1.15
Tanzania	16	1.84
Kuwait	15	6.19
Uganda	15	3.03
Pakistan	14	10.53
Vietnam	12	13.06
Liechtenstein	11	2.64
Bangladesh	10	8.29
Burkina Faso	10	3.35
Guinea	10	2.46
Nigeria	10	1.76
Sierra Leone	10	1.73

Table A5.3: Countries contributing to internationally collaborated IMI funded publications, by number of publications and mean field-normalized citation impact, 2010-2024

Country	Number of internationally collaborated publications	Mean Field-Normalized Citation Impact of internationally collaborated publications
United Kingdom	4,999	2.84
Germany	3,569	2.89
United States	3,515	3.25
Netherlands	3,191	2.83
Sweden	1,973	2.96
France	1,844	3.27
Italy	1,725	3.40
Spain	1,657	3.29
Switzerland	1,598	3.09
Belgium	1,347	3.26
Denmark	979	3.20
Canada	903	4.08
Austria	757	3.19
Australia	652	5.18
Finland	612	3.78
China	587	4.84
Norway	505	3.93
Greece	353	5.29
Ireland	353	3.72
Japan	280	6.13
Poland	278	3.82
Portugal	251	6.49
Israel	215	4.43
Brazil	209	3.81
Singapore	196	6.04
South Africa	180	7.86
Hungary	124	3.80
Czechia	122	6.48

Luxembourg	120	3.42
South Korea	118	10.92
Estonia	111	7.19
Saudi Arabia	97	3.07
India	93	6.28
Iceland	91	6.64
Taiwan	81	9.52
Turkey	77	12.66
Slovenia	75	4.29
New Zealand	70	6.39
Egypt	69	8.99
Lithuania	69	5.46
Croatia	68	7.88
Russia	53	9.51
Argentina	49	16.82
Chile	49	15.24
Cyprus	48	8.91
Romania	41	5.79
Serbia	38	3.23
Thailand	32	6.01
Kenya	29	8.41
Iran	28	8.67
Qatar	28	4.22
Latvia	26	9.53
Mexico	24	24.39
Palestinian Territory	24	1.99
Colombia	23	3.27
Ukraine	23	3.21
Tanzania	22	2.34
Malaysia	21	4.11
Uganda	18	2.96
Democratic Republic of the Congo	18	1.15

Pakistan	16	9.89
Sierra Leone	16	1.65
Bulgaria	15	17.67
Vietnam	15	12.12
Kuwait	15	6.19
Liechtenstein	13	2.27
Bangladesh	12	7.48
Georgia	11	12.89
Guinea	11	2.26
Nigeria	11	1.95
Burkina Faso	10	3.35
Indonesia	9	26.55
Mozambique	9	11.09
Slovakia	9	2.66
Malawi	9	2.50
Philippines	8	14.62
Gambia	8	9.63
Malta	8	4.13
Senegal	8	3.61
Lebanon	8	3.34
Tunisia	8	3.13
United Arab Emirates	8	2.15
Uruguay	8	2.05
Iraq	8	1.32
Gabon	8	1.19
Sri Lanka	7	24.10
Jordan	7	12.61
Belarus	7	3.76
Mali	6	2.93
Peru	6	1.74
North Macedonia	6	1.69
Ghana	5	32.28
El Salvador	4	13.85

Guatemala	4	13.36			
Nepal	4	11.92			
Ethiopia	4	8.08			
Oman	4	2.08			
Moldova	4	2.06			
Jamaica	3	3.22			
Bosnia and Herzegovina	3	2.80			
Kosovo	3	2.75			
Liberia	3	2.11			
Zambia	2	18.94			
Cambodia	2	18.82			
Ecuador	2	1.76			
Armenia	2	1.73			
Faroe Islands	2	1.41			
Rwanda	2	1.23			
Kazakhstan	2	0.82			
Ivory Coast	2	0.42			
Monaco	2	0.31			
Albania	2	0.30			
Bhutan	1	112.89			
Mongolia	1	112.89			
Paraguay	1	36.45			
Morocco	1	36.45			
Samoa	1	4.84			
Montenegro	1	4.38			
Cuba	1	4.22			
Namibia	1	4.05			
Niger	1	3.91			
Benin	1	3.91			
Bolivia	1	2.41			
Gibraltar	1	1.79			
Laos	1	1.20			
Republic of the Congo	1	0.86			

Suriname	1	0.70
Libya	1	0.69
Bahrain	1	0.46
Botswana	1	0.46
Zimbabwe	1	0.31
Algeria	1	0.22
Fiji	1	

Table A5.4: City clusters for IMI funded research, 2010-2024 (100 publications minimum)

City	Country	Region	Number of publications	Mean Field- Normalized Citation Impact of publications	Number of internationally collaborated publications
London	United Kingdom	Europe	3,303	2.92	2,728
Oxford	United Kingdom	Europe	1,374	3.49	1,171
Stockholm	Sweden	Europe (EU27)	1,370	2.78	1,158
Cambridge	United Kingdom	Europe	1,262	3.17	1,009
Amsterdam	Netherlands	Europe (EU27)	1,234	3.61	1,049
Paris	France	Europe (EU27)	1,160	3.56	998
Utrecht	Netherlands	Europe (EU27)	1,064	2.71	886
Barcelona	Spain	Europe (EU27)	1,013	3.74	882
Madrid	Spain	Europe (EU27)	904	2.93	724
Milan + Brescia	Italy	Europe (EU27)	838	3.77	688
Berlin	Germany	Europe (EU27)	792	3.65	638
Leiden	Netherlands	Europe (EU27)	781	2.30	569
Copenhagen	Denmark	Europe (EU27)	741	3.15	645
Boston USA + Cambridge USA	United States	North America	725	4.12	719
New York	United States	North America	681	4.95	668
Rotterdam	Netherlands	Europe (EU27)	670	2.91	592
Munich	Germany	Europe (EU27)	625	4.38	521
Basel	Switzerland	Europe	620	3.21	584
Nijmegen	Netherlands	Europe (EU27)	615	2.55	532
Vienna	Austria	Europe (EU27)	593	2.93	505
Maastricht	Netherlands	Europe (EU27)	569	3.95	518
Uppsala	Sweden	Europe (EU27)	559	2.41	454

Toronto	Canada	North America	558	3.88	496
Groningen	Netherlands	Europe (EU27)	543	2.66	453
Leuven	Belgium	Europe (EU27)	500	3.54	440
Frankfurt am Main	Germany	Europe (EU27)	491	2.69	391
Geneva	Switzerland	Europe	477	3.12	431
Edinburgh	United Kingdom	Europe	476	5.18	381
Heidelberg	Germany	Europe (EU27)	463	3.65	383
Rome	Italy	Europe (EU27)	460	3.33	344
Hamburg	Germany	Europe (EU27)	459	3.15	351
Erlangen	Germany	Europe (EU27)	458	3.24	322
Manchester	United Kingdom	Europe	441	2.69	369
Brussels	Belgium	Europe (EU27)	439	3.62	406
Newcastle upon Tyne	United Kingdom	Europe	431	4.70	365
Bonn	Germany	Europe (EU27)	431	3.54	336
Zurich	Switzerland	Europe	428	3.25	388
Lausanne	Switzerland	Europe	399	2.83	362
Molndal + Gothenburg	Sweden	Europe (EU27)	394	3.98	378
Lund	Sweden	Europe (EU27)	384	3.86	353
Dundee	United Kingdom	Europe	364	3.09	291
Helsinki	Finland	Europe (EU27)	344	3.90	311
Oslo	Norway	Europe	337	3.69	324
Dublin	Ireland	Europe (EU27)	332	3.63	308
Mannheim	Germany	Europe (EU27)	332	3.21	300
Melbourne	Australia	Oceania	304	5.08	302
Nottingham	United Kingdom	Europe	303	3.19	262
Antwerp	Belgium	Europe (EU27)	292	4.75	252
Dresden	Germany	Europe (EU27)	269	2.67	244
Montreal	Canada	North America	268	4.40	259
Birmingham	United Kingdom	Europe	261	5.58	207
Tübingen	Germany	Europe (EU27)	259	2.36	213
Pisa	Italy	Europe (EU27)	256	2.96	204
Hanover	Germany	Europe (EU27)	254	3.30	195
Indianapolis	United States	North America	251	5.39	246

Hopewell	United States	North America	251	3.25	248
Bethesda	United States	North America	250	4.91	246
Leverkusen	Germany	Europe (EU27)	248	1.91	223
Philadelphia	United States	North America	242	5.05	237
Los Angeles	United States	North America	240	5.99	237
Freiburg	Germany	Europe (EU27)	239	2.91	191
Beerse	Belgium	Europe (EU27)	239	2.27	218
Braunschweig	Germany	Europe (EU27)	233	2.88	186
Aarhus	Denmark	Europe (EU27)	228	4.53	199
Ghent	Belgium	Europe (EU27)	228	3.36	203
Liverpool	United Kingdom	Europe	223	3.34	170
Sheffield	United Kingdom	Europe	217	2.12	182
Athens	Greece	Europe (EU27)	216	6.96	198
Kiel	Germany	Europe (EU27)	216	3.90	175
Bristol	United Kingdom	Europe	215	2.87	167
Glasgow	United Kingdom	Europe	211	3.71	150
Göttingen	Germany	Europe (EU27)	201	4.84	171
Singapore	Singapore	Asia	196	6.04	196
Southampton	United Kingdom	Europe	196	4.76	175
Exeter	United Kingdom	Europe	195	2.46	162
Cologne	Germany	Europe (EU27)	194	3.71	166
Ulm	Germany	Europe (EU27)	194	1.93	134
Marseille	France	Europe (EU27)	193	3.09	157
Graz	Austria	Europe (EU27)	192	4.15	156
Seattle	United States	North America	190	8.19	184
Baltimore	United States	North America	190	5.41	189
Chapel Hill	United States	North America	188	3.81	157
Kuopio	Finland	Europe (EU27)	187	3.12	175
Turin	Italy	Europe (EU27)	184	6.82	149
San Francisco	United States	North America	180	6.96	179
Mainz	Germany	Europe (EU27)	175	3.98	140
Lille	France	Europe (EU27)	175	2.29	155
Leeds	United Kingdom	Europe	174	3.95	111

