Thinking of vaccines in a different way in the time of COVID-19

Vaccine use is a particularly sensitive issue during COVID-19, leading to some scepticism and mistrust amongst the general public. Leading scientists discuss research findings that pave the way to new frontiers.

Vaccines have eradicated infectious diseases that used to kill people in the past. Vaccination therefore has been one of the most important preventive health interventions over the last two centuries. Although a series of misconceptions has led to mistrust amongst members of society, the COVID-19 pandemic has brought vaccines to the forefront of research and public interest.

Prominent scientists who are European Research Council (ERC) grantees addressed crucial vaccine-related issues in a virtual session titled ‘Re-Thinking Vaccines’ as part of the EuroScience Open Forum: ESOF 2020 Trieste (ESOF2020) conference held remotely on 2-6 September. Organised by the ERC, the session questioned the way people think about vaccines as prevention to specific diseases, as well as potential tools against disease, antibiotic resistance and currently COVID-19.

“What people are really going to care about and what’s really going to affect the uptake of a COVID-19 vaccine, is how the public health messaging and key political
figures are able to prevent bad actors from getting into the public conversation, particularly with claims around exaggerated side effects,” comments Dr Jason Reifler (DEBUNKER project), professor of political science at the University of Exeter. He warns against the risks of rushing a COVID-19 vaccine. “While there is incredible immediate need for a vaccine, the long-term consequences of getting it wrong, for COVID specifically and for vaccines generally, are very severe. As a society, we’re prepared to accept documented risks but we’re not prepared to accept undocumented risks.”

Discovering new routes and redressing challenges

A report on the session notes that, according to Dr Rino Rappuoli (vAMRes project), Chief Scientist and Head of External R&D at GSK Vaccines in Siena, Italy, and professor of vaccines research at Imperial College London: “Infectious diseases take away our freedom. But together with hygiene and antibiotics, vaccines can restore it.” He goes on to say: “Today to make vaccines you don’t need the virus anymore. You only need the sequence of the virus downloaded from the internet.” Dr Rappuoli points out the role of new technologies based on synthetic genes and the effectiveness of monoclonal antibodies as a preventive treatment, likely to be completed earlier than a COVID-19 vaccine.

Dr Christine Benn (CHILIC project), professor in global health at the University of Southern Denmark, noted: “I like to think of live vaccines as a tennis court, with a really good opponent who makes you run around the court and prepares you to compete.” She argues that live vaccines act like a stimulant for the entire immune system, as they not only treat specific diseases but act as more general training for the immune system. “Non-live vaccines are like a ball machine, which teaches you to react very well to one very specific target,” she adds, clarifying the difference between the two types of vaccines. “The immune system is wonderfully complex. It’s like a brain, it learns from experience and it can translate that experience into other unrelated situations.” Dr Benn concludes by revealing a new dimension to the way we view vaccines.

Funded by the EU, the ongoing ESOF2020 (EuroScience Open Forum 2020 Trieste) project organises the pan-European general science conference devoted to scientific research and innovation. It’s Europe’s largest interdisciplinary event on science and innovation.

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