Noted researchers warn that biomedical research system in US is unsustainable

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Credit: Haramaya University

(Phys.org) —Four noted biomedical researchers have banded together to write and publish a Perspective piece in the journal *Proceedings of the National Academy of Sciences*. In their paper, the four outline problems they see with the current system of biomedical research in the United States and offer what they believe are solutions to prevent stagnation in

the field.

Biomedical research in the United States has, by any measure, been one of the great success stories of the modern era, bringing to the world increased knowledge of biological systems and medical advances at a breathtaking pace. The problem is, the researchers claim, is that past success does not guarantee a bright future. In their paper, authors Bruce Alberts, with the University of California, Marc Kirschner, with Harvard Medical School, Shirley Tilghman, with Princeton and Harold Varmus with the National Cancer Institute suggest that the system currently in place is unsustainable.

At the root of the problem is the way funds for research are allocated, generally by the government in the form of grants. Because agencies such as the National Institutes of Health are subject to the whims of Congress, the amount of money available for research varies. Over some periods, it can be quite a lot, in others, such as in recent times, the amount has been less. The good times have led undergraduate students to believe that there is an ever expanding job pool available, which in turn has led to a glut in graduate students and post doctoral fellows. The oversupply has led to diminishing pay scales and decreased faith by those in the field of the value of their work.

Alberts et al, contend that the research community, including those that offer funding should embark on a path to "confront the dangers at hand" by rethinking how research is funded, how it's staffed, and ultimately how it's organized in general. They go into great detail describing several possible solutions, which ultimately boil down to a means for paring down the number of graduates in the field.

Of course this is not the first time noted scientists have issued warnings about how biomedical research is conducted in the U.S., many others have come before, particularly during times when funding has slowed.

The overriding concern typically hovers around the central problem—that of variable funding, and how to fix it. In this new paper, the authors suggest that a means be put in place to even the flow, a suggestion that has been made many times in the past. The problem with that approach of course, is that only Congress can make it happen, and to date, they have shown little inclination to do so.

More information: Rescuing US biomedical research from its systemic flaws, Bruce Alberts, *PNAS*, DOI: 10.1073/pnas.1404402111

Abstract

The long-held but erroneous assumption of never-ending rapid growth in biomedical science has created an unsustainable hypercompetitive system that is discouraging even the most outstanding prospective students from entering our profession—and making it difficult for seasoned investigators to produce their best work. This is a recipe for long-term decline, and the problems cannot be solved with simplistic approaches. Instead, it is time to confront the dangers at hand and rethink some fundamental features of the US biomedical research ecosystem.