Cardiff	United Kingdom	Europe	173	4.44	149
Seville	Spain	Europe (EU27)	167	6.89	142
Granada	Spain	Europe (EU27)	167	2.93	141
Münster	Germany	Europe (EU27)	163	5.20	143
Stanford	United States	North America	161	5.75	158
Södertälje	Sweden	Europe (EU27)	161	2.45	145
Bergen	Norway	Europe	159	4.86	136
San Diego	United States	North America	154	9.24	150
Toulouse	France	Europe (EU27)	153	2.60	144
Düsseldorf	Germany	Europe (EU27)	151	6.76	113
Sydney	Australia	Oceania	150	7.67	149
Cerdanyola del Vallès	Spain	Europe (EU27)	150	2.11	121
Leicester	United Kingdom	Europe	147	5.54	118
Leipzig	Germany	Europe (EU27)	143	4.67	114
Bern	Switzerland	Europe	143	4.49	139
Bologna	Italy	Europe (EU27)	143	3.62	121
Lyon	France	Europe (EU27)	143	3.38	127
Durham	United States	North America	142	6.70	135
Turku	Finland	Europe (EU27)	140	4.77	121
Ingelheim am Rhein	Germany	Europe (EU27)	139	2.65	117
Aachen	Germany	Europe (EU27)	135	3.08	110
Houston	United States	North America	128	8.96	128
Umeå	Sweden	Europe (EU27)	128	4.87	124
Hong Kong	China	Asia	127	9.74	127
Brisbane	Australia	Oceania	126	9.70	122
Gif-sur-Yvette	France	Europe (EU27)	126	2.54	114
Chicago	United States	North America	125	11.43	118
De Bilt	Netherlands	Europe (EU27)	125	2.55	100
Thessaloniki	Greece	Europe (EU27)	123	2.82	109
Perth	Australia	Oceania	122	7.52	122
Valencia	Spain	Europe (EU27)	122	6.29	94
Wurzburg	Germany	Europe (EU27)	122	5.52	98
Vancouver	Canada	North America	121	4.47	118

Charlottenlund	Denmark	Europe (EU27)	121	3.18	117
Beijing	China	Asia	120	6.21	120
Orsay	France	Europe (EU27)	120	2.14	97
Odense	Denmark	Europe (EU27)	117	4.25	107
Florence	Italy	Europe (EU27)	116	4.24	88
Montpellier	France	Europe (EU27)	116	3.06	94
Krakow	Poland	Europe (EU27)	116	2.67	112
St Louis	United States	North America	115	12.66	113
Ann Arbor	United States	North America	115	6.32	114
Innsbruck	Austria	Europe (EU27)	115	3.11	106
Greifswald	Germany	Europe (EU27)	112	4.34	88
Burlington	United States	North America	112	2.71	111
Stuttgart	Germany	Europe (EU27)	112	2.27	90
Tartu	Estonia	Europe (EU27)	111	8.96	103
Luxembourg	Luxembourg	Europe (EU27)	111	3.15	109
Lübeck	Germany	Europe (EU27)	110	4.05	100
Santander	Spain	Europe (EU27)	110	3.80	93
Padova	Italy	Europe (EU27)	110	3.75	85
Ede	Netherlands	Europe (EU27)	110	2.57	87
Lisbon	Portugal	Europe (EU27)	109	11.12	108
Tokyo	Japan	Asia	108	7.89	108
Bremen	Germany	Europe (EU27)	108	1.91	80
Bordeaux	France	Europe (EU27)	107	3.63	98
Prague	Czechia	Europe (EU27)	103	6.86	98
Verona	Italy	Europe (EU27)	100	4.58	92
Kongens Lyngby	Denmark	Europe (EU27)	100	3.49	84

Table A5.5: Top organizations within each city cluster based on volume of IMI funded publications, 2010-2024 (10 publications minimum)

City	Country	Organizations	Organization type	Number of Publications	Mean Field-Normalized Citation Impact of publications
London	United	King's College London	Education	1347	2.81
	Kingdom	University College London	Education	966	3.57
		Imperial College London	Education	827	3.23
		GlaxoSmithKline	Company	228	2.81

London School of Hygiene & Tropical Medicine	Education	181	3.56
Birkbeck, University of London	Education	142	2.17
South London and Maudsley NHS Foundation Trust	Healthcare	128	2.53
Queen Mary University of London	Education	123	8.06
National Institute for Health and Care Research	Government	90	6.39
Royal Brompton Hospital	Healthcare	88	3.58
Health Data Research UK	Nonprofit	88	5.21
National Hospital for Neurology and Neurosurgery	Healthcare	83	4.49
National Health Service England	Healthcare	74	5.86
St George's, University of London	Education	64	3.14
The Alan Turing Institute	Facility	59	5.25
Medicines and Healthcare Products Regulatory Agency	Government	54	4.02
University College London Hospitals NHS Foundation Trust	Healthcare	49	4.16
University of London	Education	48	4.66
Institute of Cancer Research	Education	47	3.40
UCL Biomedical Research Centre	Healthcare	45	2.93
Medical Research Council	Government	44	3.00
UK Dementia Research Institute	Facility	41	2.27
Guy's and St Thomas' NHS Foundation Trust	Healthcare	39	3.26
University College Hospital	Healthcare	39	2.86
Public Health England	Government	38	1.05
The Francis Crick Institute	Nonprofit	37	6.60
King's College Hospital	Healthcare	36	4.11
NIHR Maudsley Dementia Biomedical Research Unit	Government	36	3.54
Hammersmith Hospital	Healthcare	35	2.96
King's College Hospital NHS Foundation Trust	Healthcare	30	3.30
General Electric	Company	29	2.12
London School of Economics and Political Science	Education	25	2.09
Guy's Hospital	Healthcare	25	3.64
Evelina London Children's Healthcare	Healthcare	24	1.67
Royal London Hospital	Healthcare	24	4.54
King's Health Partners	Healthcare	23	1.92
Bethlem Royal Hospital	Healthcare	21	2.01
St Thomas' Hospital	Healthcare	21	1.69
NIHR Maudsley Biomedical Research Centre	Healthcare	21	1.69
British Heart Foundation	Nonprofit	21	4.43
Royal Brompton & Harefield NHS Foundation Trust	Healthcare	20	5.00
St Bartholomew's Hospital	Healthcare	17	1.84
Brunel University London	Education	17	4.41

		UK Health Security Agency	Government	17	2.00
		Barts Health NHS Trust	Healthcare	16	4.60
		University of Westminster	Education	16	2.92
		MRC Unit for Lifelong Health and Ageing	Facility	14	3.49
		IQVIA	Company	13	1.80
		Imperial College Healthcare NHS Trust	Healthcare	13	2.73
		Royal Veterinary College	Education	13	3.56
		Wellcome Trust	Nonprofit	12	2.31
		Wellcome Centre for Human Neuroimaging	Facility	12	2.77
		MRC Laboratory for Molecular Cell Biology	Facility	12	2.59
		Ixico	Company	11	2.09
		St Georgea's University Hospitals NHS Foundation Trust	Healthcare	10	3.07
		Royal Marsden Hospital	Healthcare	10	5.25
		Royal College of General Practitioners	Education	10	1.25
		University of Greenwich	Education	10	2.75
Berlin	Germany	Charité - University Medicine Berlin	Healthcare	412	3.77
		German Centre for Cardiovascular Research	Facility	140	3.61
		Berlin Institute of Health at Charité – Universitätsmedizin Berlin	Facility	75	8.71
		Humboldt-Universität zu Berlin	Education	69	8.51
		German Rheumatism Research Centre	Facility	58	3.81
		Max Delbrück Center for Molecular Medicine	Facility	43	6.83
		Max Planck Institute for Infection Biology	Facility	37	4.87
		Freie Universität Berlin	Education	34	4.56
		Max Planck Institute for Molecular Genetics	Facility	27	2.44
		Technical University of Berlin	Education	19	0.62
		Roche	Company	19	2.40
		Cluster of Excellence "NeuroCure"	Facility	17	5.96
		Life Molecular Imaging	Company	17	2.34
		Robert Koch Institute	Government	14	17.64
		Leibniz-Forschungsinstitut für Molekulare Pharmakologie	Facility	14	1.69
Boston +	United	Harvard University	Education	449	4.35
Cambridge	States	Massachusetts General Hospital	Healthcare	208	5.21
		Broad Institute	Nonprofit	136	6.82
		Brigham and Women's Hospital	Healthcare	114	4.54
		Boston University	Education	91	5.11
		Boston Children's Hospital	Healthcare	72	4.55
		Beth Israel Deaconess Medical Center	Healthcare	52	8.42
		Northeastern University	Education	32	1.45
		Biogen	Company	31	9.33
		Dana-Farber Cancer Institute	Facility	28	12.46
		Massachusetts Institute of Technology	Education	23	3.18
		VA Boston Healthcare System	Healthcare	13	21.42
		Tufts Medical Center	Healthcare	11	2.66

Amsterdam	Netherlands	Vrije Universiteit Amsterdam	Education	354	2.91
		Amsterdam UMC Location VUmc	Healthcare	352	4.27
		University of Amsterdam	Education	286	5.69
		Amsterdam Neuroscience	Facility	277	4.02
		Amsterdam University Medical Centers	Healthcare	159	7.63
		Academic Medical Center	Healthcare	156	4.54
		European Medicines Agency	Government	58	1.72
		Antoni van Leeuwenhoek Hospital	Healthcare	27	6.31
		GGZ inGeest	Nonprofit	18	6.06
		Reade	Facility	16	4.36
		Emma Kinderziekenhuis	Healthcare	14	4.54
		Sanquin	Nonprofit	14	2.51
Stockholm	Sweden	Karolinska Institutet	Education	1137	2.88
		Karolinska University Hospital	Healthcare	423	2.84
		KTH Royal Institute of Technology	Education	103	1.85
		Stockholm Regional Council	Government	83	1.97
		Stockholm University	Education	77	2.34
		Stockholm Health Care Services	Healthcare	50	1.68
		Science for Life Laboratory	Facility	37	2.15
		Danderyds sjukhus	Healthcare	15	3.07

Table A5.6: Top countries collaborating with the UK for IMI funded research, 2010-2024 (10 publications minimum)

Top Countries collaborating with UK	Number of Publications	Mean Field-Normalized Citation Impact
United States	2,056	3.74
Netherlands	2,006	3.17
Germany	1,937	3.53
Sweden	1,153	3.54
France	1,133	4.05
Spain	1,060	4.00
Italy	1,032	4.20
Switzerland	968	3.43
Belgium	805	4.29
Denmark	659	3.85
Canada	584	4.89
Australia	473	6.20
Finland	400	4.42
Austria	391	4.18
China	378	6.40

