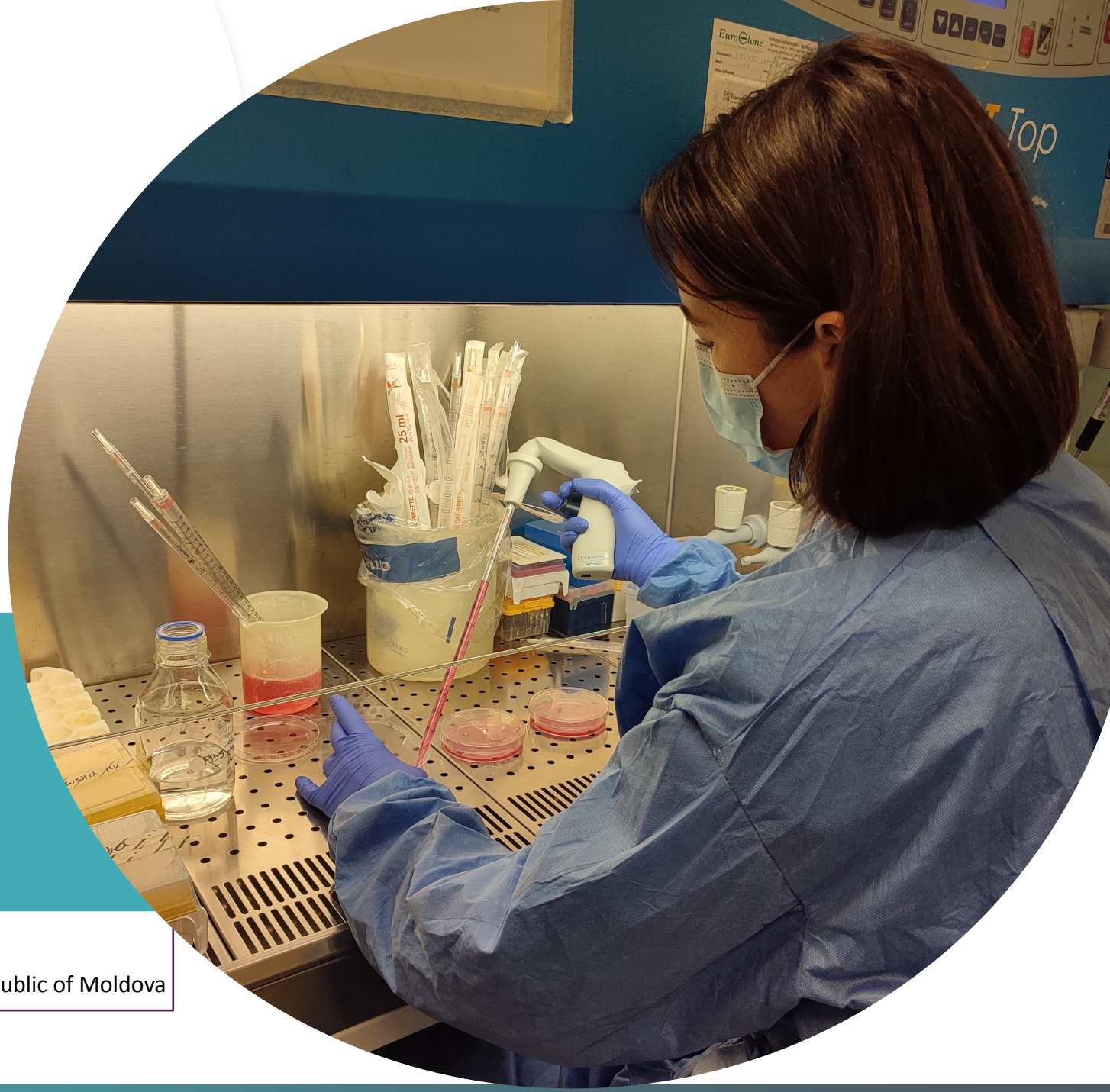
UNODA
United Nations Office for Disarmament Affairs

ICGEB

Norwegian Ministry of Foreign Affairs

‘Reducing Biological Risks by Promoting the Peaceful Use of Biology’

