

## Trans-COST Actions initiative on COVID-19

Chiara Riganti, MD  
Department of Oncology, University of Torino, Italy  
Email: [chiara.riganti@unito.it](mailto:chiara.riganti@unito.it)

Chair of COST Action 17104-STRATAGEM  
Website: <https://stratagem-cost.eu/>

**COVID-19 Task force**  
Prof- Helena Vasconcelos,  
University of Porto, Portugal  
[hvasconcelos@ipatimup.pt](mailto:hvasconcelos@ipatimup.pt)

Dr. Thomas Mohr,  
ScieceConsult, Vienna Austria  
[thomas.mohr@mohrkeg.co.at](mailto:thomas.mohr@mohrkeg.co.at)

# The reaction of scientists towards the first wave in Europe

Need to do “something”



Need to discover “something”

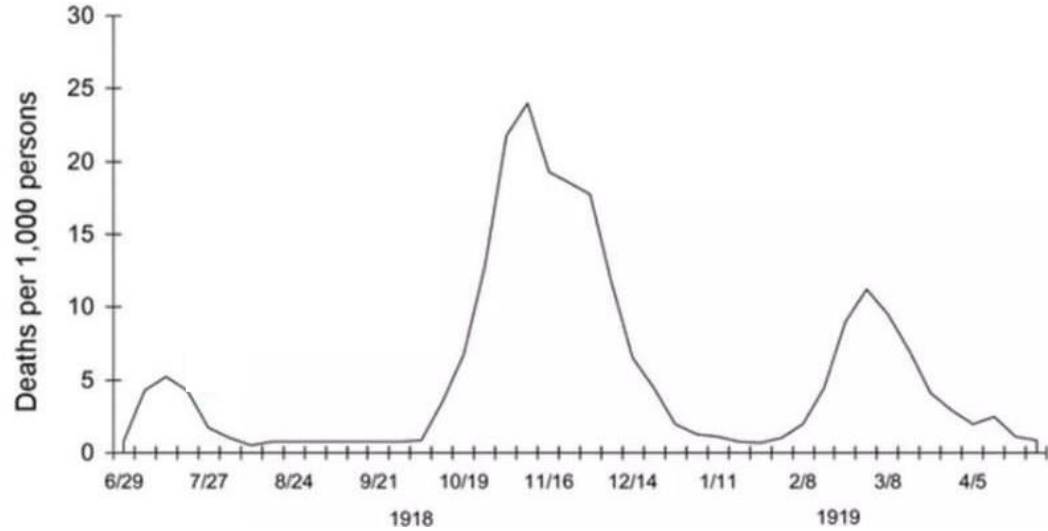


Unprecedented funding

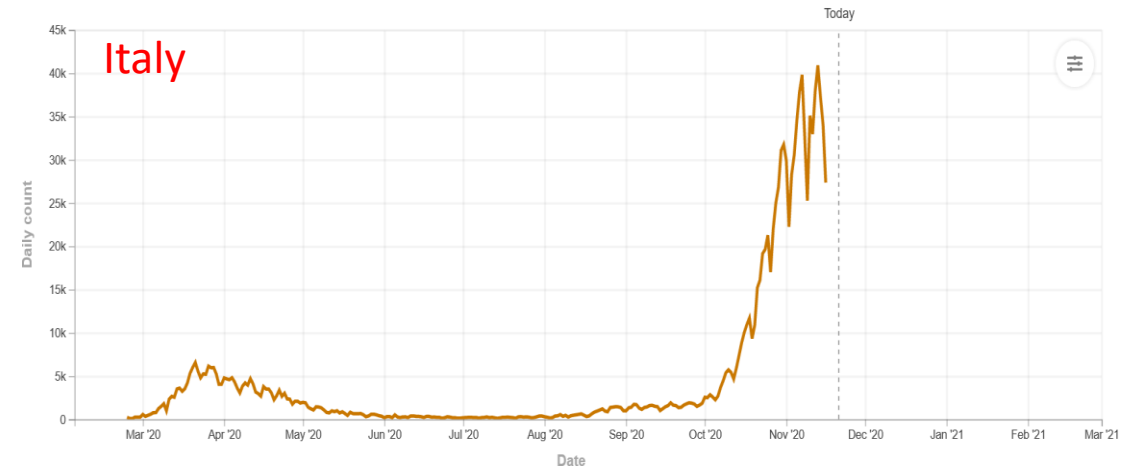


# Did we succeed in containing COVID19 pandemics?





## Spanish flu pandemics (1918)



## COVID-19 pandemics (2020)



## 4 pieces of evidences of lack of coordinated action among scientists

-  Lack of **accessible and comprehensive multi-national platforms** to facilitate interdisciplinary discussion and collaboration
-  Scattering of reliable **scientific information**
-  Lack of **coordination between laboratories** with complementary expertise and resources
-  Limited **sharing of information** on COVID-19 that single research institutions and hospitals started to collect