Norway   364   4.91			
Greece         234         6.94           Japan         181         8.15           Poland         176         5.06           Portugal         158         9.00           Singapore         152         7.27           Israel         143         5.49           South Africa         133         9.78           Brazil         116         5.16           South Korea         99         12.54           Hungary         89         4.64           Saudi Arabia         84         3.28           Estonia         82         8.93           Luxembourg         81         4.07           Czechia         77         8.19           Taiwan         72         10.20           India         66         8.10           New Zealand         59         7.29           Croatia         57         8.99           Iceland         57         8.91           Slovenia         52         4.63           Turkey         48         18.81           Lithuania         46         7.05           Egypt         38         15.32           Russia	Norway	364	4.91
Japan	Ireland	287	4.14
Poland         176         5.06           Portugal         158         9.00           Singapore         152         7.27           Israel         143         5.49           South Africa         133         9.78           Brazil         116         5.16           South Korea         99         12.54           Hungary         89         4.64           Saudi Arabia         84         3.28           Estonia         82         8.93           Luxembourg         81         4.07           Czechia         77         8.19           Taiwan         72         10.20           India         66         8.10           New Zealand         59         7.29           Croatia         57         8.99           Iceland         57         8.91           Slovenia         52         4.63           Turkey         48         18.81           Lithuania         46         7.05           Egypt         38         15.32           Russia         37         12.46           Cyprus         36         10.81           Romania	Greece	234	6.94
Portugal   158   9.00	Japan	181	8.15
Singapore   152   7.27     Israel   143   5.49     South Africa   133   9.78     Brazil   116   5.16     South Korea   99   12.54     Hungary   89   4.64     Saudi Arabia   84   3.28     Estonia   82   8.93     Luxembourg   81   4.07     Czechia   77   8.19     Taiwan   72   10.20     India   66   8.10     New Zealand   59   7.29     Croatia   57   8.99     Iceland   57   8.91     Slovenia   52   4.63     Turkey   48   18.81     Lithuania   46   7.05     Egypt   38   15.32     Russia   37   12.46     Cyprus   36   10.81     Romania   34   6.46     Chile   32   21.85     Argentina   25   29.27     Serbia   24   3.47     Palestinian Territory   24   1.99	Poland	176	5.06
Israel   143   5.49     South Africa   133   9.78     Brazil   116   5.16     South Korea   99   12.54     Hungary   89   4.64     Saudi Arabia   84   3.28     Estonia   82   8.93     Luxembourg   81   4.07     Czechia   77   8.19     Taiwan   72   10.20     India   66   8.10     New Zealand   59   7.29     Croatia   57   8.99     Iceland   57   8.91     Slovenia   52   4.63     Turkey   48   18.81     Lithuania   46   7.05     Egypt   38   15.32     Russia   37   12.46     Cyprus   36   10.81     Romania   34   6.46     Chile   32   21.85     Argentina   25   29.27     Serbia   24   3.47     Palestinian Territory   24   1.99	Portugal	158	9.00
South Africa       133       9.78         Brazil       116       5.16         South Korea       99       12.54         Hungary       89       4.64         Saudi Arabia       84       3.28         Estonia       82       8.93         Luxembourg       81       4.07         Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Singapore	152	7.27
Brazil       116       5.16         South Korea       99       12.54         Hungary       89       4.64         Saudi Arabia       84       3.28         Estonia       82       8.93         Luxembourg       81       4.07         Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Israel	143	5.49
South Korea       99       12.54         Hungary       89       4.64         Saudi Arabia       84       3.28         Estonia       82       8.93         Luxembourg       81       4.07         Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	South Africa	133	9.78
Hungary       89       4.64         Saudi Arabia       84       3.28         Estonia       82       8.93         Luxembourg       81       4.07         Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Brazil	116	5.16
Saudi Arabia       84       3.28         Estonia       82       8.93         Luxembourg       81       4.07         Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	South Korea	99	12.54
Estonia       82       8.93         Luxembourg       81       4.07         Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Hungary	89	4.64
Luxembourg       81       4.07         Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Saudi Arabia	84	3.28
Czechia       77       8.19         Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Estonia	82	8.93
Taiwan       72       10.20         India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Luxembourg	81	4.07
India       66       8.10         New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Czechia	77	8.19
New Zealand       59       7.29         Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Taiwan	72	10.20
Croatia       57       8.99         Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	India	66	8.10
Iceland       57       8.91         Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	New Zealand	59	7.29
Slovenia       52       4.63         Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Croatia	57	8.99
Turkey       48       18.81         Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Iceland	57	8.91
Lithuania       46       7.05         Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Slovenia	52	4.63
Egypt       38       15.32         Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Turkey	48	18.81
Russia       37       12.46         Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Lithuania	46	7.05
Cyprus       36       10.81         Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Egypt	38	15.32
Romania       34       6.46         Chile       32       21.85         Argentina       25       29.27         Serbia       24       3.47         Palestinian Territory       24       1.99	Russia	37	12.46
Chile         32         21.85           Argentina         25         29.27           Serbia         24         3.47           Palestinian Territory         24         1.99	Cyprus	36	10.81
Argentina 25 29.27  Serbia 24 3.47  Palestinian Territory 24 1.99	Romania	34	6.46
Serbia 24 3.47  Palestinian Territory 24 1.99	Chile	32	21.85
Palestinian Territory 24 1.99	Argentina	25	29.27
	Serbia	24	3.47
Kenya 22 10.19	Palestinian Territory	24	1.99
	Kenya	22	10.19

Thailand	21	8.62
Qatar	20	5.03
Tanzania	20	2.43
Iran	18	13.08
Colombia	16	4.27
Uganda	16	2.78
Sierra Leone	16	1.65
Latvia	15	15.56
Malaysia	14	5.73
Mexico	13	43.28
Vietnam	13	13.94
Pakistan	13	11.56
Nigeria	11	1.95
Georgia	10	14.05
Bangladesh	10	8.94

Table A5.7: Top 50 city collaborations for IMI funded research with the London cluster, 2010-2024

Rank	City	Country	Region	Number of collaborated publications	Mean Field-Normalized Citation Impact of collaborated publications
1	Cambridge	United Kingdom	Europe	648	3.35
	Amsterdam	Netherlands	Europe (EU27)	582	3.95
	Oxford	United Kingdom	Europe	520	4.39
4	Stockholm	Sweden	Europe (EU27)	465	4.71
5	Paris	France	Europe (EU27)	437	5.06
	Barcelona	Spain	Europe (EU27)	388	4.86
	Utrecht	Netherlands	Europe (EU27)	381	4.46
8	Madrid	Spain	Europe (EU27)	326	4.18
9	Milan + Brescia	Italy	Europe (EU27)	325	4.38
10	Berlin	Germany	Europe (EU27)	311	5.39
11	Edinburgh	United Kingdom	Europe	274	5.49
12	Copenhagen	Denmark	Europe (EU27)	274	5.37
13	Boston USA + Cambridge USA	United States	North America	269	5.59

14	Nijmegen	Netherlands	Europe (EU27)	264	3.28
15	New York	United States	North America	258	6.22
16	Basel	Switzerland	Europe	249	4.45
17	Maastricht	Netherlands	Europe (EU27)	246	4.90
18	Mannheim	Germany	Europe (EU27)	231	3.60
19	Munich	Germany	Europe (EU27)	229	5.91
20	Toronto	Canada	North America	220	5.16
21	Geneva	Switzerland	Europe	207	4.51
22	Manchester	United Kingdom	Europe	207	3.73
23	Molndal + Gothenburg	Sweden	Europe (EU27)	206	5.18
24	Leuven	Belgium	Europe (EU27)	196	5.76
25	Nottingham	United Kingdom	Europe	196	3.40
26	Rotterdam	Netherlands	Europe (EU27)	189	5.40
27	Dublin	Ireland	Europe (EU27)	186	4.69
28	Montreal	Canada	North America	182	4.79
29	Dresden	Germany	Europe (EU27)	175	3.11
30	Brussels	Belgium	Europe (EU27)	168	4.06
31	Leiden	Netherlands	Europe (EU27)	166	4.70
32	Groningen	Netherlands	Europe (EU27)	164	5.21
33	Hamburg	Germany	Europe (EU27)	164	4.46
34	Vienna	Austria	Europe (EU27)	161	5.75
35	Zurich	Switzerland	Europe	159	4.31
36	Oslo	Norway	Europe	155	5.50
37	Lausanne	Switzerland	Europe	155	4.11
38	Heidelberg	Germany	Europe (EU27)	150	6.63
39	Melbourne	Australia	Oceania	148	7.58
40	Newcastle upon Tyne	United Kingdom	Europe	148	4.79
41	Bonn	Germany	Europe (EU27)	147	6.36
42	Southampton	United Kingdom	Europe	134	2.59
43	Uppsala	Sweden	Europe (EU27)	130	4.15
44	Birmingham	United Kingdom	Europe	127	5.54
45	Dundee	United Kingdom	Europe	126	4.49
46	Lund	Sweden	Europe (EU27)	124	5.52

47	Singapore	Singapore	Asia	123	7.85
48	Rome	Italy	Europe (EU27)	122	6.58
49	Helsinki	Finland	Europe (EU27)	117	5.26
50	Los Angeles	United States	North America	115	8.06

Table A5.8: Top countries collaborating with Germany for IMI funded research, 2010-2024 (10 publications minimum)

Top Countries collaborating with Germany	Number of Publications	Mean Field-Normalized Citation Impact
United Kingdom	1,937	3.53
United States	1,458	3.87
Netherlands	1,208	3.71
France	972	4.20
Switzerland	860	3.80
Sweden	804	3.81
Italy	800	4.71
Spain	757	4.55
Belgium	565	5.05
Austria	510	3.69
Denmark	475	4.60
Canada	398	5.41
Finland	292	4.98
Norway	290	4.71
Australia	280	8.55
Ireland	242	4.24
China	214	8.72
Greece	207	7.38
Poland	178	5.20
Portugal	149	9.87
Japan	141	8.97
Israel	127	5.19
Singapore	96	9.46
Luxembourg	85	4.33
Brazil	83	6.48

South Africa	73	14.95
Czechia	73	8.92
Hungary	72	5.69
Slovenia	60	4.86
South Korea	58	18.88
Estonia	51	11.51
Iceland	50	9.22
Turkey	48	18.72
Croatia	47	10.39
India	45	9.75
Russia	38	12.35
New Zealand	38	10.17
Taiwan	35	15.21
Saudi Arabia	32	5.32
Argentina	31	25.13
Chile	27	25.32
Romania	26	6.96
Serbia	25	3.95
Egypt	22	23.40
Cyprus	22	14.56
Lithuania	21	13.65
Thailand	16	10.87
Iran	13	16.88
Qatar	13	6.01
Latvia	12	18.27
Kenya	12	15.53
Bulgaria	10	25.93
Pakistan	10	13.07