BWC Article X Project
12 December 2023
Geneva, Switzerland



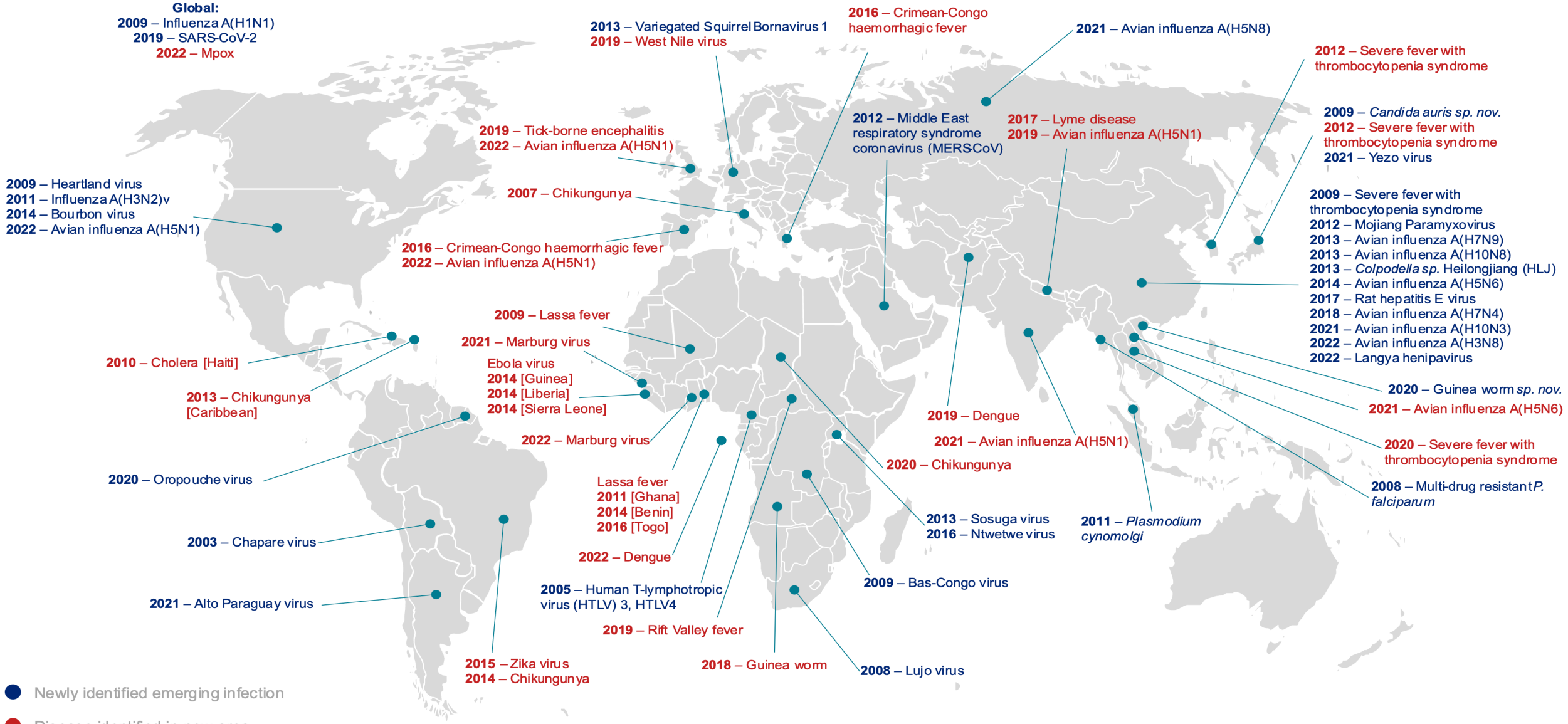
Diagnostics and Enhancing Infectious Diseases Surveillance in the Republic of Moldova with ICGEB Collaboration

Mariana ULINICI, MD, PhD
Nicolae Testemitanu State University of Medicine and Pharmacy, Republic of Moldova

We all want to live in a secure world.

But new and existing health threats are constantly emerging.

Global map of emerging infections since 2003



Source: https://www.gov.uk/emerging-infections-characteristics-epidemiology-and-global-distribution

IMPORTANCE OF DIAGNOSTICS

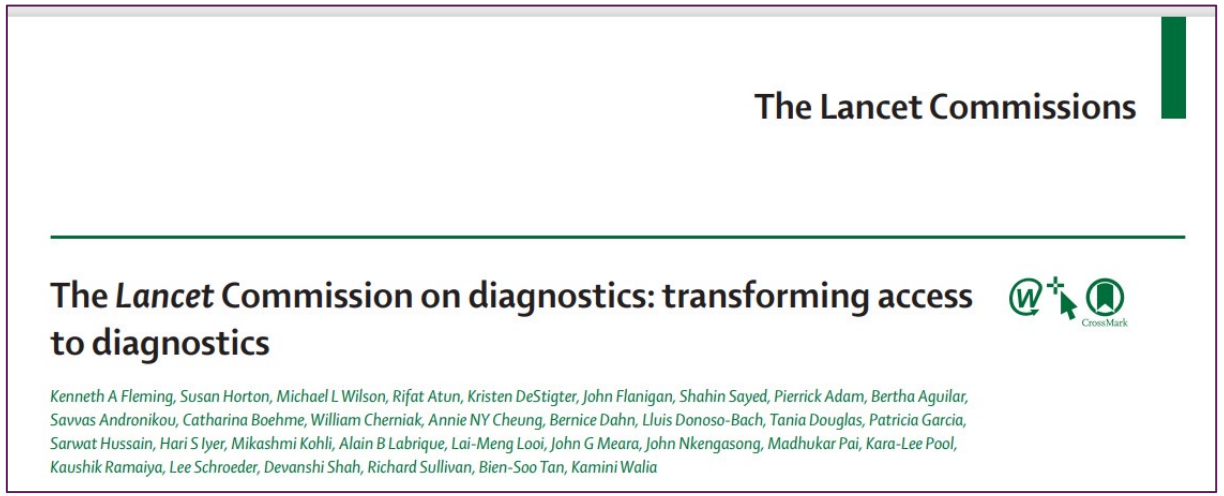
At the patient level

- Etiological diagnosis
- Monitoring and follow up (*ICU, treatment effectiveness (HIV), chronic diseases (diabetes*)

