

Celebrating 25 years of cell biology



We celebrate the 25th anniversary of *Nature Cell Biology* with a series of commissioned content and an online collection of research articles across the journal's broad scope. We look back at biological discoveries and discuss the roles of cell biologists in sustainability, our ongoing commitments to diversity, equity and inclusion, and goals for mentoring the next generation of cell scientists.

Nature Cell Biology was launched in 1999 as a forum for important and exciting scientific advances in cell biology, with the objective to enhance our understanding of the mechanisms underlying cell function and cell-cell communication¹. With time, the journal grew to publish molecular and cellular biology² and championed studies of the cell biology of specialized cells, disease contexts, physiology³ and development⁴.

We continue to define cell biology in its broadest terms: like our predecessors at *Nature Cell Biology*, our team is fascinated by research exploring the inner workings of cells and how cells contribute to processes beyond themselves, within and across tissues, during development or in disease. Fundamental studies of cells encompass molecular to organismal scales, and we highlight a few of the important and stimulating discoveries that we've been honoured to publish over the past 25 years in a collection of research articles across biological hierarchies. We hope you enjoy exploring our **Focus** on 25 years of cell biology with commissioned articles that celebrate published work and look to the future of cell biology.

In a set of historical News & Views, leaders in the fields of trafficking, mechanobiology, epigenetics, stem cells and cancer cell biology take us through discoveries that changed how we understand cell-to-cell communication by extracellular vesicles and the control of epithelial-to-mesenchymal transitions in

cancer and development. These pieces showcase findings that defined bivalent histone marks and their link to cell identity, described how tension alters cadherin adhesions and proposed standards to identify totipotent stem cells.

In the coming months, we will be publishing Turning Point articles, in which a subset of our authors recalls the evolution of their fields over the past two and a half decades. They offer the stories behind landmark *Nature Cell Biology* papers in membrane biology, reprogramming and senescence and discuss the birth and expansion of newer fields such as biomolecular condensates, cell atlases and single-cell genomics. In reading these articles, we hope that, like us, you feel the sense of excitement from data that were unexpected or had validated what would become a field-changing hypothesis.

A set of commentaries discuss ongoing commitments to fundamental cell biology and technological developments that are reshaping the field. In a **Comment**, Ruth Lehmann champions the need for curiosity-driven basic science, outlining fundamental discoveries whose wide-reaching impact could not be completely predicted. In another **Comment**, Anne Carpenter and Shantanu Singh review how computational biology has progressed from conceptualization to realization and highlight the need to 'bridge the last mile' to fully integrate computer science into future biological discovery. In her forward-looking **Comment**, Caroline Uhler argues that cell biology, with its massive quantitative datasets and the ability to perturb experimental systems, could become as much a muse for machine learning developments as it could benefit from them.

Beyond celebrating the progress of research as measured by biological findings and papers, we seize this opportunity to place our editorial activities in service of our community to build sustainable, fair and impactful research pipelines. Cell biology cannot progress without equitable, inclusive research labs that prioritize access to all and sustainability. In their **Comment**, Mary Munson and colleagues discuss persisting challenges faced by women

and people from gender minorities in science. The authors outline the need for evolving evaluation criteria to fully encapsulate the totality of being an excellent scientist, to recruit and retain the best people in science.

Formally or informally, in and beyond one's research group, to be a scientist is to be a mentor. Mentor-mentee relationships help to develop the basic skill set of a scientist – from critical thinking to scientific communication – and ensure that the next generation of cell biologists become responsible scientists, dedicated advisers, advocates for under-represented colleagues, and leaders in our fight against climate change. We collected experiences and advice from cell biologists around the world in a **Viewpoint** that details their mentoring philosophies.

We can all take action to help combat climate change. In two inspiring World View articles – **one** by Anja Groth, who is leading the way in implementing sustainable lab practices, and **another** by Karla Neugebauer, who redesigned her teaching and research program to address our changing climate – the authors share experiences and insights that we hope spark your curiosity and action.

We thank our authors for allowing us to publish their work, our referees for their essential advice and our community of readers for continuing to turn to our pages to learn about the latest developments in cell biology. We are grateful to our editorial colleagues who built this journal and whose shoulders we stand on. It is our privilege to serve the cell biology community and we will continue to work towards improving our authors' experience with the journal³, guided by our authors' invaluable feedback about the publication process and discussions with researchers. We hope you enjoy our Focus and look forward to the next 25 years of cell biological discoveries.

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References

1. *Nat. Cell Biol.* **1**, E1–E2 (1999).
2. *Nat. Cell Biol.* **11**, 1389–1390 (2009).
3. *Nat. Cell Biol.* **21**, 1 (2019).
4. *Nat. Cell Biol.* **3**, E149 (2001).