Table A5.9: Top 50 city collaborations for IMI funded research with the Berlin cluster, 2010-2024

Rank	City	Country	Region	Number of collaborated publications	Mean Field-Normalized Citation Impact of collaborated publications
1	London	United Kingdom	Europe	311	5.39

2	Hamburg	Germany	Europe (EU27)	211	3.68
3	Paris	France	Europe (EU27)	178	6.66
4	Mannheim	Germany	Europe (EU27)	144	4.55
5	Munich	Germany	Europe (EU27)	129	6.79
6	Dublin	Ireland	Europe (EU27)	126	5.33
7	Dresden	Germany	Europe (EU27)	125	2.71
8	Heidelberg	Germany	Europe (EU27)	113	6.70
	Braunschweig	Germany	Europe (EU27)	112	3.80
10	Toronto	Canada	North America	110	6.43
11	Nottingham	United Kingdom	Europe	109	3.67
12	Barcelona	Spain	Europe (EU27)	108	9.30
13	Stockholm	Sweden	Europe (EU27)	105	7.62
14	Vienna	Austria	Europe (EU27)	105	6.17
15	Bonn	Germany	Europe (EU27)	104	8.18
16	Göttingen	Germany	Europe (EU27)	104	7.09
17	Amsterdam	Netherlands	Europe (EU27)	103	7.57
18	Cambridge	United Kingdom	Europe	102	5.29
18	Cambridge  Boston USA + Cambridge  USA	United Kingdom United States	Europe  North America	<b>102</b> 99	5.29 8.77
	Boston USA + Cambridge				
19	Boston USA + Cambridge USA	United States	North America	99	8.77
19 20	Boston USA + Cambridge USA Burlington	United States United States	North America	99 98	8.77 2.59
19 20 21	Boston USA + Cambridge USA Burlington New York	United States United States United States	North America  North America  North America	99 98 93	8.77 2.59 8.90
19 20 21 22	Boston USA + Cambridge USA  Burlington  New York  Madrid	United States United States United States Spain	North America  North America  North America  Europe (EU27)	99 98 93 93	8.77 2.59 8.90 7.89
19 20 21 22 23	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal	United States United States United States Spain Canada	North America  North America  North America  Europe (EU27)  North America	99 98 93 93 87	8.77 2.59 8.90 7.89 5.91
19 20 21 22 23 24	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal  Erlangen	United States United States United States Spain Canada Germany	North America  North America  North America  Europe (EU27)  North America  Europe (EU27)	99 98 93 93 87 84	8.77 2.59 8.90 7.89 5.91 5.80
19 20 21 22 23 24 25	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal  Erlangen  Milan + Brescia	United States United States United States Spain Canada Germany Italy	North America  North America  North America  Europe (EU27)  North America  Europe (EU27)  Europe (EU27)	99 98 93 93 87 84 80	8.77 2.59 8.90 7.89 5.91 5.80 8.87
19 20 21 22 23 24 25 26	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal  Erlangen  Milan + Brescia  Oxford	United States United States United States Spain Canada Germany Italy United Kingdom	North America  North America  North America  Europe (EU27)  North America  Europe (EU27)  Europe (EU27)  Europe (EU27)	99 98 93 93 87 84 80 76	8.77 2.59 8.90 7.89 5.91 5.80 8.87
19 20 21 22 23 24 25 26 27	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal  Erlangen  Milan + Brescia  Oxford  Copenhagen	United States United States United States Spain Canada Germany Italy United Kingdom Denmark	North America  North America  North America  Europe (EU27)  North America  Europe (EU27)  Europe (EU27)  Europe (EU27)  Europe (EU27)	99 98 93 93 87 84 80 76	8.77 2.59 8.90 7.89 5.91 5.80 8.87 10.11 12.58
19 20 21 22 23 24 25 26 27 28	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal  Erlangen  Milan + Brescia  Oxford  Copenhagen  Utrecht	United States United States United States United States Spain Canada Germany Italy United Kingdom Denmark Netherlands	North America  North America  North America  Europe (EU27)  North America  Europe (EU27)  Europe (EU27)  Europe (EU27)  Europe (EU27)  Europe (EU27)  Europe (EU27)	99 98 93 93 87 84 80 76 73	8.77 2.59 8.90 7.89 5.91 5.80 8.87 10.11 12.58 11.81
19 20 21 22 23 24 25 26 27 28 29	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal  Erlangen  Milan + Brescia  Oxford  Copenhagen  Utrecht  Basel	United States United States United States United States Spain Canada Germany Italy United Kingdom Denmark Netherlands Switzerland	North America  North America  North America  Europe (EU27)  North America  Europe (EU27)  Europe (EU27)  Europe (EU27)  Europe  Europe (EU27)  Europe (EU27)  Europe (EU27)	99 98 93 93 87 84 80 76 73 67	8.77 2.59 8.90 7.89 5.91 5.80 8.87 10.11 12.58 11.81 8.81
19 20 21 22 23 24 25 26 27 28 29 30	Boston USA + Cambridge USA  Burlington  New York  Madrid  Montreal  Erlangen  Milan + Brescia  Oxford  Copenhagen  Utrecht  Basel  Edinburgh	United States United States United States United States Spain Canada Germany Italy United Kingdom Denmark Netherlands Switzerland United Kingdom	North America  North America  North America  Europe (EU27)  North America  Europe (EU27)  Europe (EU27)  Europe  Europe (EU27)  Europe  Europe (EU27)  Europe  Europe (EU27)	99 98 93 93 87 84 80 76 73 67 67	8.77 2.59 8.90 7.89 5.91 5.80 8.87 10.11 12.58 11.81 8.81 11.08

34	Zurich	Switzerland	Europe	57	7.41
35	Gif-sur-Yvette	France	Europe (EU27)	57	2.99
36	Cologne	Germany	Europe (EU27)	56	7.31
37	Orsay	France	Europe (EU27)	56	2.38
38	Geneva	Switzerland	Europe	54	7.12
39	Groningen	Netherlands	Europe (EU27)	50	11.21
40	Leiden	Netherlands	Europe (EU27)	50	9.04
41	Bethesda	United States	North America	49	13.09
42	Leuven	Belgium	Europe (EU27)	48	11.47
43	Nijmegen	Netherlands	Europe (EU27)	47	6.51
44	Melbourne	Australia	Oceania	45	17.09
45	Oslo	Norway	Europe	45	11.12
46	Graz	Austria	Europe (EU27)	44	7.95
47	Molndal + Gothenburg	Sweden	Europe (EU27)	44	7.21
48	Freiburg	Germany	Europe (EU27)	43	7.98
49	Greifswald	Germany	Europe (EU27)	43	7.56
50	Leverkusen	Germany	Europe (EU27)	43	2.09

Table A5.10: Top countries collaborating with the United States for IMI funded research, 2010-2024 (10 publications minimum)

Top Countries collaborating with USA	Number of Publications	Mean Field-Normalized Citation Impact
United Kingdom	2,056	3.74
Germany	1,458	3.87
Netherlands	1,273	4.11
Sweden	789	4.12
France	768	4.76
Italy	699	5.23
Spain	698	4.94
Switzerland	670	4.31
Canada	585	5.03
Belgium	530	5.30
Denmark	451	4.55
Australia	380	7.11

Finland         288         5.04           China         276         7.59           Norway         259         5.26           Ireland         210         4.64           Japan         169         8.61           Greece         148         9.84           Israel         118         5.69           Singapore         113         8.52           Brazil         109         5.82           Poland         102         6.86           Portugal         97         12.92           South Korea         93         13.18           South Africa         93         13.18           South Africa         93         12.57           Saudi Arabia         62         2.86           India         59         8.80           Czechia         57         10.21           Iceland         56         8.83           Estonia         50         10.31           Turkey         42         21.79           Taiwan         42         14.41           Luxembourg         41         6.82           New Zealand         39         10.54           Hungary <th>Austria</th> <th>320</th> <th>4.96</th>	Austria	320	4.96
Norway   259   5.26	Finland	288	5.04
Ireland   210	China	276	7.59
Japan   169   8.61     Greece   148   9.84     Israel   118   5.69     Singapore   113   8.52     Brazil   109   5.82     Poland   102   6.86     Portugal   97   12.92     South Korea   93   13.18     South Africa   93   12.57     Saudi Arabia   62   2.86     India   59   8.80     Czechia   57   10.21     Iceland   56   8.83     Estonia   50   10.31     Turkey   42   21.79     Taiwan   42   14.41     Luxembourg   41   6.82     New Zealand   39   10.54     Hungary   39   7.72     Croatia   37   11.12     Argentina   34   22.26     Russia   33   13.84     Chile   31   23.59     Lithuania   29   10.53     Slovenia   26   7.45     Romania   24   7.66     Egypt   22   25.53	Norway	259	5.26
Greece   148   9.84	Ireland	210	4.64
Singapore	Japan	169	8.61
Singapore         113         8.52           Brazil         109         5.82           Poland         102         6.86           Portugal         97         12.92           South Korea         93         13.18           South Africa         93         12.57           Saudi Arabia         62         2.86           India         59         8.80           Czechia         57         10.21           Iceland         56         8.83           Estonia         50         10.31           Turkey         42         21.79           Taiwan         42         14.41           Luxembourg         41         6.82           New Zealand         39         10.54           Hungary         39         7.72           Croatia         37         11.12           Argentina         34         22.26           Russia         33         13.84           Chile         31         23.59           Lithuania         29         10.53           Slovenia         26         7.45           Romania         24         7.66           Egypt <th>Greece</th> <th>148</th> <th>9.84</th>	Greece	148	9.84
Brazil         109         5.82           Poland         102         6.86           Portugal         97         12.92           South Korea         93         13.18           South Africa         93         12.57           Saudi Arabia         62         2.86           India         59         8.80           Czechia         57         10.21           Iceland         56         8.83           Estonia         50         10.31           Turkey         42         21.79           Taiwan         42         14.41           Luxembourg         41         6.82           New Zealand         39         10.54           Hungary         39         7.72           Croatia         37         11.12           Argentina         34         22.26           Russia         33         13.84           Chile         31         23.59           Lithuania         29         10.53           Slovenia         26         7.45           Romania         24         7.66           Egypt         22         25.53	Israel	118	5.69
Poland         102         6.86           Portugal         97         12.92           South Korea         93         13.18           South Africa         93         12.57           Saudi Arabia         62         2.86           India         59         8.80           Czechia         57         10.21           Iceland         56         8.83           Estonia         50         10.31           Turkey         42         21.79           Taiwan         42         14.41           Luxembourg         41         6.82           New Zealand         39         10.54           Hungary         39         7.72           Croatia         37         11.12           Argentina         34         22.26           Russia         33         13.84           Chile         31         23.59           Lithuania         29         10.53           Slovenia         26         7.45           Romania         24         7.66           Egypt         22         25.53	Singapore	113	8.52
Portugal       97       12.92         South Korea       93       13.18         South Africa       93       12.57         Saudi Arabia       62       2.86         India       59       8.80         Czechia       57       10.21         Iceland       56       8.83         Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Brazil	109	5.82
South Korea       93       13.18         South Africa       93       12.57         Saudi Arabia       62       2.86         India       59       8.80         Czechia       57       10.21         Iceland       56       8.83         Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Poland	102	6.86
South Africa       93       12.57         Saudi Arabia       62       2.86         India       59       8.80         Czechia       57       10.21         Iceland       56       8.83         Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Portugal	97	12.92
Saudi Arabia       62       2.86         India       59       8.80         Czechia       57       10.21         Iceland       56       8.83         Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	South Korea	93	13.18
India       59       8.80         Czechia       57       10.21         Iceland       56       8.83         Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	South Africa	93	12.57
Czechia       57       10.21         Iceland       56       8.83         Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Saudi Arabia	62	2.86
Iceland       56       8.83         Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	India	59	8.80
Estonia       50       10.31         Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Czechia	57	10.21
Turkey       42       21.79         Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Iceland	56	8.83
Taiwan       42       14.41         Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Estonia	50	10.31
Luxembourg       41       6.82         New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Turkey	42	21.79
New Zealand       39       10.54         Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Taiwan	42	14.41
Hungary       39       7.72         Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Luxembourg	41	6.82
Croatia       37       11.12         Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	New Zealand	39	10.54
Argentina       34       22.26         Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Hungary	39	7.72
Russia       33       13.84         Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Croatia	37	11.12
Chile       31       23.59         Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Argentina	34	22.26
Lithuania       29       10.53         Slovenia       26       7.45         Romania       24       7.66         Egypt       22       25.53	Russia	33	13.84
Slovenia         26         7.45           Romania         24         7.66           Egypt         22         25.53	Chile	31	23.59
Romania         24         7.66           Egypt         22         25.53	Lithuania	29	10.53
Egypt 22 25.53	Slovenia	26	7.45
	Romania	24	7.66
Palestinian Territory 22 1.88	Egypt	22	25.53
	Palestinian Territory	22	1.88