## A possible solution...?

Organising an inclusive platform to allow inter- and trans-disciplinary networking on emerging infectious diseases



exchange of scientific information and expertise



proposing international plans to act immediately at clinical and research level



reciprocal benefits for scientists and stakeholders against future waves of COVID-19

# Exploiting COST Action to create such transdisciplinary network...?



Scientists focused on a scientific problem

+

Multiple and complementary expertise

+

Open access to the network

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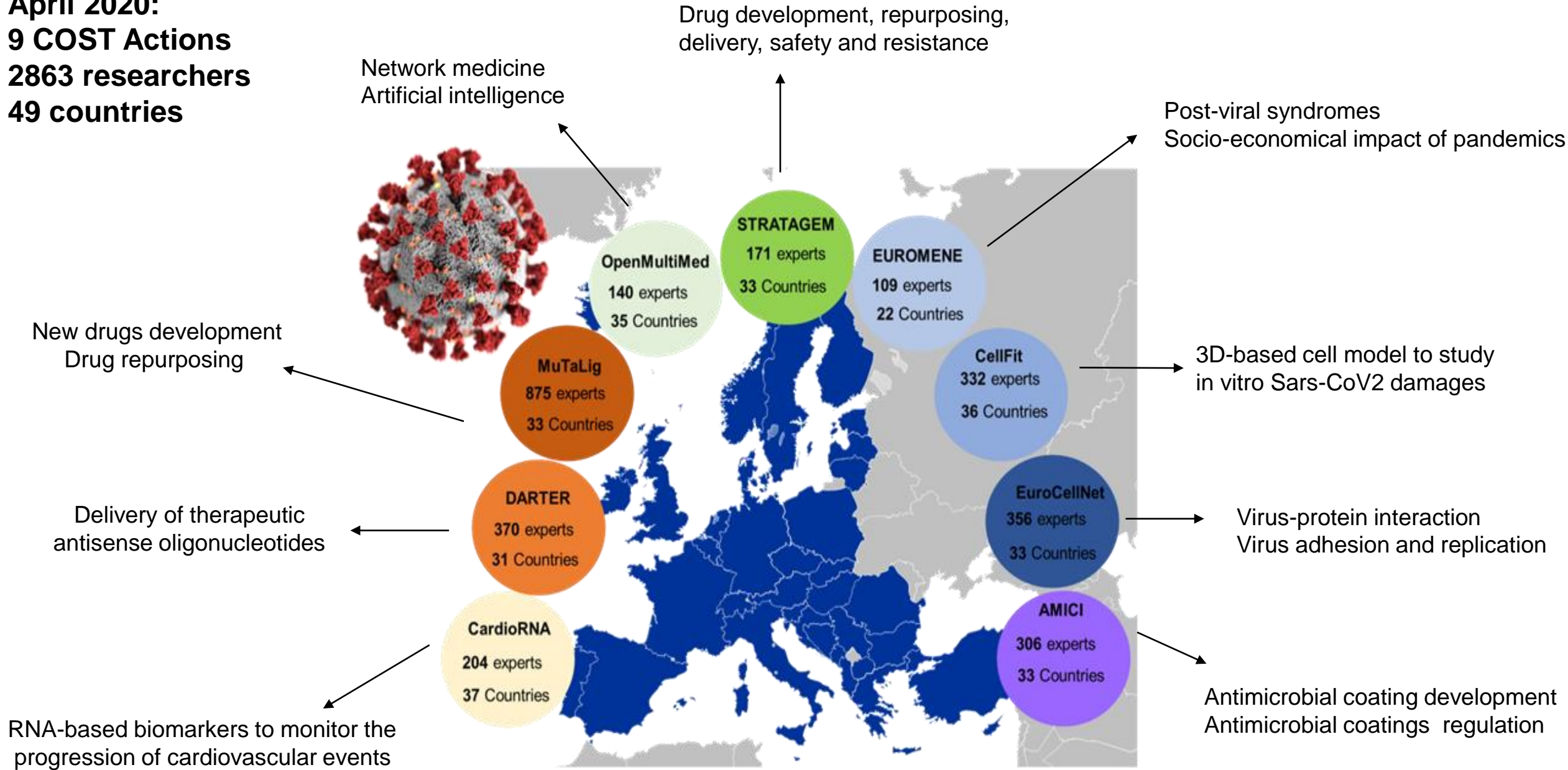
Multidisciplinary & Flexibility