At the population level

- Laboratory based surveillance
  - Notifiable diseases (WHO-IHR)
  - Epidemic prone disease (*Avian influenza, Cholera, Ebola, Plague, Yellow fever, Meningitis, MERS, Influenza, Zika, Rift Valley Fever, Lassa, fever, Leptospirosis, etc*)
  - AMR (*sole source of data for sensitivity testing*)

THERE IS STILL AN INEQUITABLE ACCESS TO DIAGNOSTIC



www.thelancet.com **Vol 398 November 27, 2021**

The Lancet Commission on Diagnostics - 7 Key Messages

1. **47% of the global population has little to no access to diagnostics.**
2. The critical significance of diagnostics in healthcare is undervalued, leading to insufficient financial investment.
3. Ensuring access to primary health care is the “last mile”, and crucial for achieving equity and social justice.
4. The **COVID-19 pandemic** has **highlighted how crucial diagnostics are** for Universal Health Coverage.
5. Recent **innovations** can **enhance accessibility**, and **democratise diagnostics** to strengthen patient autonomy.
6. Enhanced access to diagnostics for six crucial conditions could prevent up to 1.1 million deaths each year.
7. **Each dollar invested in diagnostics returns multiple dollars in benefits,** especially in middle and low-income countries.

Main inhibitory drivers for availability and equitable access to the supply of diagnostics

1. **Competition** from high-income countries (HIC) buyers
2. Preferred tests by HICs **not suitable** and/or **unaffordable** for LMICs
3. Access delays due to **slow regulatory approvals** and lack of transparency
4. **Inadequate manufacturing capacity** and **disruptions in supply chains** hinder the distribution of diagnostics
5. **Underfunding research** for many priority diseases in LMICS reduce the availability of tests
6. **Lack of** adequate healthcare **infrastructure** can limit access to diagnostic service

THE CHALLENGES

- **Weak diagnostic systems**
  - LIMS
  - Poor planning and prioritization
  - Procurement and maintenance challenges
- **Limited workforce** with required competencies, resulting in low access to quality laboratory diagnosis.
- **Limited standardization & quality assurance**
- **Despite existing diagnostic capacity, low testing demand & under-utilization:**
  - Unaffordable **costs** for the patients
  - Suboptimal **lab-clinical engagement**
  - Lack of **trust** of lab results
  - Lack of knowledge of **appropriate use of lab results**

COVID–19 IN REPUBLIC OF MOLDOVA

December 31, 2019
First recorded case of COVID-19 in Wuhan, China

March 12, 2020
Moldovan government declares a state of emergency

April 1, 2020
Moldovan government introduces a nationwide curfew

March 7, 2020
First recorded case of COVID-19 in the Republic of Moldova

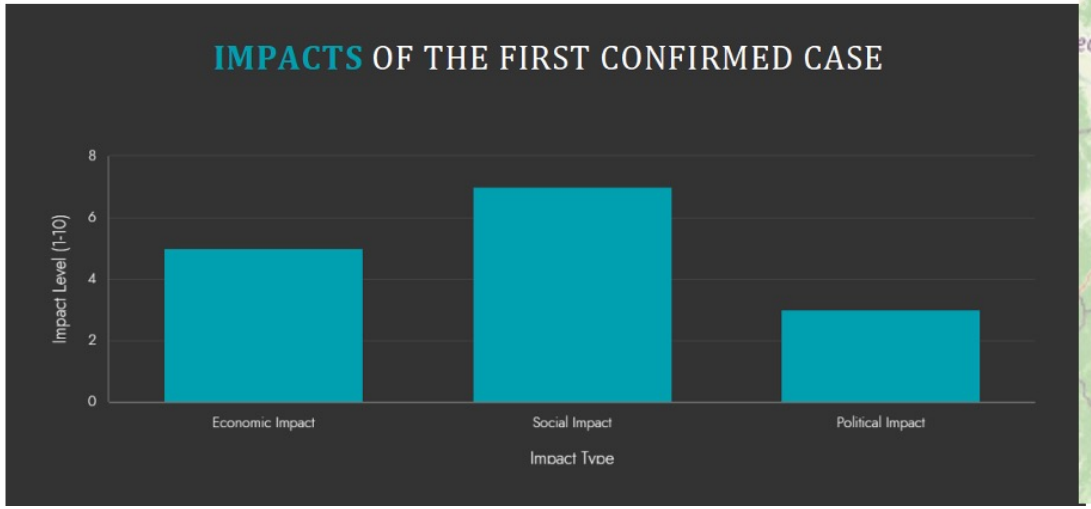
March 16, 2020
Moldovan government imposes a nationwide lockdown

