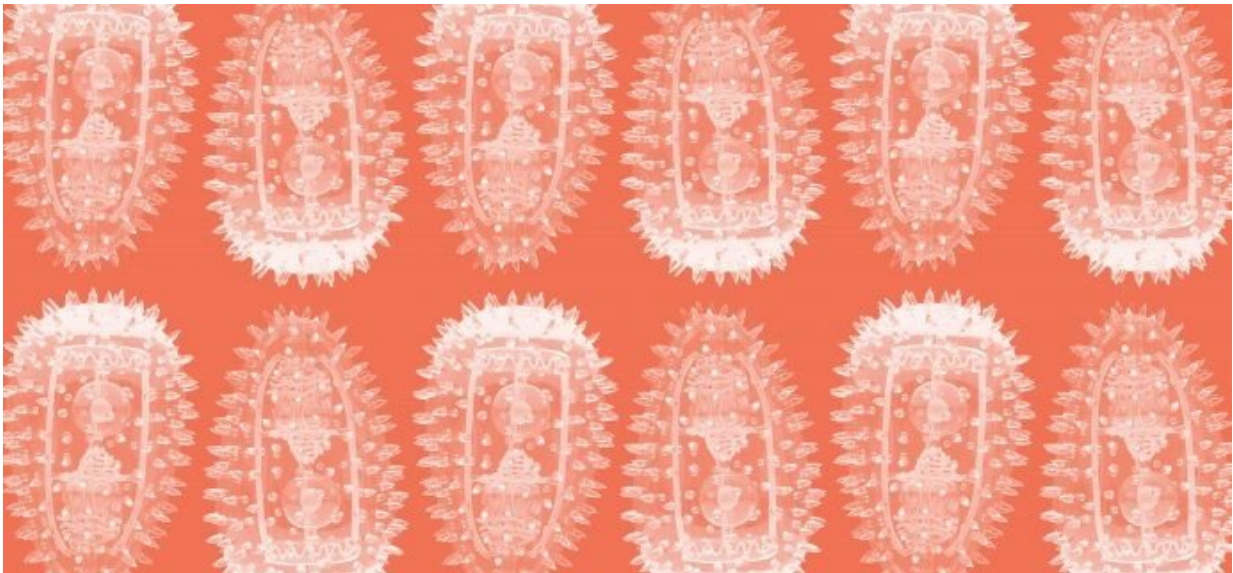


# New research agenda for malaria elimination and eradication

January 9 2018, by Gail McCormick

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Glass sculptures depict the malaria-causing parasite, *Plasmodium falciparum*.  
Credit: Luke Jerram, graphic design by Rachel Papernick

Two Penn State researchers have participated in the formulation of a new updated research agenda for global malaria elimination and eradication. Together with more than 180 scientists, malaria program leaders, and policy makers from around the world, Manuel Llinás, professor of biochemistry and molecular biology, and Jason Rasgon, professor of entomology and disease epidemiology, contributed to the Malaria Eradication Research Agenda (malERA) Refresh Collection,

which defines a forward-looking research and development agenda that will accelerate progress towards malaria elimination and global eradication. The malERA Refresh collaboration resulted in seven research papers that were recently published as a [special collection](#) in the journal *PLOS Medicine*.

A world free of malaria would present enormous benefits in terms of health, equity and economy. The World Health Organization has set ambitious goals for reducing the burden of malaria, and 21 countries have been identified as having the potential to eliminate local transmission of malaria by 2020. However, there is no easy path to achieving a malaria-free world, and there is a real need for innovation. The malERA Refresh lays out a research agenda to meet the challenges and, in the long-term, eradicate malaria globally.

"The malERA Refresh allowed the community of malaria experts to re-examine its priorities," said Llinás. "It provides ideas and suggestions that will impact everything from basic science to policy to the roll out of new drugs."

The initial malERA agenda from 2011 aimed to identify key knowledge gaps and define the strategies and tools that could lead to the elimination and eradication of malaria. To update the agenda, six panels with malaria experts from around the world engaged in a collaborative process to address progress made and identify the main challenges across the following areas: basic science and enabling technologies; combination interventions and modelling; diagnostics, drugs, vaccines and vector control; insecticide and drug resistance; characterizing the reservoir and measuring transmission; and health systems and policy research.

"The malERA papers provide a framework for focus for research funders whether government or private; for the World Health Organization, where recommendations on tools and strategies are made;

and for each country, which has to make the specific decisions to shape its programs," said Regina Rabinovich, chair of the Malaria Eradication Scientific Alliance (MESA), which coordinated the collaboration. "The global malaria enterprise remains hugely challenging, and transforming the mindset from implementation to problem solving is an essential task for both the next generation of scientists and program implementers."

Llinás contributed to the panel regarding basic science and how it enables new drug interventions. In the resulting paper, the panel identified future research opportunities to better understand the life cycle of the malaria-causing Plasmodium parasite and address unanswered questions about transmission.

"The best way to answer these questions is by combining forces," said Llinás, "using tools from human immunology, parasitology and entomology, and by taking advantage of new biomedical technologies."

Rasgon contributed to the panel regarding strategies available to prevent, treat and control malaria, including diagnostics, drugs, vaccines and vector control. The panel discussed the need to use available resources more effectively and to strategically develop new intervention strategies.

"We have made amazing progress in our ability to treat and control malaria," said Rasgon, "but eradicating it completely remains a challenge. During the panel, we discussed strategies to combine new and existing approaches to maximize their effectiveness and to prevent the rebound of [malaria](#) in areas where it has been eliminated."

Provided by Pennsylvania State University

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