Kenya	21	10.82
Cyprus	20	14.83
Serbia	17	3.92
Thailand	14	12.36
Qatar	14	6.99
Pakistan	13	10.98
Mexico	12	46.52
Iran	11	19.71
Colombia	11	4.79
Kuwait	10	7.80

Table A5.11: Top 50 city collaborations for IMI funded research with the Boston + Cambridge (United States) cluster, 2010-2024

Rank	City	Country	Region	Number of collaborated publications	Mean Field-Normalized Citation Impact of collaborated publications
	London	United Kingdom	Europe	269	5.59
2	Oxford	United Kingdom	Europe	188	5.48
	New York	United States	North America	148	6.49
4	Amsterdam	Netherlands	Europe (EU27)	141	7.09
5	Rotterdam	Netherlands	Europe (EU27)	131	4.96
6	Barcelona	Spain	Europe (EU27)	128	6.96
	Stockholm	Sweden	Europe (EU27)	128	6.03
8	Cambridge	United Kingdom	Europe	118	5.21
9	Utrecht	Netherlands	Europe (EU27)	100	7.06
10	Berlin	Germany	Europe (EU27)	99	8.77
11	Paris	France	Europe (EU27)	98	7.92
12	Los Angeles	United States	North America	97	6.44
13	Leiden	Netherlands	Europe (EU27)	95	4.83
14	Copenhagen	Denmark	Europe (EU27)	94	8.55
15	Dundee	United Kingdom	Europe	92	4.06
16	Lund	Sweden	Europe (EU27)	90	3.66
17	Toronto	Canada	North America	88	8.91
18	Munich	Germany	Europe (EU27)	87	8.51
19	Baltimore	United States	North America	83	7.23

20	Melbourne	Australia	Oceania	80	8.58
21	Bonn	Germany	Europe (EU27)	78	7.85
22	Bethesda	United States	North America	77	7.71
23	Madrid	Spain	Europe (EU27)	77	7.62
24	Manchester	United Kingdom	Europe	77	3.70
25	Edinburgh	United Kingdom	Europe	72	10.27
26	Oslo	Norway	Europe	71	7.71
27	Milan + Brescia	Italy	Europe (EU27)	70	6.80
28	Maastricht	Netherlands	Europe (EU27)	69	9.71
29	Helsinki	Finland	Europe (EU27)	65	7.35
30	Philadelphia	United States	North America	64	8.66
31	Molndal + Gothenburg	Sweden	Europe (EU27)	63	4.28
32	Groningen	Netherlands	Europe (EU27)	62	9.95
33	Stanford	United States	North America	62	7.85
34	San Francisco	United States	North America	61	9.33
35	Vienna	Austria	Europe (EU27)	57	9.24
36	Aarhus	Denmark	Europe (EU27)	57	8.39
37	Heidelberg	Germany	Europe (EU27)	57	6.17
38	Lausanne	Switzerland	Europe	57	4.31
39	Umeå	Sweden	Europe (EU27)	56	7.15
40	Nijmegen	Netherlands	Europe (EU27)	55	7.42
41	Sydney	Australia	Oceania	53	10.47
42	Seattle	United States	North America	53	9.55
43	Hopewell	United States	North America	53	6.63
44	Chapel Hill	United States	North America	52	9.04
45	Basel	Switzerland	Europe	50	9.43
46	Geneva	Switzerland	Europe	50	7.49
47	Exeter	United Kingdom	Europe	50	3.06
48	Durham	United States	North America	49	4.71
49	San Diego	United States	North America	48	11.33
50	Salt Lake City	United States	North America	48	7.84

Table A5.12: Top countries collaborating with the Netherlands for IMI funded research, 2010-2024 (10 publications minimum)

Top Countries collaborating with Netherlands	Number of Publications	Mean Field-Normalized Citation Impact
United Kingdom	2,006	3.17
United States	1,273	4.11
Germany	1,208	3.71
Spain	840	3.98
Sweden	779	3.69
France	772	4.26
Switzerland	692	3.80
Belgium	691	4.18
Italy	635	4.79
Denmark	460	3.96
Australia	321	7.16
Norway	291	4.95
Austria	286	4.67
Canada	277	6.98
Finland	258	5.11
Greece	188	7.48
China	182	9.05
Poland	169	4.67
Ireland	129	5.72
Japan	121	8.98
Portugal	111	11.54
Israel	88	5.63
South Africa	80	13.43
Singapore	77	10.00
South Korea	75	15.58
Brazil	72	7.74
Czechia	69	9.25
Estonia	67	9.07
Hungary	67	5.38
Saudi Arabia	58	2.91

Iceland	51	9.11		
Luxembourg	51	4.83		
Lithuania	42	7.75		
Egypt	40	14.05		
Turkey	39	22.43		
India	38	11.47		
Croatia	38	10.42		
New Zealand	37	10.73		
Slovenia	33	4.90		
Taiwan	26	17.78		
Russia	23	17.63 1.99		
Palestinian Territory	23			
Cyprus	21	14.11		
Serbia	21	3.72		
Romania	20	9.01		
Argentina	19	36.83		
Chile	16	38.25		
Mexico	15	36.54		
Iran	14	14.98		
Thailand	13	11.55		
Kenya	12	14.38		
Malaysia	11	6.75		

Table A5.13: Top 50 city collaborations for IMI funded research with the Amsterdam cluster, 2010-2024

Rank	City	Country	Country Region		Mean Field-Normalized Citation Impact of collaborated publications
1	London	United Kingdom	Europe	582	3.95
2	Stockholm	Sweden	Europe (EU27)	284	4.90
3	Maastricht	Netherlands	Europe (EU27)	273	4.67
4	Barcelona	Spain	Europe (EU27)	249	6.69
5	Utrecht	Netherlands	Europe (EU27)	234	3.96
6	Leiden	Netherlands	Europe (EU27)	219	3.87
7	Oxford	United Kingdom	Europe	216	7.31

	Madrid	Spain	Europe (EU27)	174	4.75
	Milan + Brescia	Italy	Europe (EU27)	172	7.99
10	Copenhagen	Denmark	Europe (EU27)	165	5.70
11	Rotterdam	Netherlands	Europe (EU27)	153	5.84
12	Cambridge	United Kingdom	Europe	153	3.97
13	Geneva	Switzerland	Europe	146	3.75
14	Paris	France	Europe (EU27)	143	9.83
15	Boston USA + Cambridge USA	United States	North America	141	7.09
16	Molndal + Gothenburg	Sweden	Europe (EU27)	135	4.87
17	Groningen	Netherlands	Europe (EU27)	133	4.67
18	New York	United States	North America	124	12.72
19	Nijmegen	Netherlands	Europe (EU27)	120	5.38
20	Basel	Switzerland	Europe	115	8.65
21	Lund	Sweden	Europe (EU27)	113	6.76
22	Lausanne	Switzerland	Europe	113	4.48
23	Leuven	Belgium	Europe (EU27)	110	5.78
24	Munich	Germany	Europe (EU27)	109	11.52
25	Brussels	Belgium	Europe (EU27)	106	8.65
26	Bonn	Germany	Europe (EU27)	104	7.79
27	Berlin	Germany	Europe (EU27)	103	7.57
28	Oslo	Norway	Europe	100	6.05
29	Antwerp	Belgium	Europe (EU27)	96	8.71
30	Southampton	United Kingdom	Europe	96	7.93
31	Manchester	United Kingdom	Europe	96	3.44
32	Edinburgh	United Kingdom	Europe	89	12.81
33	Newcastle upon Tyne	United Kingdom	Europe	75	12.85
34	Melbourne	Australia	Oceania	74	10.68
35	Thessaloniki	Greece	Europe (EU27)	73	3.61
36	Dundee	United Kingdom	Europe	72	3.81
37	Rome	Italy	Europe (EU27)	71	7.93
38	Vienna	Austria	Europe (EU27)	69	9.04
39	Kuopio	Finland	Europe (EU27)	69	5.52

40	Marseille	France	Europe (EU27)	69	3.95
41	Lille	France	Europe (EU27)	69	2.86
42	Los Angeles	United States	North America	67	14.44
43	San Francisco	United States	North America	67	12.69
44	Nottingham	United Kingdom	Europe	67	6.05
45	Hopewell	United States	North America	66	7.13
46	Ghent	Belgium	Europe (EU27)	66	4.23
47	Cologne	Germany	Europe (EU27)	65	5.97
48	Hanover	Germany	Europe (EU27)	58	4.72
49	Umeå	Sweden	Europe (EU27)	57	8.17
50	Toronto	Canada	North America	56	12.96