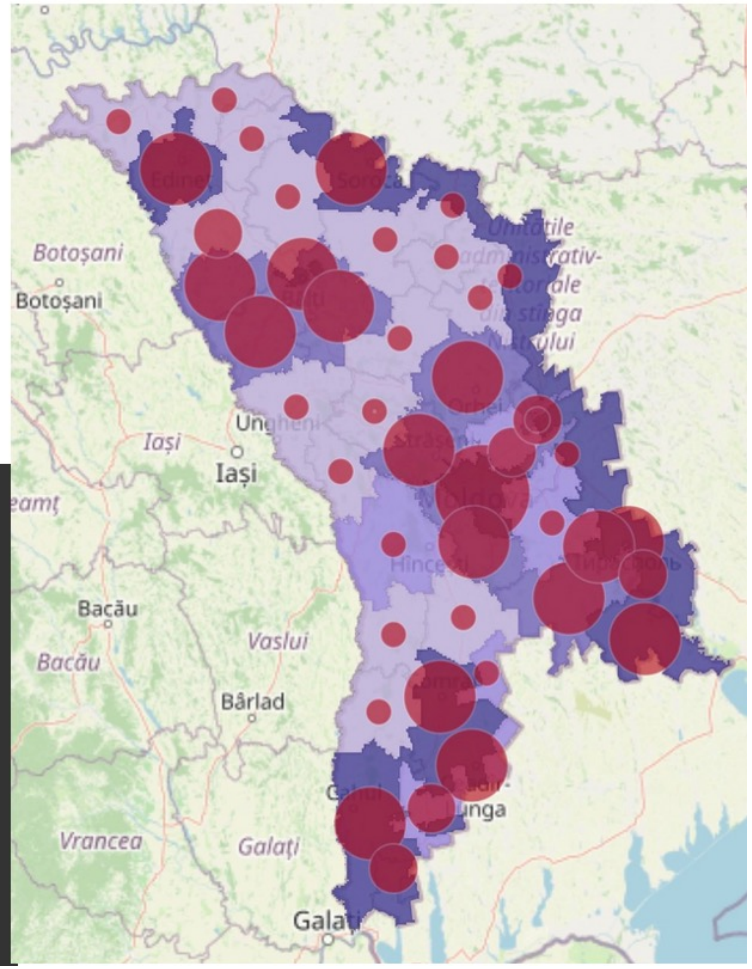
May 15, 2020
Moldovan government begins to ease restrictions

In **1 month**, the number of cases =**965**,

854 cases **local transmission**
111 **imported** cases

*Data from World Health Organization
https://msmps.gov.md





INVEST IN WORKFORCE EXPANSION AND UPSKILLING

COVID-19 *e*Conference

April 24, 2020

The event highlighted the **research activities** of ICGEB in the context of the COVID-19 pandemic and **tools developed** by ICGEB laboratories, which are made **available to researchers in Moldova.**

CAPACITY BUILDING FOR DISEASE SURVEILLANCE - ICGEB COLLABORATION

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35 participants

Epidemic Surveillance

September 21-23, 2021

Workshop sessions included insights on **public health management**, **diagnosis** and **surveillance strategies**, and **vaccination approaches.**

150 participants

co-funded by Regione Friuli Venezia Giulia

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September 21-23, 2022

Biotechnology in Sustainable and Economic Development: The **Intersection of Science**, **Policy**, and **Social Responsibility**.

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Biotech Impact

September 21-23, 2022

Biotechnology in Sustainable and Economic Development: The **Intersection of Science**, **Policy**, and **Social Responsibility**.

200 participants

co-funded by ICGEB

Emergency Response Training

October 17-18, 2023

Virus diagnostics, **surveillance**, **public health challenges in crisis situations**, **biosecurity** and **regional responses to COVID-19** and **other epidemics**.

120 participants

co-funded by the CEI Cooperation Fund

CEI
CENTRAL EUROPEAN INITIATIVE

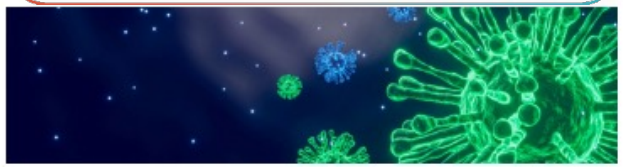
ENHANCING SURVEILLANCE

International Centre for Genetic Engineering and Biotechnology

NICOLAE TESTEMITANU STATE UNIVERSITY OF MEDICINE AND PHARMACY OF THE REPUBLIC OF MOLDOVA

Feb 2021 - June 2022

"Strengthening epidemiological surveillance capacity to address COVID-19 and other epidemics"



A Republic of Moldova-Italy cooperation

REGIONE AUTONOMA FRIULI VENEZIA GIULIA

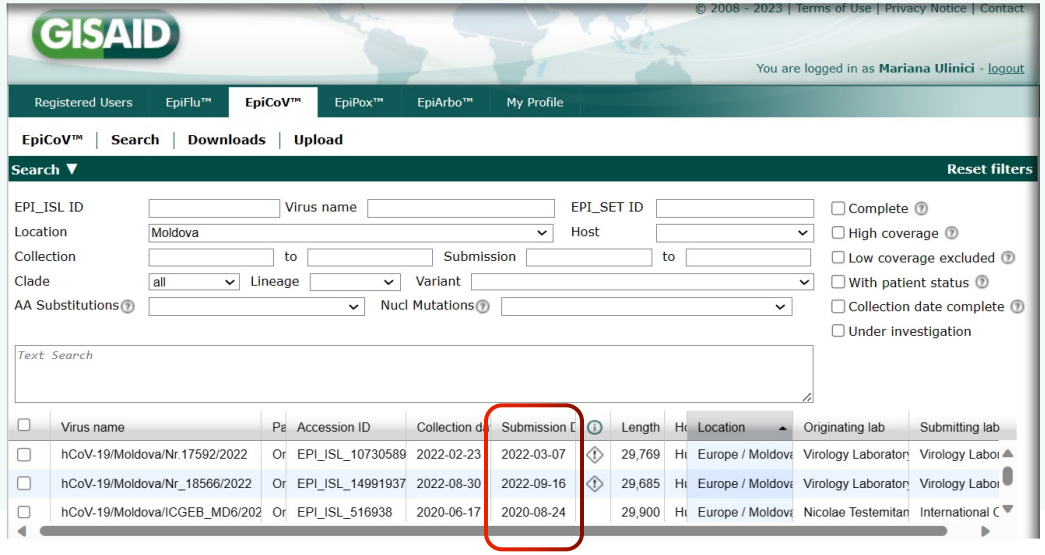
with the support of the Autonomous Region of Friuli Venezia Giulia

