A new study of the ‘Nobel Prize Factory’ challenges funders’ recent shift away from basic science

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New analysis of a laboratory renowned for producing Nobel Prize winners has revealed how a clear management strategy plays a critical part in producing scientific breakthroughs.

The research, shared in the journal Nature, identified several key factors in the success of the Laboratory for Molecular Biology (LMB), some of which defy conventional wisdom and managerial practice in scientific research.

This first historical complete analysis of the LMB was carried out by Luka Gebel, PhD candidate at King’s Business School and coauthors Chander Velu and Antonio Vial-Puig (both University of Cambridge).

“Going forward, basic biosciences will become more complex, requiring ever more sophisticated and expensive equipment. This is why a strategic approach to managing science is crucial; particularly when looking at greater collaborations between institutions in the future,” says Luka Gebel, PhD candidate at King’s Business School.

The team analysed all available data from the LMB’s archive, including management and board meeting records. They also interviewed key managers and external scientific collaborators to understand how the LMB’s management strategy contributed to its success. They highlighted several important policies and practices:

- ‘Fail fast’ approach: projects are reviewed and potentially terminated at five-year intervals, enabling rapid redirection of efforts and resources.

- Small team dynamics: LMB operates with small, resource-sharing teams. This fosters collaboration across disciplines and minimises inertia. Once a project has been completed or terminated, a smaller team can be redeployed more quickly.

- Redefined success metrics: success at LMB is measured not just by published papers but by the extent to which the tools and technology developed by a team through its research are taken up elsewhere within the institute.

- Cultivating homegrown talent: contrary to typical views on 'knowledge inbreeding,' LMB promotes internal talent, maintaining a unique and cohesive research culture.

- Flexible tenure policies: the absence of strict publication targets for tenure provides researchers with the latitude to embrace failure and innovation.

“The success of research-intensive institutions depends on more than funding and can benefit from tailored management of the culture and mission of the institution.” says Antonio Vidal-Puig, Professor of Molecular Nutrition and Metabolism at the Institute of Metabolic Science, University of Cambridge

Challenging the current shift in funding to translational science

The authors' findings challenge the current shift in funding away from basic bioscience towards translational science. Translational science depends on basic research but is often viewed as a more direct problem-solving approach. By contrast, basic scientific discovery is perceived as unpredictable. The authors argue that the LMB strategy is successful in increasing the chances of making scientific breakthroughs and that adopting it more widely could make supporting basic science more attractive to funders.

The authors also make the case for extending the kind of feedback loop created within the LMB into different kinds of settings:

"Strengthening connections with private-sector industries through clear management interventions can bolster basic science without compromising a research lab's focus. And if we are to harness the potential of AI to understand human biology then we will need to draw on data from and collaboration with clinical settings too. This will be a new paradigm for our research ecosystem, where the management and strategy behind it becomes even more important," adds Luka Gebel.

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