Table A5.14: Top countries collaborating with Sweden for IMI funded research, 2010-2024 (10 publications minimum)

Top Countries collaborating with Sweden	Number of Publications	Mean Field-Normalized Citation Impact
United Kingdom	1,153	3.54
Germany	804	3.81
United States	789	4.12
Netherlands	779	3.69
France	531	4.23
Italy	495	4.36
Spain	466	4.01
Switzerland	449	4.79
Denmark	373	4.35
Belgium	325	5.17
Finland	314	4.57
Australia	245	5.96
Austria	238	4.46
Norway	227	5.34
Canada	209	5.34
China	180	5.65
Greece	120	7.19
Poland	101	7.06

Japan	80	8.97
Ireland	78	7.57
Portugal	72	8.84
Singapore	71	9.73
Estonia	65	9.86
Hungary	58	6.02
South Korea	51	9.30
Saudi Arabia	51	3.81
Czechia	50	10.18
Iceland	50	8.82
Brazil	43	10.53
Israel	43	7.81
South Africa	42	7.33
Luxembourg	37	6.37
Slovenia	29	5.38
Turkey	24	14.67
New Zealand	24	8.39
India	23	8.10
Palestinian Territory	22	1.88
Egypt	18	4.63
Cyprus	17	17.96
Croatia	17	14.95
Latvia	17	13.69
Russia	16	17.09
Romania	16	8.24
Lithuania	14	21.58
Taiwan	13	35.01
Serbia	11	3.01

Table A5.15: Top 50 city collaborations for IMI funded research with the Stockholm cluster, 2010-2024

Rank	City	Country	Region	Number of collaborated publications	Mean Field-Normalized Citation Impact of collaborated publications
1	London	United Kingdom	Europe	465	4.71

2	Amsterdam	Netherlands	Europe (EU27)	284	4.90
3	Uppsala	Sweden	Europe (EU27)	278	2.82
4	Milan + Brescia	Italy	Europe (EU27)	171	4.98
5	Oxford	United Kingdom	Europe	163	6.18
6	Paris	France	Europe (EU27)	162	6.58
	Barcelona	Spain	Europe (EU27)	158	5.30
	Copenhagen	Denmark	Europe (EU27)	156	5.57
	Cambridge	United Kingdom	Europe	154	4.89
10	Molndal + Gothenburg	Sweden	Europe (EU27)	141	5.23
11	Lund	Sweden	Europe (EU27)	138	4.56
12	Maastricht	Netherlands	Europe (EU27)	135	6.51
13	Boston USA + Cambridge USA	United States	North America	128	6.03
14	Madrid	Spain	Europe (EU27)	122	5.62
15	Utrecht	Netherlands	Europe (EU27)	116	6.39
16	Vienna	Austria	Europe (EU27)	113	6.27
17	Munich	Germany	Europe (EU27)	111	7.49
18	Helsinki	Finland	Europe (EU27)	109	5.01
19	Berlin	Germany	Europe (EU27)	105	7.62
20	Oslo	Norway	Europe	104	5.84
21	New York	United States	North America	102	9.47
22	Basel	Switzerland	Europe	102	7.54
23	Geneva	Switzerland	Europe	96	4.09
24	Rotterdam	Netherlands	Europe (EU27)	95	7.64
25	Kuopio	Finland	Europe (EU27)	92	4.31
26	Nijmegen	Netherlands	Europe (EU27)	91	5.22
27	Manchester	United Kingdom	Europe	91	2.78
28	Perth	Australia	Oceania	90	7.37
29	Leiden	Netherlands	Europe (EU27)	85	6.25
30	Edinburgh	United Kingdom	Europe	84	8.09
31	Umeå	Sweden	Europe (EU27)	81	6.39
32	Heidelberg	Germany	Europe (EU27)	77	8.32
33	Lausanne	Switzerland	Europe	77	5.69

34	Toronto	Canada	North America	76	8.45
35	Bonn	Germany	Europe (EU27)	75	9.46
36	Brussels	Belgium	Europe (EU27)	73	5.52
37	Southampton	United Kingdom	Europe	72	2.58
38	Leuven	Belgium	Europe (EU27)	68	8.40
39	Groningen	Netherlands	Europe (EU27)	68	7.52
40	Granada	Spain	Europe (EU27)	68	4.95
41	Rome	Italy	Europe (EU27)	63	9.15
42	Mannheim	Germany	Europe (EU27)	61	7.80
43	Los Angeles	United States	North America	59	11.17
44	Tartu	Estonia	Europe (EU27)	58	10.37
45	Frankfurt am Main	Germany	Europe (EU27)	58	4.21
46	San Francisco	United States	North America	57	13.82
47	Zurich	Switzerland	Europe	57	5.30
48	Melbourne	Australia	Oceania	56	12.48
49	Bergen	Norway	Europe	56	9.03
50	Nottingham	United Kingdom	Europe	53	5.69

# **Annex 6: Data tables - Benchmarking**

Table A6.1: Yearly number of papers - IMI funded research compared with selected comparators, 2010-2024

Year	IMI	MRC	WT	NHMRC	NIH	AMED	ICMR	CSIRO	FNIH	GCGH	C-Path
2010	38	8,988	6,603	3,651	4,199	8	720	1,011	178	142	19
2011	129	9,636	7,035	4,257	4,337	45	904	1,318	172	140	34
2012	284	9,990	7,831	4,682	4,094	151	933	1,417	193	126	37
2013	462	11,294	8,527	5,385	4,272	308	1,162	1,630	229	135	33
2014	557	11,213	8,507	5,834	4,221	511	1,293	1,684	313	182	47
2015	841	12,004	8,999	6,313	4,089	979	1,306	1,835	382	181	57
2016	942	12,424	8,887	6,634	4,313	2,562	1,473	1,620	391	171	51
2017	1,026	13,383	9,905	7,118	5,060	3,922	1,462	1,552	532	174	67
2018	1,071	14,023	10,745	7,657	5,265	4,486	1,425	1,616	698	175	59
2019	1,041	14,832	11,446	8,131	5,613	5,309	1,572	1,560	982	180	45
2020	1,403	17,599	13,948	9,136	6,512	8,123	2,167	1,714	1,300	163	57
2021	1,528	18,725	15,047	9,738	6,836	8,885	2,709	1,806	1,098	188	51
2022	1,429	17,515	13,359	8,903	6,760	5,806	3,253	1,626	930	147	54
2023	1,292	14,088	12,501	8,164	6,882	4,718	3,461	1,458	903	159	68
2024	1,153	11,644	12,118	8,183	7,547	4,690	3,871	1,501	1,229	148	73
Number of papers	13,196	197,358	155,458	103,786	80,000	50,503	27,711	23,348	9,530	2,411	752

Figure A6.1 Trends in field-normalized citation impact - IMI funded research compared with selected comparators, 2010-2024

#### IMI vs Comparators - Trend for mean field normalised citation impact

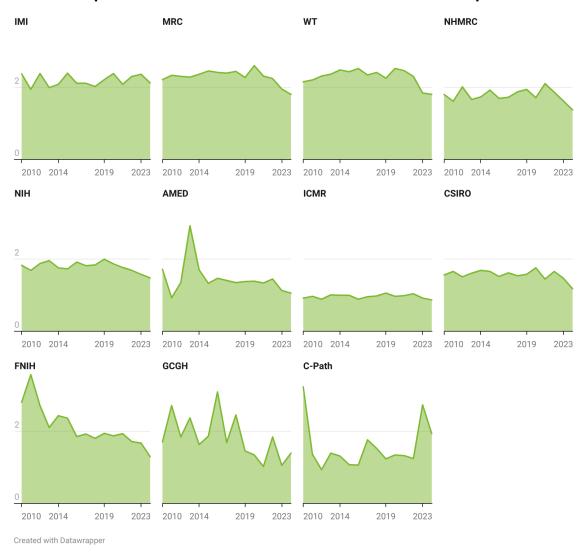


Table A6.2: Yearly field-normalized citation impact - IMI funded research compared with selected comparators, 2010-2024

Year	IMI	MRC	WT	NHMRC	NIH	AMED	ICMR	CSIRO	FNIH	GCGH	C-Path
2010	2.37	2.21	2.15	1.80	1.83	1.72	0.92	1.56	2.80	1.70	3.23
2011	1.94	2.33	2.20	1.61	1.69	0.93	0.97	1.66	3.57	2.71	1.36
2012	2.38	2.30	2.31	2.01	1.88	1.35	0.89	1.51	2.71	1.84	0.93
2013	1.99	2.28	2.36	1.66	1.96	2.93	1.01	1.61	2.10	2.37	1.39
2014	2.08	2.36	2.48	1.73	1.76	1.70	1.00	1.69	2.43	1.63	1.31
2015	2.39	2.45	2.43	1.92	1.73	1.33	1.00	1.66	2.36	1.86	1.07
2016	2.11	2.41	2.52	1.69	1.92	1.47	0.89	1.52	1.85	3.09	1.06
2017	2.11	2.39	2.34	1.72	1.82	1.41	0.96	1.62	1.92	1.68	1.76
2018	2.02	2.44	2.41	1.87	1.84	1.35	0.98	1.54	1.80	2.45	1.52

2019	2.21	2.27	2.25	1.94	2.00	1.38	1.06	1.58	1.94	1.45	1.23
2020	2.38	2.60	2.52	1.71	1.87	1.39	0.97	1.76	1.87	1.34	1.34
2021	2.08	2.31	2.46	2.10	1.77	1.34	0.99	1.45	1.93	1.02	1.32
2022	2.30	2.24	2.30	1.86	1.69	1.45	1.04	1.66	1.71	1.84	1.24
2023	2.36	1.95	1.84	1.62	1.58	1.13	0.92	1.47	1.67	1.05	2.73
2024	2.12	1.80	1.80	1.37	1.48	1.06	0.87	1.18	1.29	1.39	1.93
Overall Mean Field-Normalized citation impact of Publications	2.20	2.31	2.30	1.79	1.78	1.36	0.96	1.58	1.91	1.84	1.52

Table A6.3: Yearly share of highly cited papers (top 10%) per year - IMI funded research compared with selected comparators, 2010-2024

