

A management strategy for producing scientific breakthroughs

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Biochemist John Kendrew working on a structural model of a protein at the Laboratory of Molecular Biology in Cambridge, U.K., in the 1960s. Credit: MRC Laboratory of Molecular Biology; *Nature* (2024). DOI: 10.1038/d41586-024-02085-2

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, [published](#) as a Comment 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, Ph.D. candidate at King's Business School and co-authors 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.

The team analyzed 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 minimizes 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.

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," says Gebel.

"The paper findings are an urgent and timely reminder that basic science, managed strategically and linked at the appropriate time to translation is crucial for clinical outcomes that improve peoples' lives. An ecosystem that connects discovery and applied science and diverse and interdisciplinary teams is the foundation of King's research strategy and research culture," says Professor Bashir M. Al-Hashimi.

More information: Luka Gebel et al, The strategy behind one of the most successful labs in the world, *Nature* (2024). [DOI: 10.1038/d41586-024-02085-2](https://doi.org/10.1038/d41586-024-02085-2)

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