Regional Law 19/2000

General Purpose

- Contribute to **improve research** and **development capacities in Moldova**, particularly in the areas of **infectious diseases** and **health surveillance systems**.

- **Create the premises** for **evidence-based decisions** of Moldovan authorities in this area



TARGETED RESULTS

Staff trained

Local SARS-CoV-2 analysed

International partnership consolidated

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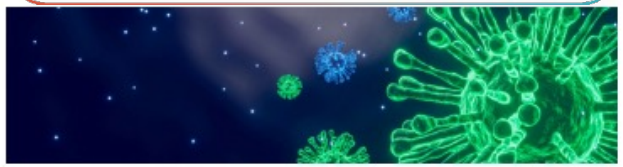

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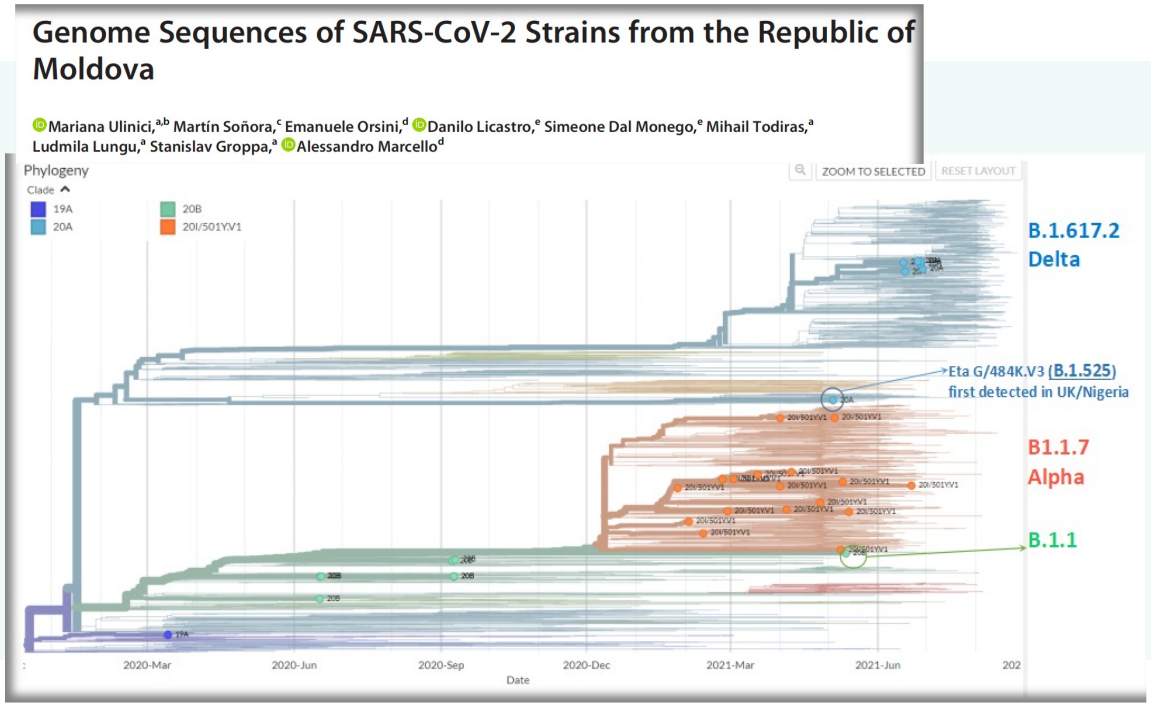

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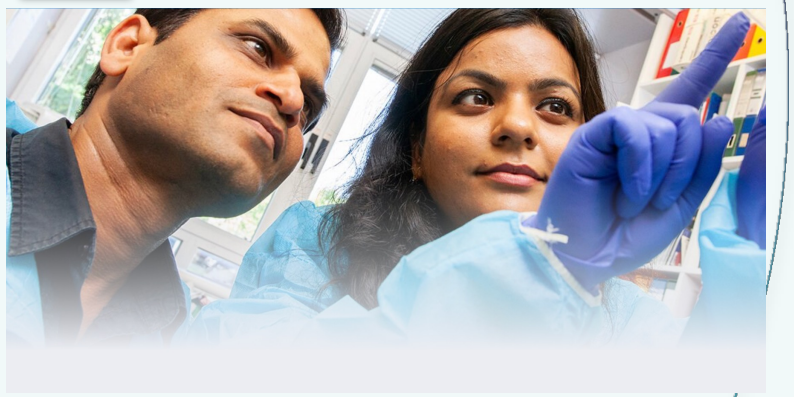
GRANTS FOR YOUNG SCIENTISTS