Year	IMI	MRC	WT	NHMRC	NIH	AMED	ICMR	CSIRO	FNIH	GCGH	C-Path
2010	36.8%	27.6%	27.6%	23.9%	24.6%	12.5%	10.6%	20.1%	43.3%	25.4%	15.8%
2011	28.7%	28.0%	27.8%	24.7%	22.1%	13.3%	11.2%	20.7%	48.3%	31.4%	20.6%
2012	27.8%	29.2%	29.7%	23.9%	23.3%	17.9%	9.8%	23.1%	38.3%	29.4%	10.8%
2013	25.3%	29.1%	29.5%	22.7%	24.3%	16.2%	11.7%	21.7%	32.3%	34.8%	21.2%
2014	28.2%	30.3%	31.9%	24.2%	23.5%	19.2%	12.4%	23.4%	34.8%	22.5%	12.8%
2015	28.1%	29.6%	32.1%	24.2%	25.3%	17.5%	10.6%	22.9%	28.8%	29.3%	17.5%
2016	29.6%	30.2%	32.4%	22.0%	24.0%	18.5%	10.0%	20.3%	26.6%	30.4%	5.9%
2017	29.4%	30.4%	30.6%	23.2%	25.1%	17.1%	11.1%	23.1%	24.8%	25.3%	17.9%
2018	28.7%	29.9%	29.5%	23.8%	24.6%	18.1%	12.1%	23.9%	24.6%	22.3%	18.6%
2019	32.7%	29.0%	29.3%	23.5%	23.5%	16.7%	12.2%	22.3%	27.1%	18.9%	13.3%
2020	32.9%	28.1%	28.4%	22.3%	24.2%	17.2%	13.7%	23.2%	30.1%	13.5%	19.3%
2021	33.1%	29.7%	29.5%	22.9%	25.5%	16.8%	12.3%	20.8%	28.8%	14.9%	15.7%
2022	33.3%	28.8%	28.8%	23.7%	24.2%	18.7%	13.1%	22.3%	28.4%	17.7%	20.4%
2023	32.4%	29.6%	27.6%	24.9%	24.4%	18.1%	12.3%	22.8%	28.0%	19.5%	25.0%
2024	30.9%	27.3%	25.0%	23.8%	23.7%	16.4%	12.1%	19.7%	24.2%	16.2%	24.7%

Table A6.4: Yearly share of highly cited papers (top 10%) per year - IMI funded research compared with selected regions, 2010-2024

Country	IMI	China	EU27+UK	Japan	United States
2010	36.8%	19.7%	19.1%	16.4%	23.4%
2011	28.7%	21.0%	19.4%	16.9%	23.3%
2012	27.8%	20.8%	20.2%	17.3%	23.9%

2013	25.3%	22.0%	20.5%	17.4%	24.6%
2014	28.2%	21.8%	20.9%	17.3%	24.7%
2015	28.1%	22.2%	21.0%	17.5%	24.8%
2016	29.6%	22.2%	21.3%	17.5%	24.7%
2017	29.4%	22.9%	21.1%	17.1%	24.5%
2018	28.7%	23.5%	20.9%	16.8%	24.0%
2019	32.7%	23.0%	20.8%	16.6%	23.5%
2020	32.9%	22.8%	20.3%	16.0%	22.8%
2021	33.1%	22.0%	20.3%	15.2%	22.7%
2022	33.3%	21.1%	20.1%	14.8%	22.3%
2023	32.4%	22.2%	20.2%	15.3%	21.8%
2024	30.9%	21.2%	19.6%	15.2%	20.9%

Table A6.5: Yearly share of highly cited papers (top 1%) per year - IMI funded research compared with selected regions, 2010-2024

Country	IMI	China	EU27+UK	Japan	United States
2010	10.5%	2.3%	2.3%	1.8%	3.5%
2011	7.0%	2.5%	2.4%	1.9%	3.5%
2012	5.6%	2.4%	2.5%	2.1%	3.6%
2013	6.7%	2.6%	2.6%	2.1%	3.8%
2014	4.8%	2.5%	2.7%	2.1%	3.8%
2015	4.8%	2.5%	2.7%	2.3%	3.9%
2016	4.8%	2.5%	2.8%	2.2%	3.9%
2017	5.2%	2.9%	2.9%	2.5%	3.8%
2018	4.8%	3.0%	2.8%	2.1%	3.8%
2019	6.1%	3.1%	2.8%	2.4%	3.8%
2020	5.3%	3.2%	2.6%	2.2%	3.5%
2021	5.9%	2.9%	2.7%	2.1%	3.7%
2022	6.6%	2.7%	2.6%	2.1%	3.7%
2023	6.8%	2.9%	2.7%	2.1%	3.6%
2024	5.6%	2.8%	2.6%	2.2%	3.4%

Table A6.6: Yearly percentage of open access papers - IMI funded research compared with selected comparators, 2010-2024

Year	IMI	MRC	WT	NHMRC	NIH	AMED	ICMR	CSIRO	FNIH	GCGH	C-Path
2010	44.7%	65.5%	80.3%	50.8%	78.5%	75.0%	41.4%	30.7%	82.0%	69.7%	31.6%
2011	55.8%	66.8%	80.7%	54.3%	78.3%	62.2%	41.4%	28.1%	83.7%	81.4%	41.2%
2012	59.2%	71.1%	83.0%	58.1%	80.6%	70.2%	41.7%	32.5%	86.5%	71.4%	32.4%
2013	54.1%	75.7%	86.5%	61.9%	82.3%	67.5%	49.5%	38.9%	78.6%	77.0%	45.5%
2014	61.6%	79.8%	89.4%	63.0%	83.3%	58.9%	47.6%	41.0%	87.2%	75.8%	38.3%
2015	68.0%	84.9%	90.7%	63.9%	82.5%	65.2%	46.9%	45.3%	87.2%	74.6%	66.7%
2016	74.6%	91.1%	94.6%	65.5%	85.0%	65.2%	43.4%	47.8%	83.4%	78.9%	64.7%
2017	79.0%	92.8%	95.2%	68.1%	87.2%	66.3%	46.1%	50.7%	85.7%	79.9%	59.7%
2018	82.6%	93.4%	95.4%	70.2%	85.7%	66.2%	44.9%	57.1%	83.7%	81.1%	74.6%
2019	87.5%	93.2%	95.7%	70.2%	85.1%	67.0%	45.9%	57.0%	86.3%	82.8%	84.4%
2020	91.6%	93.5%	95.8%	71.8%	86.4%	72.5%	52.7%	57.6%	87.2%	82.8%	75.4%
2021	91.8%	94.1%	95.8%	72.7%	86.4%	77.7%	51.7%	65.1%	82.6%	85.6%	76.5%
2022	95.2%	94.7%	96.1%	79.8%	88.9%	81.1%	52.1%	76.8%	85.9%	82.3%	85.2%
2023	93.7%	95.3%	96.3%	86.0%	85.5%	82.4%	49.6%	84.2%	86.2%	85.5%	82.4%
2024	92.8%	92.0%	93.2%	81.4%	70.8%	75.9%	43.6%	84.1%	69.9%	81.1%	74.0%

### **Annex 7: Hot papers and Highly Cited papers**

This section lists papers that have been identified as current hot papers or that have been identified as highly cited in the IHI JU and IMI project publications published between 2010 and 2024. Hot papers & highly cited papers have been defined as those articles and reviews which belong to the world's top decile of papers in that journal category and year of publication, when ranked by number of citations received.

Papers are listed in ascending alphabetical order (project) and unassigned papers are listed at the end of each section.

#### Hot papers associated with IHI projects

This section lists papers that perform above average as defined by citation counts in the top 0.1%.

Projects	Papers
PREDICTOM	Madhurima Chatterjee et al. (2024) Plasma extracellular vesicle tau and TDP-43 as diagnostic biomarkers in FTD and ALS, Nature Medicine 30: 1771-1783

#### Highly Cited papers associated with IHI projects

This section lists papers that perform above average as defined by citation counts in the top 10%. %. Please note that the same paper can be assigned to more than one project.

	me paper can be assigned to more than one project.
Projects	Papers Papers
AD-RIDDLE	K. Malzbender et al. (2024) Validation, Deployment, and Real-World Implementation of a Modular Toolbox for Alzheimer's Disease Detection and Dementia Risk Reduction: The AD-RIDDLE Project, The Journal of Prevention of Alzheimer's Disease 11: 329-338
	Yara Yakoub et al. (2024) Plasma p-tau217 predicts cognitive impairments up to ten years before onset in normal older adults, medRxiv: 2024.05.09.24307120
	Rosanne L. van den Berg et al. (2024) Digital remote assessment of speech acoustics in cognitively unimpaired adults: feasibility, reliability and associations with amyloid pathology, Alzheimer's Research & Therapy 16: 176
	Alejandro Costoya-Sánchez et al. (2023) Increased Medial Temporal Tau Positron Emission Tomography Uptake in the Absence of Amyloid-β Positivity, JAMA Neurology 80: 1051-1061
CLAIMS	Jelle Praet et al. (2024) A future of Al-driven personalized care for people with multiple sclerosis, Frontiers in Immunology 15: 1446748
iCARE4CVD	Jishnu Malgie et al. (2024) Contemporary guideline-directed medical therapy in de novo, chronic, and worsening heart failure patients: First data from the TITRATE-HF study, European Journal of Heart Failure 26: 1549-1560
IDERHA	Sumit Madan et al. (2024) Transformer models in biomedicine, BMC Medical Informatics and Decision Making 24: 214
	Rada Hussein et al. (2024) Getting ready for the European Health Data Space (EHDS): IDERHA's plan to align with the latest EHDS requirements for the secondary use of health data, Open Research Europe 4: 160
IMAGIO	Felix Busch et al. (2023) International pharmacy students' perceptions towards artificial intelligence in medicine—A multinational, multicentre cross-sectional study, British Journal of Clinical Pharmacology 90: 649-661
LIVERAIM	Sara Elizabeth Stinson et al. (2024) The interplay between birth weight and obesity in determining childhood and adolescent cardiometabolic risk, EBioMedicine 105: 105205
	Mads Israelsen et al. (2024) Non-invasive tests for alcohol-associated liver disease, Hepatology 80: 1390-1407
	Maja Thiele et al. (2024) Population screening for cirrhosis, Hepatology Communications 8: e0512
PREDICTOM	Gloria Biechele et al. (2024) Associations between sex, body mass index and the individual microglial response in Alzheimer's disease, Journal of Neuroinflammation 21: 30

