IHI Call Days | Call 12

BLOODVIR - an easy to use and interpret early pathogen detection system

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Link to the IHI brokerage platform:

- http://bit.ly/47oAI6h

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Challenges and objectives

Problem

Our public health warning systems are blind to unexpected and unknown pathogens. Current systems detect and communicate outbreaks too late, leaving us vulnerable to pandemics.

IHI Objectives

SO1: contribute towards a better understanding of the determinants of health and priority disease areas

SO4: exploit the full potential of digitalisation and data exchange in health care

Unmet need

We are addressing the critical need for a surveillance system that is not only reliable but also accessible—delivering clear, interpretable data in real-time to enable a rapid response to public health threats

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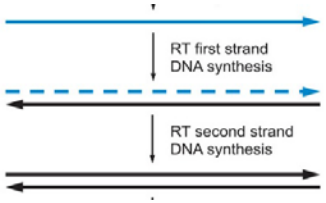
BLOODVIR – The Solution

The system

Sample

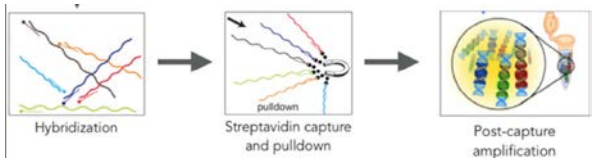
Nucleic acid extraction

Pre-Library

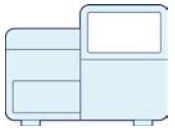


Library preparation

VirCapSeq-VERT



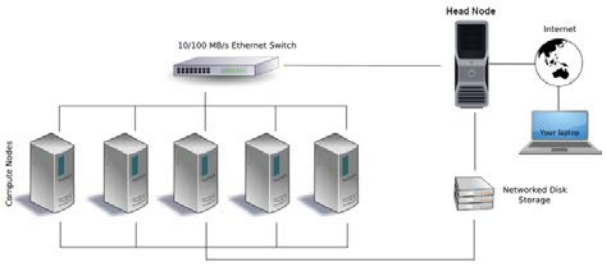
Sequencing



Data Analysis

1. Known virus detection
2. Novel virus identification

Establishment of Metagenomics Reference Centers



Computational cluster

Laboratory infrastructure

Personnel capacitation

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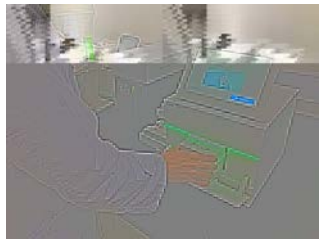
BLOODVIR – The Solution

Wet-Lab Automation refinement



Web-based analysis system

Sample: 287R_CDMX_S26

The following table lists the detected virus candidates. Taxa selected by the pipeline *PASSED* reclassification as well as filtering.

TaxID	Species name	Blast hit	Blast species	Read number	Reclassification	Filtering	Consolidation
3052610	*Pegivirus platyrrhini*	*Human pegivirus*	*Pegivirus platyrrhini*	*17,939,604*	PASSED	PASSED	PASSED
3052608	*Pegivirus hominis*	*GB virus C*	*Pegivirus hominis*	*12,883,831*	PASSED	PASSED	PASSED
2055263	*Anelloviridae sp.*	*Anelloviridae sp.*	*Anelloviridae sp.*	*5,695*	PASSED	FAILED	PASSED
2993529	ticpantry virus 5	-	-	132,890	PASSED	FAILED	FAILED
2793982	Chimpanzee GB virus C	-	-	22,903	PASSED	FAILED	FAILED
2993523	nabpantry virus 9	-	-	4,204	PASSED	FAILED	FAILED
68887	Torque teno virus	-	-	3,214	PASSED	FAILED	FAILED
3052717	Protoparvovirus rodent1	-	-	3,136	PASSED	FAILED	FAILED
3052237	Hepacivirus ratti	-	-	2,029	PASSED	FAILED	FAILED
10279	Molluscum contagiosum virus	-	-	1,396	PASSED	FAILED	FAILED
2499685	Betaarterivirus suid 2	-	-	1,365	PASSED	FAILED	FAILED
3048414	Alphatorquevirus homin10	-	-	930	PASSED	FAILED	FAILED
694009	Severe acute respiratory syndrome-related coronavirus	-	-	916	PASSED	FAILED	FAILED
136966	SEN virus	-	-	755	PASSED	FAILED	FAILED
3048424	Alphatorquevirus homin24	-	-	554	PASSED	FAILED	FAILED
3050299	Lymphocryptovirus humangamma4	-	-	531	PASSED	FAILED	FAILED

Intercommunication

- Reall time transfer of data
- Integration to actual reporting systems
- Integration to a report system for WHO and WAHO

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Is your project suitable for IHI?

Outcomes and Impact

An automated device that makes advanced genomic surveillance low-cost and easy-to-use, delivering **real-time early warnings** to meet global health targets like WHO's 7-1-7.

Foundation for Future Diagnostics: We will create a platform technology that can be expanded beyond epidemiology into routine diagnostics, opening new avenues for personalized medicine.

To ensure this research becomes a real-world solution, our consortium:

- **Co-Develop with End-Users**, involving academia, industry and regulators from the beginning**.**
- **Focus on Usability and Adoption** by workflow automation
- **Clear Pathway to Market** is guaranteed by the industry partners experience

This directly **strengthens the EU's competitiveness** by creating a sovereign, market-leading solution in critical health tech, driving exports and establishing the Union as the global leader in genomic surveillance.

For **patients**, this means preventing outbreaks from becoming pandemics. It translates to fewer infections, less suffering, and saved lives by moving us from reactive treatment to proactive prevention.

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Expertise and resources

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