Arturo Falaschi Short-term PhD Fellowship - **3 months**

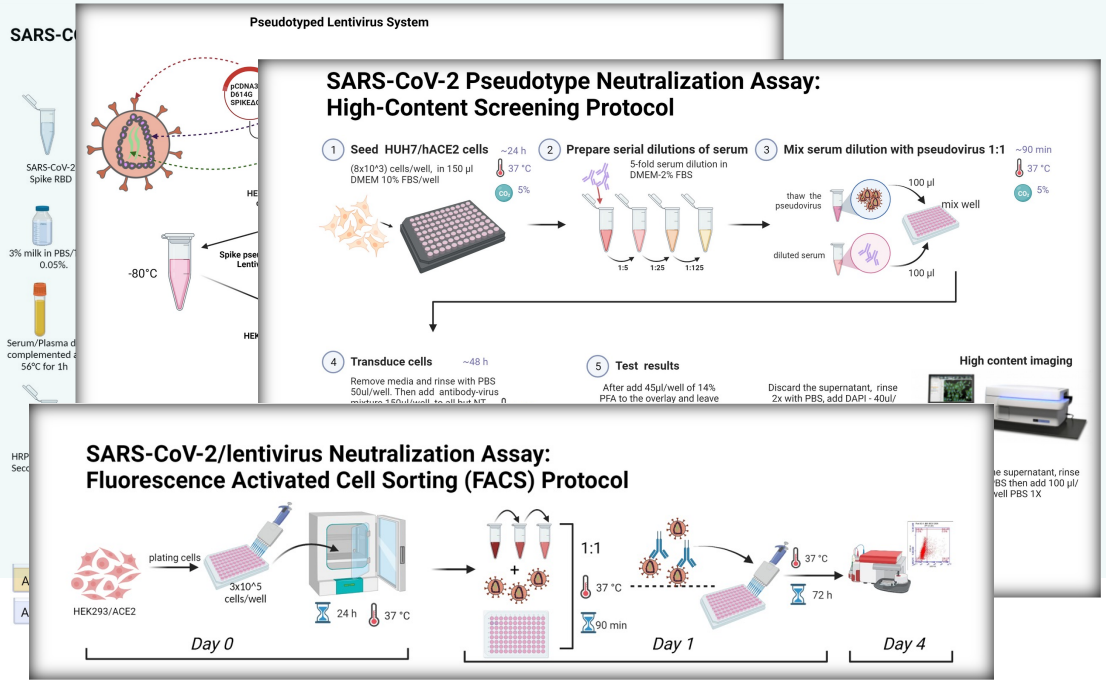


Objective

- to study the **level of immunity** across **convalescent** and **vaccinated** people from Republic of Moldova

Developed tools

- **ELISA**
- **Neutralization assay**
  - *FACS
  - *High content analysis



RESULTS

Staff trained to develop diagnostics

296 samples (96 controls, 100 CP, 100 vaccinated with Sinofarm) **- tested**

- IF paper
- PhD thesis

Networking expanded

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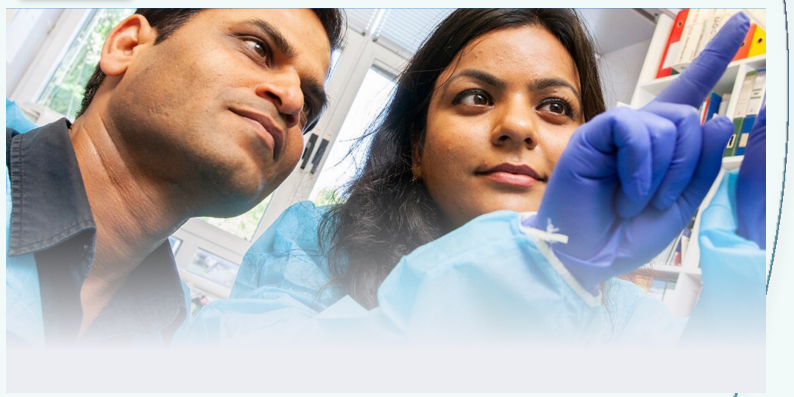

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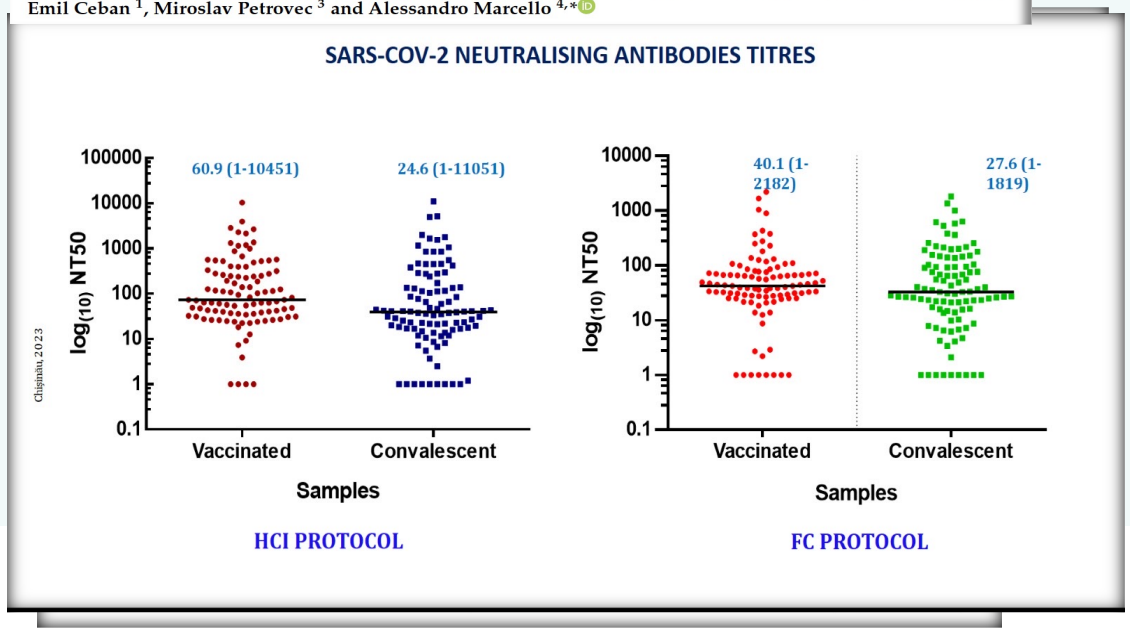
Article