Trans-COST Actions network joining expertise against COVID-19

# Beginning and progress of Trans-COST Actions network

**April 2020:**  
**9 COST Actions**  
**2863 researchers**  
**49 countries**



# Operation mode of Trans-COST Actions network

Kick-off meeting



April 2020



Survey of expertise



Periodic meetings



6 Working Groups

**PRO-ACTIVE  
COLLABORATIONS**



- 1) Epidemiology
- 2) Prevention
- 3) Viral pathogenesis
- 4) Diagnosis and treatment
- 5) Vaccines and immunological studies
- 6) New drug development for treatment



# Collaborations within Trans-COST Actions network: some examples

## Basic research

- Cellular models
- Techniques to monitor adhesion/proliferation/cell damage
- Drug-targets prediction
- Virtual drug screening
- Drug synthesis
- Antimicrobial solutions
- Biomarkers discovery
- Computational modelling
- Artificial intelligence

## Clinical activities

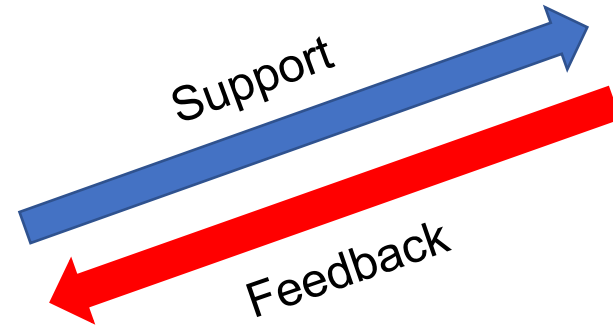
- Biological samples
- Diagnosis
- Treatment



Reciprocal inputs

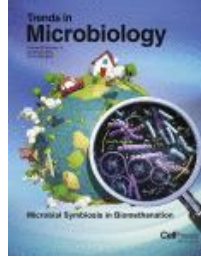
## Public health issues

- Antimicrobial solutions
- Regulations



# First results of Trans-COST Actions network

1) Scientific publications



2) Open Access software

➔ COVEX software: <https://exbio.wzw.tum.de/covex/>

➔ Drug Repositioning And Cooperation Database (DRACD): <https://dracdb.mohrkeg.co.at/dracdb>



<https://doi.org/10.1038/s41467-020-17889-2> OPEN

Exploring the SARS-CoV-2 virus-host-drug interactome for drug repurposing

Sepideh Sadegh<sup>1,4</sup>, Julian Matschinske<sup>1,4</sup>, David B. Blumenthal<sup>1</sup>, Gihanna Galindez<sup>1</sup>, Tim Kacprowski<sup>1</sup>, Markus List<sup>1</sup>, Reza Nasirigordji<sup>1</sup>, Mhamed Oubounyi<sup>1</sup>, Andreas Pichlmair<sup>1,2</sup>, Tim Daniel Rose<sup>1,3</sup>, Mansol Salgado-Albarrán<sup>1,4</sup>, Julian Späth<sup>1</sup>, Alexey Stukalov<sup>2</sup>, Nina K. Wenke<sup>1</sup>, Kevin Yuan<sup>1</sup>, Josch K. Pauling<sup>3</sup> & Jan Baumbach<sup>1,5</sup>✉

3) COVID-19 mitigation national recommendations

4) Grants applications

# Cooperation with other networks

ECRIN-European Clinical  
Research Infrastructure Network

Dariah-EU  
societal and human  
of impacts of COVID-19

American Lung Association

Network Medicine  
Alliance and  
Institute

Trans-COST Action  
Network

Global Health Platform

The Institute Pasteur International  
Network Collective Effort

CLAIRE - Confederation of Laboratories  
for Artificial Intelligence Research in Europe

# The goals of Trans-COST Actions network

- ➔ drafting a **roadmap of disciplines** present in the network to identify the right expertise needed to **mount a faster responses to emergencies**
- ➔ creating a **network of laboratories** able to **quickly “switch” their work** toward the diagnosis, treatment and prevention of SARS-CoV2 infection
- ➔ building a **core set of trans-disciplinary tools**, available to the scientific community to aid research into **COVID-19 and future pandemics**