	Matthias Brendel et al. (2024) Aβ status assessment in a hypothetical scenario prior to treatment with disease-modifying therapies: Evidence from 10-year real-world experience at university memory clinics, Alzheimer's & Dementia Diagnosis Assessment & Disease Monitoring 16: e70031
	Maura Malpetti et al. (2024) Neuroinflammation Parallels 18F-PI-2620 Positron Emission Tomography Patterns in Primary 4-Repeat Tauopathies, Movement Disorders 39: 1480-1492
	Madhurima Chatterjee et al. (2024) Plasma extracellular vesicle tau and TDP-43 as diagnostic biomarkers in FTD and ALS, Nature Medicine 30: 1771-1783
	A. Sadlon et al. (2023) Association of Blood MicroRNA Expression and Polymorphisms with Cognitive and Biomarker Changes in Older Adults, The Journal of Prevention of Alzheimer's Disease 11: 230-240
	Anika Finze et al. (2023) Individual regional associations between Aβ-, tau- and neurodegeneration (ATN) with microglial activation in patients with primary and secondary tauopathies, Molecular Psychiatry 28: 4438-4450
	Robert Perneczky et al. (2023) Anti-amyloid antibody treatments for Alzheimer's disease, European Journal of Neurology 31: e16049
PROMINENT	Sandar Aye et al. (2024) Optimising Alzheimer's Disease Diagnosis and Treatment: Assessing Cost-Utility of Integrating Blood Biomarkers in Clinical Practice for Disease-Modifying Treatment, The Journal of Prevention of Alzheimer's Disease 11: 928-942
	Eric P Moll van Charante et al. (2024) Prevention of dementia using mobile phone applications (PRODEMOS): a multinational, randomised, controlled effectiveness–implementation trial, The Lancet Healthy Longevity 5: e431-e442
	David López-Martos et al. (2024) Awareness of episodic memory and meta-cognitive profiles: associations with cerebrospinal fluid biomarkers at the preclinical stage of the Alzheimer's continuum, Frontiers in Aging Neuroscience 16: 1394460
	Soeren Mattke et al. (2023) Estimates of Current Capacity for Diagnosing Alzheimer's Disease in Sweden and the Need to Expand Specialist Numbers, The Journal of Prevention of Alzheimer's Disease 11: 155-161
	Ashley Tate et al. (2023) Precision medicine in neurodegeneration: the IHI-PROMINENT project, Frontiers in Neurology 14: 1175922
VICT3R	Thomas Steger-Hartmann et al. (2024) IHI VICT3R: Developing and Implementing Virtual Control Groups to Reduce Animal Use in Toxicology Research., Toxicologic Pathology 53: 230-233
IHI unclassified	Christopher R S Belder et al. (2024) Brain volume change following anti-amyloid $\beta$ immunotherapy for Alzheimer's disease: amyloid-removal-related pseudo-atrophy, The Lancet Neurology 23: 1025-1034
	Raj Kalaria et al. (2024) The 2022 symposium on dementia and brain aging in low- and middle-income countries: Highlights on research, diagnosis, care, and impact, Alzheimer's & Dementia 20: 4290-4314

## Hot papers associated with IMI projects

This section lists papers that perform above average as defined by citation counts in the top 0.1%. Please note that the same paper can be assigned to more than one project.

Projects	Papers Papers
3TR	Clifford R. Jack et al. (2024) Revised criteria for diagnosis and staging of Alzheimer's disease: Alzheimer's Association Workgroup, Alzheimer's & Dementia 20: 5143-5169
	Michael Khalil et al. (2024) Neurofilaments as biomarkers in neurological disorders — towards clinical application, Nature Reviews Neurology 20: 269-287
AETIONOMY	Holger Fröhlich et al. (2018) From hype to reality: data science enabling personalized medicine, BMC Medicine 16: 150
AIMS-2-TRIALS	Vassily Trubetskoy et al. (2022) Mapping genomic loci implicates genes and synaptic biology in schizophrenia, Nature 604: 502-508
	Andres Roman-Urrestarazu et al. (2021) Association of Race/Ethnicity and Social Disadvantage With Autism Prevalence in 7 Million School Children in England, JAMA Pediatrics 175: e210054
	The Schizophrenia Working Group of the Psychiatric Genomics Consortium et al. (2020) Mapping genomic loci prioritises genes and implicates synaptic biology in schizophrenia, medRxiv: 2020.09.12.20192922

	Varun Warrier et al. (2020) Elevated rates of autism, other neurodevelopmental and psychiatric diagnoses, and autistic traits in transgender and gender-diverse individuals, Nature Communications 11: 3959
	Han Peng et al. (2020) Accurate brain age prediction with lightweight deep neural networks, Medical Image Analysis 68: 101871
AMYPAD	Marta Milà-Alomà et al. (2022) Plasma p-tau231 and p-tau217 as state markers of amyloid-β pathology in preclinical Alzheimer's disease, Nature Medicine 28: 1797-1801
BEAT-DKD	Loïc Yengo et al. (2022) A saturated map of common genetic variants associated with human height, Nature 610: 704-712
BigData@Heart	Zeljko Kraljevic et al. (2024) Foresight—a generative pretrained transformer for modelling of patient timelines using electronic health records: a retrospective modelling study, The Lancet Digital Health 6: e281-e290
	Susanna C Larsson et al. (2023) Mendelian randomization for cardiovascular diseases: principles and applications, European Heart Journal 44: 4913-4924
	Jing Hua Zhao et al. (2023) Genetics of circulating inflammatory proteins identifies drivers of immune-mediated disease risk and therapeutic targets, Nature Immunology 24: 1540-1551
	Rochelle Knight et al. (2022) Association of COVID-19 With Major Arterial and Venous Thrombotic Diseases: A Population-Wide Cohort Study of 48 Million Adults in England and Wales, Circulation 146: 892-906
	Loïc Yengo et al. (2022) A saturated map of common genetic variants associated with human height, Nature 610: 704-712
	Elizabeth Jordan et al. (2021) Evidence-Based Assessment of Genes in Dilated Cardiomyopathy, Circulation 144: 45857
	Sebastian Vollmer et al. (2020) Machine learning and artificial intelligence research for patient benefit: 20 critical questions on transparency, replicability, ethics, and effectiveness, The BMJ 368: 16927
	Andrew Clark et al. (2020) Global, regional, and national estimates of the population at increased risk of severe COVID-19 due to underlying health conditions in 2020: a modelling study, The Lancet Global Health 8: e1003-e1017
BioVacSafe	Daniel E Zak et al. (2016) A blood RNA signature for tuberculosis disease risk: a prospective cohort study, The Lancet 387: 2312-2322
CANCER-ID	Amin Forootan et al. (2017) Methods to determine limit of detection and limit of quantification in quantitative real-time PCR (qPCR), Biomolecular Detection and Quantification 12: 45663
CARE	Laura Vangeel et al. (2022) Remdesivir, Molnupiravir and Nirmatrelvir remain active against SARS-CoV-2 Omicron and other variants of concern, Antiviral Research 198: 105252
CHEM21	Denis Prat et al. (2016) CHEM21 selection guide of classical- and less classical-solvents, Green Chemistry 18: 288-296
	C. Robert McElroy et al. (2015) Towards a holistic approach to metrics for the 21st century pharmaceutical industry, Green Chemistry 17: 3111-3121
	Denis Prat et al. (2014) A survey of solvent selection guides, Green Chemistry 16: 4546-4551
COMBACTE- CARE	Marlieke E. A. de Kraker et al. (2016) Will 10 Million People Die a Year due to Antimicrobial Resistance by 2050?, PLOS Medicine 13: e1002184
COMBACTE- MAGNET	Marlieke E. A. de Kraker et al. (2016) Will 10 Million People Die a Year due to Antimicrobial Resistance by 2050?, PLOS Medicine 13: e1002184
COMBACTE- NET	Marlieke E. A. de Kraker et al. (2016) Will 10 Million People Die a Year due to Antimicrobial Resistance by 2050?, PLOS Medicine 13: e1002184
COMPACT	Eduard Willms et al. (2016) Cells release subpopulations of exosomes with distinct molecular and biological properties, Scientific Reports 6: 22519
	Oscar P. B. Wiklander et al. (2015) Extracellular vesicle in vivo biodistribution is determined by cell source, route of administration and targeting, Journal of Extracellular Vesicles 4: 26316
DIRECT	François Aguet et al. (2020) The GTEx Consortium atlas of genetic regulatory effects across human tissues, Science 369: 1318-1330
	Helle Krogh Pedersen et al. (2016) Human gut microbes impact host serum metabolome and insulin sensitivity, Nature 535: 376-381
DRAGON	Sayash Kapoor et al. (2024) REFORMS: Consensus-based Recommendations for Machine-learning-based Science, Science Advances 10: eadk3452

	Chenglong Xie et al. (2022) Amelioration of Alzheimer's disease pathology by mitophagy inducers identified via machine learning and a cross-species workflow, Nature Biomedical Engineering 6: 76-93
	Guang Yang et al. (2022) Unbox the black-box for the medical explainable Al via multi-modal and multi-centre data fusion: A mini-review, two showcases and beyond, Information Fusion 77: 29-52
	Shaoping Hu et al. (2020) Weakly Supervised Deep Learning for COVID-19 Infection Detection and Classification From CT Images, IEEE Access 8: 118869-118883
EBiSC	Daniel R Zerbino et al. (2017) Ensembl 2018, Nucleic Acids Research 46: gkx1098-
EHDEN	Cynthia Yang et al. (2024) Impact of random oversampling and random undersampling on the performance of prediction models developed using observational health data, Journal of Big Data 11: 7
	Martí Català et al. (2024) The effectiveness of COVID-19 vaccines to prevent long COVID symptoms: staggered cohort study of data from the UK, Spain, and Estonia, The Lancet Respiratory Medicine 12: 225-236
EMIF	Thore Buergel et al. (2022) Metabolomic profiles predict individual multidisease outcomes, Nature Medicine 28: 2309-2320
	Claire Bridel et al. (2019) Diagnostic Value of Cerebrospinal Fluid Neurofilament Light Protein in Neurology, JAMA Neurology 76: 1035-1048
	Luca A. Lotta et al. (2016) Genetic Predisposition to an Impaired Metabolism of the Branched- Chain Amino Acids and Risk of Type 2 Diabetes: A Mendelian Randomisation Analysis, PLOS Medicine 13: e1002179
	Bruno Dubois et al. (2016) Preclinical Alzheimer's disease: Definition, natural history, and diagnostic criteria, Alzheimer's & Dementia 12: 292-323
	Willemijn J. Jansen et al. (2015) Prevalence of Cerebral Amyloid Pathology in Persons Without Dementia: A Meta-analysis, JAMA 313: 1924-1938
EPND	Clifford R. Jack et al. (2024) Revised criteria for diagnosis and staging of Alzheimer's disease: Alzheimer's Association Workgroup, Alzheimer's & Dementia 20: 5143-5169
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