Characterisation of the Antibody Response in Sinopharm (BBIBP-CorV) Recipients and COVID-19 Convalescent Sera from the Republic of Moldova

Mariana Ulinici [1,2,*], Alen Suljič [3], Monica Poggianella [4], Rafaela Milan Bonotto [4], Katarina Resman Rus [3], Angela Paraschiv [1], Amedeo Marco Bonetti [4], Mihail Todiras [1], Alexandru Corlateanu [1], Stanislav Groppa [1], Emil Ceban [1], Miroslav Petrovec [3] and Alessandro Marcello [4,*]



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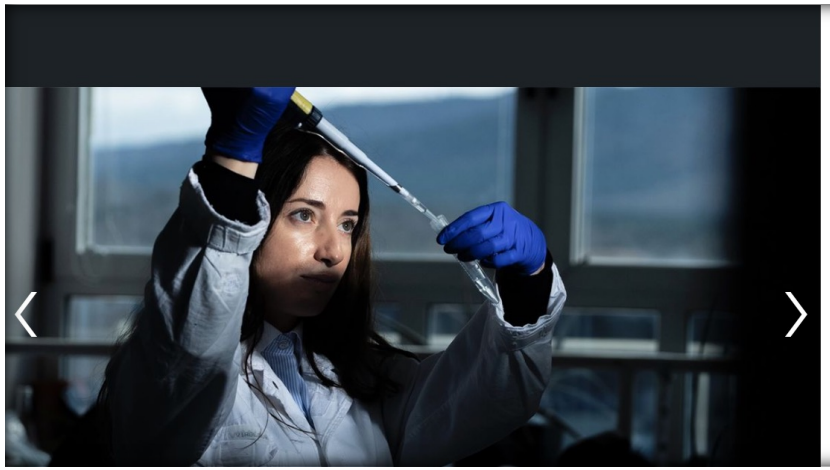
TBFVnet News Contact us

The TBFVnet project grows with new partners

Jul 6, 2022

On June 21 – the Tick-Borne Flaviviruses network welcomes new partners from the Republic of Moldova. During the online meeting between project partners, the Veterinary Research Institute of the Czech Republic, the Biomedical Research Center of the Slovak Academy of Science, the ICGEB and the Norwegian Institute of Health, presented their expertise in the field of tick-borne flaviviruses research, diagnostics and surveillance. Scientists from the Nicolae Testemitanu State University in Chisinau and the National Agency for Public Health of Moldova were invited to the meeting following their expression of interest in the topics of TBFVnet.

TBFVnet is a network of scientific research institutes across central and eastern Europe with the aim to study and survey tick-borne flaviviruses. The power of both survey and research relies on the collaboration between different institutes in as many countries as possible. One of the most promising objectives of TBFVnet project was to gather new research institutes in the network that could bring new knowledge and expertise and be a new observatory on tick-borne flaviviruses in Europe. This objective was reached in June with the entry of two new partners from the ICGEB Member State Moldova. Moldova is one of the countries in Europe within the endemic region of TBE and other tick-borne flaviviruses. It was actually thanks to the contacts ICGEB has in the country that two institutes, the Nicolae Testemitanu State University in Chisinau and the National Agency for Public Health, got to know about the network.



ICGEB
32.927 urmăritori
3 săptămâni •

Olga Sofronie, PhD student, visited the Molecular Virology laboratory at the ICGEB in Trieste, Italy to work on the #TBFVnet project funded by EEA and Norway Grants.

What has fuelled her passion for science? What is the aim of her project?

