

A new PLOS Pathogens forum explains how basic research is necessary, exciting, and makes a difference

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Kasturi Haldar. Credit: Kasturi Haldar, CC-BY

"We seek this new Research Matters format for individual scientists to tell the public how diverse fundamental research into pathogens assures real and compelling impact on public health, human knowledge and life", state Kasturi Haldar and Grant McFadden, the journal's Editors-in-Chief in their introductory editorial, which, alongside the first two first contributions to the new series, will be published on June 25th in *PLOS Pathogens*.

Both scientists, whose [basic research](#) has led them to get involved in start-up biotech companies and joint ventures with pharmaceutical companies, provide vignettes of their respective careers in two Research Matters articles, which they hope will encourage their colleagues to speak out in similar ways. "Our goal", they say, "is to evolve a forum for active scientists to speak directly, without filters or publicity agents, about why basic research in their field matters." And as McFadden urges, "with the growing din of anti-science sentiments, those of us who have been lucky enough to pursue fundamental research as a career now more than ever need to speak up."

Kasturi Haldar was intrigued by the questions of why the large, complex malaria parasite selects the "dead-end" rudimentary red blood cell as a host and how it manages to manipulate this minimal environment to suit its needs. She focused on parasite cell biology, and over the years it became clear that the parasite manufactures and provides much of the basic infrastructure to its host cell. Components of this essential and parasite-specific infrastructure, it turns out, are potential drug targets.

Fascinated by the release of a rabbit virus into the Australian outback to prevent the take-over of this unique ecosystem by the invasive foreign rodents, Grant McFadden decided to study rabbit myxoma virus. Moreover, he managed to persuade funding agencies to support his quest to understand a virus that had no obvious relevance to humans or any other animals besides rabbits. Yet, it turns out that his discovery of how the virus fools the rabbit's immune system has potential application to human inflammatory diseases and cancer.



Grant McFadden. Credit: Grant McFadden, CC-BY

His "take-home message", McFadden says, "is that the results of true fundamental research still remain virtually impossible to predict, despite what pundits or politicians might have you believe. . . To me, the single most important justification for fundamental research in biology remains this: Mother Nature is mysterious and magnificent but some of Her secrets can still be revealed if we only allow curious minds to ask the right questions."

Haldar argues that "investment in a broad range of basic research (because it is important to query scientific problems in many ways) enables collective preparedness for new translational challenges that defy political agendas and fearmongering for partisan gain". She warns that "failure to do this will jeopardize future employment, training, and education at the university, college, and high school levels."

"If we want the next generation of scientists to lead the way to the transformative discoveries of the future", McFadden urges, "we all need to articulate more clearly to non-scientists why, in our modern world, basic research matters more than ever."

More information: Editorial:

[dx.plos.org/10.1371/journal.ppat.1005014](https://doi.org/10.1371/journal.ppat.1005014)

Haldar: [dx.plos.org/10.1371/journal.ppat.1005002](https://doi.org/10.1371/journal.ppat.1005002)

McFadden: [dx.plos.org/10.1371/journal.ppat.1004997](https://doi.org/10.1371/journal.ppat.1004997)

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