

NIH IN 2020

Richard Klausner & David Baltimore

Column Group & California Institute of Technology

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The National Institutes of Health (NIH) serves the US biomedical community by providing resources for experimentation, but it does so in ways that bias the enterprise towards short-range and unimaginative thinking. Our recommendations for the NIH of 2020 call for a profound change in its culture and in its decision-making processes.

First, funding criteria will put more weight on judgements about the individual who is applying, not the details of the proposed project. It is creative minds that we want to foster, and when the NIH identifies someone who has been innovative and productive, that person should be adequately supported so they can express their creativity in their own way.

Notably, the current system of hyper-specialized study sections for reviewing research proposals discourages risk-taking. They should be replaced or augmented by broad, institute-based interdisciplinary review teams, which assess greatly simplified applications that focus on the goals of the research, the importance of the problem and the quality of the investigators. The technical part of the review will shift from assessing the feasibility of the plan to the capabilities of the investigators.

At the same time, we should be encouraging new generations of independent scientists to begin productive careers by aiding their development outside the usual academic routes. So, instead of all trainees being graduate students and postdoctoral fellows under supervision by elders, there should be alternative pathways for independent or self-guided study.

By 2020, the NIH should see some of the fruits of its programme to revitalize clinical research. The clinical trials it supports (some 15% of the agency's overall budget) should be asking questions that enhance the scientific basis of medicine. For instance, NIH-sponsored trials should focus on streamlining trial execution and should pioneer new technologies for patient subtyping, testing biomarkers and determining biologically meaningful surrogates for clinical responses. That might mean fewer trials than now, but each should be designed to extend clinical science as a whole.

The intramural programme of the NIH represents some 10% of its funding and should remain strong. However, it lacks a defined mission and has deteriorated in quality. It does have a powerful and unique instrument in its new but underutilized clinical centre, which needs to move to the forefront of the NIH's translation efforts.

Individuals are also key to progress in clinical research. In the extramural community, we need an expanded cadre of clinical research scholars to pursue cross-disciplinary studies of human disease physiology, and to challenge the current one-way route from bench to bedside.

If the NIH carries out these reforms by 2020 (even better, by 2015), the United States' preeminence in biomedical research will be ensured.