

## Talk of the town in 2021: Covid-19 vaccines likely take centre stage

Just as basic science has shown unparalleled cooperation to increase basic and clinical understanding of SARS-Cov2, the vaccine industry has raced towards being first to develop vaccines against Covid-19. The success has been formidable. Never before has so many novel and efficient vaccines been produced with such speed<sup>1</sup> and phase 2/3 trials showing clinical efficacy are now accumulating.<sup>2</sup> Concerns are raised that safety might lag behind, but Covid-19 is a very deadly disease and the earlier vaccines are in place, the more lives can be saved. In this time race, there is a delicate balance between approval and taking the risk that very rare side effects reveal themselves. But as vaccines are being administered, lives will be spared and the SARS-Cov2 pandemic reaches its end. It is a safe bet that immunology in 2021 will focus on vaccines against Covid-19.

Vaccines have a long history of public health successes starting with Jenner's smallpox vaccinations in 1796 leading to its eradication in the 1960s. Already one decade earlier, Salk developed a Polio vaccine, which has since then saved millions of children from debilitating disease. Today, general vaccination programmes cover many diseases such as diphtheria, measles, mumps and rubella. In addition, vaccines protect us against tropical diseases such as the yellow fever, and neurological sequelae from tick-borne encephalitis can be almost completely prevented following a completed vaccination programme.

Not all diseases are easy to substitute with a vaccine, however, and some diseases, such as, for example HIV, malaria and tuberculosis (incidentally diseases that are often prevalent in low income countries), remain more elusive. Research on basic immunology of these diseases is encouraged in this journal,<sup>3-5</sup> as are studies on immune responses to vaccination in general.<sup>6,7</sup> In 2021, we will put a special emphasis on studies that enhance the knowledge on how vaccines influence the immune system and how they protect against diseases. Submission of original studies in this area is encouraged.

Resistance to vaccination in society is unfortunately increasing, which in the case of Covid-19 threatens the development of herd immunity and slows down societal recovery from the pandemic. This scepticism is psychologically understandable to some degree, given the disastrous cases of narcolepsy that occurred in some children after the recent swine flu vaccine Pandemrix.<sup>8</sup> Vaccine resistance also stems

from incorrect perceptions, however, such as the one that childhood vaccination, in particular against measles, causes autism, something that has been disproven many times, including in a recent Danish study on over 650 000 vaccinated children.<sup>9</sup> In additions, misconceptions exist that the immune system might be weakened by vaccination compared to seeing the "real thing", but potential deadly and disabling effects of the disease in question are often neglected.

Devastating side effects of vaccinations must of course be avoided at all costs. It remains very difficult, however, to predict complications so rare that they are not revealed until tens of thousands, or even more, individuals have been vaccinated. And, as mentioned earlier, there is always another side of the coin: the prospect of saving lives that without the vaccine would be lost to the disease. It is clear to anyone who studies the history of infectious diseases that vaccination remains one of our most important human health inventions. In the era of modern medicine, hygiene and life standards, it is easy to forget that vaccination has saved billions of lives and prevented major suffering for many more.

As immunologists, we must defend vaccination as a public health measure of increasing importance. We must do so by presenting facts, counteracting misinformation and engaging in the debate. Above all, we have a duty to perform high quality science to investigate mechanisms underlying immune responses to infectious diseases, with the aim not only to understand the disease better, but also to identify new avenues to improve vaccine efficacy and minimizing side effects. The Scandinavian Journal of Immunology will do its best to support the research community in this quest.

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