EU research and innovation supporting vaccine development for COVID-19

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I am proud that EU funding has supported European companies to develop the new generation of vaccines, through successive EU research and innovation programme’s grants, as well as loans provided via the European Investment Bank. But we must further boost investments in technologies and research infrastructures, and enhance coordination of European efforts. This will allow us not only to address the current crisis rapidly and effectively, but also to better prepare for future pandemics.

Mariya Gabriel, Commissioner for Innovation, Research, Culture, Education and Youth

Enabling research and innovation to quickly address the COVID-19 outbreak

The European Union reacted immediately to the COVID-19 outbreak with several research and innovation actions. In all, it pledged to invest €1 billion from Horizon 2020, the EU programme for research and innovation (2014-2020), under the Coronavirus Global Response initiative, of which at least €350 million are to support coronavirus vaccine development. These actions include:

EMERGENCY FUNDING
Amongst 18 new research and innovation projects funded within weeks of the outbreak through a special emergency call for expressions of interest (total €48 million), two projects focused on developing safe and effective vaccines: OPENCORONA and Prevent-nCoV.

THE EIC ACCELERATOR PILOT
The European Innovation Council (EIC) Accelerator Pilot invested €148 million in 36 companies, highlighting 2 vaccine projects; the RapCo-19 Rapid COVID-19 Passive Therapy Response Platform and the OSIVAX multi-season influenza vaccine.
Delivering results
RNA vaccine development is supported through several Horizon 2020 grants. In the EAVI2020 project, BioNTech made use of its mRNA technology to develop and manufacture HIV vaccine candidates. Financial support provided by the EIB helped BioNTech to use this mRNA technology for the development of a COVID-19 vaccine candidate. The EC-mediated advance purchase agreement further enabled the manufacturing of the BioNTech-Pfizer vaccine, which was the first to receive marketing authorisation in the EU.

On 17 June 2020, the Commission proposed an EU vaccine strategy to accelerate the development, manufacturing, and deployment of vaccines against COVID-19, where research and innovation can contribute greatly. The EU Strategy for COVID-19 vaccines lays down how the EU and Member States together will accelerate the development and manufacturing of vaccines against COVID-19. The strategy rests on two pillars: providing financial support to de-risk developers’ investments and adapting the regulatory framework to the current urgency.

As of January 2021, the Commission has secured agreements with six vaccine developers: AstraZeneca, Sanofi-GSK, Janssen Pharmaceutica, BioNTech-Pfizer, CureVac, and Moderna. This diversified vaccines portfolio has ensured that Europe is well prepared for vaccination, now the first vaccines that have been proven to be safe and effective are available, which is already the case for BioNTech-Pfizer, Moderna and AstraZeneca vaccines that were recently authorised in the EU.

THE COALITION FOR EPIDEMIC PREPAREDNESS INNOVATIONS
The Coalition for Epidemic Preparedness Innovations (CEPI), an international initiative with European input from its inception, has received a total of €136 million from Horizon 2020, of which €100 million was awarded to support the rapid development of COVID-19 vaccines. It combines a strong focus on product development with a competitive element to ensure that only the most promising vaccine candidates get support.

EIB FINANCIAL INSTRUMENTS
An additional €400 million in financing from Horizon 2020 funding (InnovFin EFSI and Infectious Diseases Finance Facility) was dedicated to mitigating risks for companies developing interventions to combat COVID-19. This enabled two European biotech firms developing promising mRNA vaccines to obtain debt financing agreements: €100 million for BioNTech and €75 million for CureVac. Both companies are developing mRNA vaccines, which consist of genetic material, called messenger RNA that provides instructions for a human cell to make proteins of the virus. The proteins activate the body’s immune response to combat infection.

Building on 20 years of EU investment in vaccine research and innovation
In addition to the recent COVID-19 funding, over €650 million was already invested in vaccine research and innovation through Horizon 2020, building on efforts from previous EU framework programmes.

COMBATTING INFECTIOUS DISEASES
The EU has supported the development and selection of the most promising vaccine candidates against HIV, TB and malaria as well as in the development of vaccines against several neglected and emerging infectious diseases. It was at the forefront for the fast-track development of vaccines against more recent threats such as Ebola, Zika, and now the coronavirus.

EU investments in next generation vaccines
Research and innovation projects aim to speed up vaccine development, which usually takes more than 10 years and has a high risk of failure. European projects (e.g. EAVI2020, EHVA, TBVAC2020, Rabyd-vax) are developing and making use of a wide range of technologies (DNA, RNA and viral vectors) to expand vaccine candidate pipelines. The ADITEC and OptiMalVax are among projects developing new immunisation technologies and taking these forward in clinical trials to make vaccines more effective – also for unmet needs of the elderly and young.
VACCINE RESEARCH SUPPORT

Vaccine research is supported by Horizon 2020 in various ways: including collaborative research projects in the Health societal challenge, the Innovative Medicines Initiative (IMI), support for research infrastructures, the European Research Council (ERC) and European Innovation Council (EIC) and the European & Developing Countries Clinical Trials Partnership (EDCTP).

RESEARCH INFRASTRUCTURES & NETWORKS

A number of existing platforms or mechanisms at European and international level are also mobilising efforts to support COVID-19 vaccine research more generally; the European Virus Archive, the European Vaccine Research and Development Infrastructure (TRANSVAC2), European Advanced Translational Infrastructure in Medicine (EATRIS), and European Clinical Research Infrastructure Network (ECRIN).

TACKLING MISINFORMATION AND VACCINE UPTAKE

The mass information about the virus, often false or inaccurate, that spreads quickly over social media creates confusion and distrust and undermines effective public health response. On 10 June 2020, the Commission published a Joint Communication analysing the immediate response and proposing concrete actions. EU-funded COVINFORM project produced a report on information and misinformation and correcting myths about COVID vaccines. Additionally in 2020, through a Horizon 2020 call, a topic designed to address low vaccine uptake led to three new research projects receiving a total of €9.4 million in grants to address vaccine uptake, confidence, and improved access, including for COVID-19 vaccines.

DATA SHARING

The COVID-19 Data Portal was launched in April 2020 to centralise and share data in order to accelerate coronavirus research. Thousands of researchers are using the portal to upload, access and analyse COVID-19 related data.

EU-WIDE COVID-19 VACCINES TRIALS NETWORK

Finally, the Commission aims to support the establishment of an EU-wide COVID-19 vaccine trials network, with over 30 countries ready to join. The purpose of the network will be to facilitate Phase II and Phase III vaccine trials in Europe, and address unresolved public health related questions. This network will function in close coordination with safety and effectiveness monitoring activities of already authorised vaccines led by the European Medicines Agency (EMA) and the European Centre for Disease Prevention and Control (ECDC).