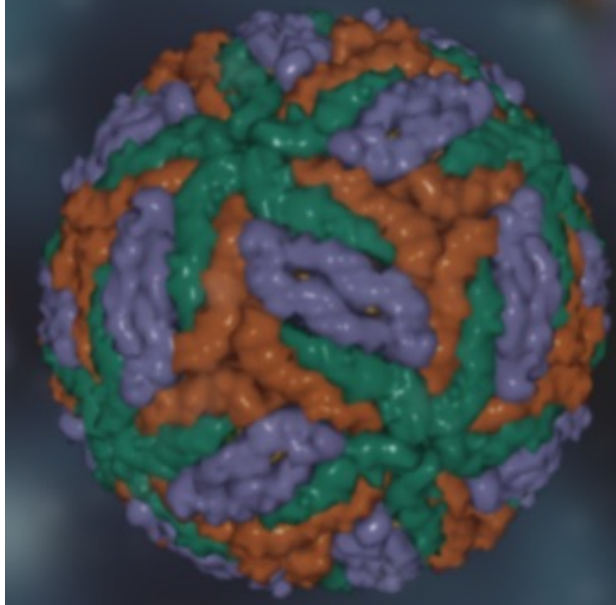
Her involvement in the TBFVnet project at ICGEB Trieste has been predominantly to become familiar with state-of-the-art techniques, equipment, and methodologies. She explains how this has consolidated her research.

We also ask about her vision for the future.

... vizualizați mai multe

Vizualizați traducerea

Iceland Liechtenstein Norway grants



TBFVnet
A network of laboratories that study and survey Tick-Borne FlaviViruses

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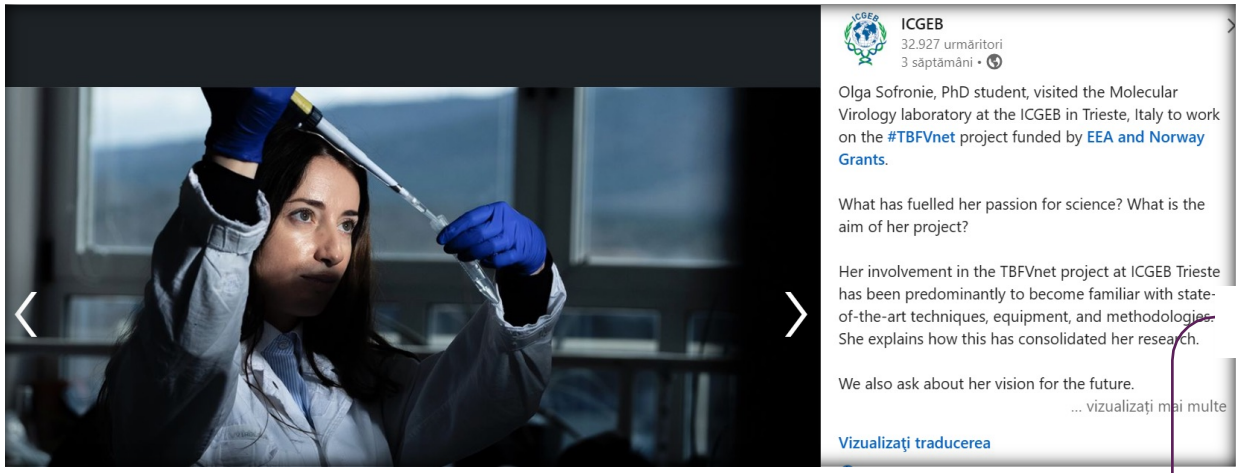

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Vizualizați traducerea

2 months training at Molecular Virology Laboratory, Trieste, Italy

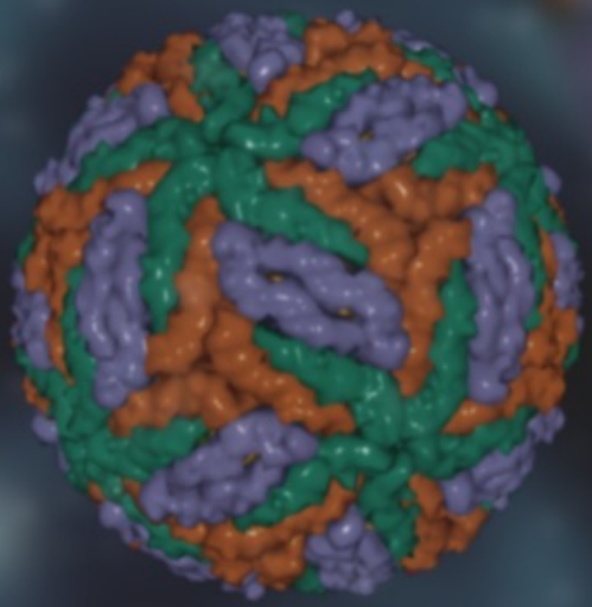
- **LAMP RT-PCR Testing** (SARS-CoV-2/TBEV/ZIKA)
- **TBEV Genome Alignment**
- **Western Blot**
- **TBEV Primer Design**

PhD Project

Genotypic diversity and phylogenetic analysis of TBEV in regional outbreaks

Iceland Liechtenstein Norway grants

Norway grants



TBFVnet
A network of laboratories that study and survey Tick-Borne FlaviViruses

Lessons learned from the implementation of COVID-19 response in the Republic of Moldova

- **The COVID-19 pandemic was a health crisis with serious economic and social impacts.**
- **Sequencing technology is key to identification, monitoring, detection of new pathogens and variants and may become the most essential element for manufacturing of medical countermeasures.**
- **Local diagnostic capacity is key to the first detector first responder approach.**
- **Improvement and actions need to be implemented before crises starts.**
- **Development and modernization of medical infrastructure is a public priority.**
- **Training and preparation of medical staff for crisis response is crucial.**

- Participants
- Norwegian Ministry of Foreign Affairs
- BWC – ISU
- ICGEB