

Immunology

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Immunology is at a pivotal moment. The huge successes in public health brought about by vaccines are now facing erosion, as anti-vaccination sentiments spread around the world and the United States cuts funding to domestic and overseas infectious-disease research. Measles, for example, was declared eliminated in the United States in 2000 by the World Health Organization, but in July this year, there were more reported cases than in any year since 1992.

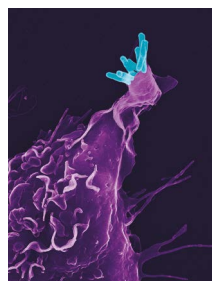
Researchers are working hard to improve measles prevention and treatment. Erica Ollmann Saphire, president and chief executive of the La Jolla Institute for Immunology in San Diego, California, and her team are developing a vaccine that does not use live virus – a safer option for immunocompromised people. And having published a detailed view of a mouse antibody bound to the surface protein of a measles virus (D. S. Zyla *et al.* *Science* **384**, eadm8693; 2024), Saphire says they have done similar work with a group of human antibodies that they hope will inform new treatments (see page S24). But funding is a struggle. Researchers working on solutions for tuberculosis and polio say the same thing: the science looks promising, but support is waning.

There is reason to be optimistic, however. The latest technologies offer a more detailed look at the human immune system than ever before. Mouse models, for instance, which have for decades been criticized as being imperfect or incomplete approximations of human disease – especially in immunology – could be getting an upgrade (see page S30). Organ-on-a-chip platforms are also improving, offering new ways to study how the immune system responds in sickness and health.

The potential for breakthroughs that could save millions of lives is real – but without stronger public health and education efforts, the science alone won't be enough to carry it forward.

Bec Crew
 Senior editor, Nature Index

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On the cover
 White blood cell (purple) engulfs tuberculosis bacteria.
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