

Reducing the burden of neglected tropical diseases requires investments in basic research

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International support for measures to prevent neglected tropical diseases has resulted in public health gains, but eliminating these debilitating conditions will require significant investments in basic research, argues Dr. Peter Hotez in a new article publishing 9 November in the open access journal *PLOS Biology*.

Targeted investments in five areas of research are needed to create a pipeline for innovative disease-control tools, argues Hotez of the National School of Tropical Medicine at Baylor College of Medicine, and Texas Children's Hospital, in order to help the world's poorest people.

Neglected tropical diseases and malaria kill more than 800,000 people annually and create long-term disability in millions more. Support for translational research has helped with the development of new drugs, diagnostics and vaccines, Hotez says, but funding for basic research has lagged behind.

Hotez outlines five key areas of basic research that urgently require investments. Strategic investments in these areas could accelerate new innovations for the poverty-related neglected diseases:

- Whole organism [biology](#) and life histories
- Model organisms and sci-RNA-seq

- Functional and comparative OMICs and gene editing
- Ecology and evolution and mathematical biology
- Systems biology and immunology

"In many instances, our current technologies are not adequate to sustain a pipeline of [new drugs](#), diagnostics and vaccines," said Hotez. "Along with implementation science and translational research and development, we need co-investments in [basic research](#) for neglected [disease](#) pathogens and parasites, as well as host-parasite interactions."

If the research areas critical to understanding and treating neglected [tropical diseases](#) received adequate support, it could jumpstart a new generation of translational medicine and control tools, Hotez said. That would help to ensure that a robust pipeline of neglected diseases interventions can continue. "Just as the world's poor deserve access to food, water, shelter and essential medicines," he said, "they also deserve access to innovation."

The article is part of the *PLOS Biology* "Research Matters" series.

More information: Hotez PJ (2017) The poverty-related neglected diseases: Why basic research matters. *PLoS Biol* 15(11): e2004186. doi.org/10.1371/journal.pbio.2004186

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