

# Celebrating Nature Structural & Molecular Biology's 30th anniversary



**January 2024 marks 30 years since we published our first volume. Throughout the upcoming year, we will be celebrating this milestone, reflecting on the road covered and looking toward the future – with the help of our readers.**

First launched as *Nature Structural Biology*, the initial editorial team reveled on the ‘concatenation of technical advances’ that had made the field of structural biology a most exciting one and worthy of a dedicated *Nature* journal<sup>1</sup>. Three decades in, it is nothing short of astonishing that we continue to celebrate technical breakthroughs that open up new frontiers and scales. The mission of the editors then, “to disseminate new information about biologically relevant molecular structures as quickly as possible, and to the widest possible audience,” is one that remains very much at the heart of what we do.

As the field grew, so did the journal. When celebrating the 10-year milestone, we became *Nature Structural & Molecular Biology* (NSMB) and embraced an even broader scope<sup>2</sup>. Recognizing that structural biology is one among the “multitude of methods that can contribute to our understanding of biological mechanisms,” NSMB became more encompassing and inclusive. To this day, this remains our vocation: to publish and highlight high impact research “focusing on the functional and mechanistic understanding of how molecular components in a biological process work together.” We are interested in understanding how molecular and cellular processes work and are agnostic of the methods chosen to address these questions. While preparing the *collection of pieces* we will be publishing to celebrate the 30th anniversary of NSMB, contemplating the avalanche of technological advancements that have occurred in the last 30 years was almost overwhelming. This has sharpened our determination to not be limited to specific methodological approaches, but instead embrace

change when scientifically sound – we are excited to learn about new ways scientists will chip away at the big challenges.

We kick off the year with a *celebratory cover*, which was submitted by our reader Pedro Rebelo-Guiomar for our cover competition. In the accompanying Correspondence, *Rebelo-Guiomar* explains the inspiration for the artwork he produced, a cyanotype of a crystal vase, “a portrait of an invisible world [that] appears as a convolved projection, unintelligible at first. As one stares into it, the shapes and signals start coming together, and we are transported to a limbo between the real world and our ideated view of the nanoscale world.” The editorial team was moved by this beautiful illustration of both the power and mystery of the scientific endeavor and was delighted to choose it for our anniversary cover. We are grateful to all our readers who submitted original artwork for our special issue, and we are always open to insightful and illustrative ideas for our papers, so please keep the great submissions coming.

NSMB would be nothing without our readers, to whom we have issued an open invitation for all of 2024 to reflect on the past and future of the field with us<sup>3</sup>. In this issue, we are delighted to feature some exciting and thought-provoking pieces. One of the journal’s first authors, *Andrea Musacchio*, looks back at 30 years of structural biology and voices a wish that we continue to focus on the most exciting and substantiated advances in mechanistic biology, while also pondering on the importance of funding diverse ideas and projects. In another Comment, *Martyn Winn* reflects on community building and the importance of collaboration and genuine synergy for the long-term success of the field. Writing on potential future challenges in the field of epigenetics, *Agustinus & David* look into exciting species of non-canonical chromatin that have been characterized in recent years and their potential to advance our understanding of the mechanisms of human disease. Finally, in a Letter to the editors, *Peter Mabbitt* calls for action to address

the larger problems that concern us all and the need to protect, as well as study, nature. We have been thrilled to read your thoughts and continue to look forward to your submissions, which we will consider for publication throughout 2024.

As always, we are also pleased to feature an issue full of exciting science. In this issue we feature a Review from *Muller & Helin*, updating us on the HUSH complex and its role in transcriptional silencing and human disease. In *Richeldi et al.*, the authors show that the mechanical stability of cohesin encircling DNA is determined by its hinge domain, providing a framework for how cohesin counteracts spindle-generated tension during mitosis to keep replicated DNA sisters together. On the front of developmental biology, we are delighted to feature several mechanistic papers, amongst which we highlight the work from *Schulz et al.* and *Murphy et al.* that considerably advance our spatiotemporal understanding of the chromatin mechanisms dictating early embryonic development. We note the study by *Haack et al.*, as it provides important mechanistic insight into lariat formation during RNA splicing of group II introns. *Alam et al.* show that during autophagosome formation, a protein interaction web is formed by proteins Atg8–E1–E2–E3, which together facilitate membrane reshaping. Finally, a study from *Wu et al.* sheds light on the mechanism through which the membrane insertase EMC facilitates folding of different types of multipass membrane proteins by post-translationally completing their insertion.

We are wishing all our readers a wonderful 2024 and are looking forward to reading what you have been working on!

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## References

1. *Nat. Struct. Mol. Biol.* **1**, 1–2 (1994).
2. *Nat. Struct. Mol. Biol.* <https://doi.org/10.1038/nsmb0104-1> (2004).
3. *Nat. Struct. Mol. Biol.* <https://doi.org/10.1038/s41594-023-01108-2> (2023).