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EDITORIAL

Is Biology in an existential crisis?
A diagnostic analysis and perhaps… an effective treatment

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Four years ago, a perspective entitled "Rescuing US biomedical research from its systemic flaws" published in the Proceedings of the National Academy of Sciences by four prominent members of the US academic community (Alberts et al., 2014) carried the following keywords to call it to the attention of its readership: federal funding, graduate education, peer review, postdoctoral education. It concluded, in essence, that the status quo in biomedical research was unsustainable. Other commentaries published both before and after, also supported what is now a common view: this problem is not limited to US institutions. The biological sciences, and not them alone, are stuck in a global crisis.

The symptoms of this crisis are no longer disputed. For instance, the extent of irreproducibility of published data challenges the basic tenets of scientific research. This problem not only highlights the deficiencies of how the scientific enterprise is currently organized, but pinpoints the inadequacies of the fundamentals on which currently adopted biological paradigms have been built. These inadequacies have led to the channeling of financial support to projects based on those faulty dominant paradigms, which might explain the scarcity of breakthroughs in biomedical research. In turn, data coming from academic institutions that in the past have served well the needs of the pharmaceutical industry and biotechnology startups has become unreliable.

ORGANISMS shares the opinion that to remedy the situation, one needs to learn the cause. However, while many in the scientific and technological arena have condemned this sad reality, little has been learned about its origins and how to reverse the current trend. We understand that it would be naïve to assume that this socio-political and scientific malaise will be easily resolved. Notwithstanding the complexity of the task, however, a frank and responsible analysis of the main factors contributing to the genesis of the current crisis is needed in order to restore the trust that the public at large ought to have regarding the practice of science and the researchers who work at it.

To start this conversation, ORGANISMS is publishing two articles by Yuri Lazebnik and Mikael M. Karlsson in the current issue that explain in some detail the socio-economic background at the root of the current problems in science. ORGANISMS invites its readers to contribute to this debate by providing their own perspective and by proposing realistic solutions. They are urgently needed.

References

Alberts B, Kirschner MW, Tilghman S and Varmus H. 2014 Rescuing US biomedical research from its systemic flaws. PNAS, vol. 111(16), p. 5773-5777.