**Exploiting the tools and resources**  
present in the network

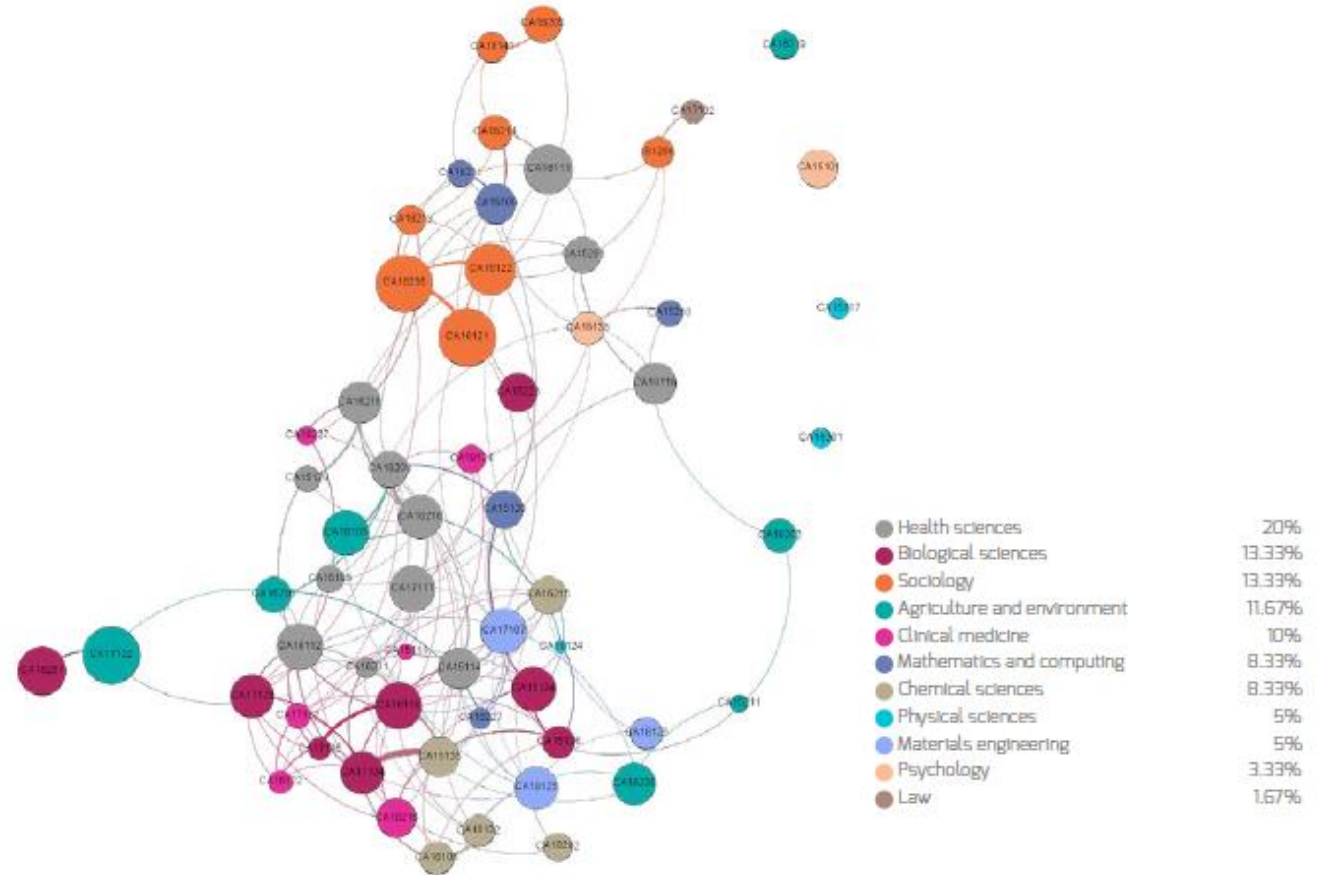
To gather available **clinical and epidemiological data**

To develop **new pharmacological strategies** and **new anti-microbial solutions** to treat and prevent COVID-19 infection

# Welcome to our Trans-COST Action network...and Mega-network



64 Cost Actions Mega-network



We are flexible and open...new expertise are **WELCOME!**