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PERSPECTIVE—50<sup>th</sup> ANNIVERSARY SPECIAL ISSUE

## The First 50 Years of Molecular Pharmacology

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### ABSTRACT

In this Perspective, former and current editors of *Molecular Pharmacology*, together with the guest editors for this 50th Anniversary Issue, provide a historical overview of the journal since its founding in 1965. The substantial impact that *Molecular Pharmacology* has had on the field of pharmacology as well as on

biomedical science is discussed, as is the broad scope of the journal. The authors conclude that, true to the original goals for the journal, *Molecular Pharmacology* today remains an outstanding venue for work that provides a mechanistic understanding of drugs, molecular probes, and their biologic targets.

The inaugural issue of *Molecular Pharmacology* was published 50 years ago by the American Society of Pharmacology and Experimental Therapeutics (ASPET), a little more than a decade after the structure of DNA was correctly proposed and at a time when other technical advances ushered in the age of molecular biology. Rapid technical and conceptual developments propelled molecular biology forward in those early years, and the relatively new field of molecular pharmacology began to take a dominant role in the broader discipline of pharmacology. By providing a venue for studies that explored molecular mechanisms of drug action and disposition, *Molecular Pharmacology* assumed a pivotal role that shaped our understanding of pharmacology through the publication of seminal advances in receptor signaling, drug metabolism, and mechanisms of drug action. The tools of molecular biology and molecular pharmacology have subsequently permeated all aspects of biomedical research. The concept of molecular pharmacology is now integral not only in pharmacology itself, but it is also used in most studies of biologic processes.

The pursuit of a molecular understanding of many aspects of pharmacology has generated innovative approaches to manipulate complex biologic systems at all levels. In addition,

technological advances in genetics, chemical biology, systems biology, structural biology, and synthetic chemistry have created new opportunities to probe drug interactions with molecular targets and to identify their consequences in living animals. In this dynamic era, *Molecular Pharmacology* remains committed to providing a forum for publication of important discoveries, which include not only groundbreaking advances in drug design and protein structure but also a molecular understanding of cell signaling and drug action within cells, organs, and animals. *Molecular Pharmacology* has been remarkably successful, publishing articles in all facets of pharmacology irrespective of disease, cell type, classification of target, or technical approach. This broad focus has been intentional (and remains so), providing a backdrop for publication of the very best work.

To retain a proactive posture within the biomedical research enterprise, *Molecular Pharmacology* has been intentionally flexible, adopting new technologies to improve the rapid communication of data and conclusions. For example, *Molecular Pharmacology* (together with other ASPET journals) was an early adopter of online submission and pioneered in rapid online publishing within days of manuscript acceptance. More recently, a collaboration between ASPET and our colleagues at the British Pharmacological Society is advancing an open access model for publication.

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**ABBREVIATIONS:** ASPET, American Society of Pharmacology and Experimental Therapeutics.

Although *Molecular Pharmacology* was founded in North America, the journal sought from its outset to be truly international. This applies now more than ever, with two-thirds of the submissions and a substantial portion of the Editorial Advisory Board originating from outside the United States. As a publication of a not-for-profit society, *Molecular Pharmacology* has consistently kept its subscription prices and other publication fees as low as possible. ASPET's journals, including *Molecular Pharmacology*, have focused on providing high-quality content to the widest possible audience while remaining both fiscally viable and seeking to serve the scientific community first and foremost.

In recent years, an apparent preference by institutions and their researchers for high impact factor publications has pervaded hiring, promotion, and funding decisions. Although journals with the highest impact factors sometimes publish paradigm-changing discoveries, the competition to publish in these journals drives inclusion of large scientific data sets that can sometimes bury important results. Some other articles aim to provide a neatly packaged narrative ranging from molecule to animal, which can exclude important work for which the complexity of biology precludes a cut-and-dried story. Although *Molecular Pharmacology* publishes high-profile and complete articles, it also continues to welcome, review, and publish rigorous foundational studies that may—and sometimes do—propel discovery in multiple fields. Indeed, with a 2013 citation half-life of 9 years, *Molecular Pharmacology* is on par or better than journals with the highest impact factors, demonstrating that articles published in *Molecular Pharmacology* stand the test of time.

What is the role of *Molecular Pharmacology* in today's rapidly changing scientific world? Clearly, what ultimately matters in any scientific work is its originality, significance, and reproducibility. *Molecular Pharmacology* continues to

provide a superb venue for publication of exciting advances in established areas of interest, in addition to emerging fields such as chemical and systems biology. Advances in chemical biology often take the form of novel ligand discovery, analytical chemistry, or structural biology, the latter of which promises to illuminate drug-receptor interactions at the atomic level. The evolving field of systems biology provides quantitative approaches to help understand drug action in complex biologic systems, with important implications for clinical medicine. The past decade has been an exciting time for the discipline of pharmacology, with its strong focus on the discovery, development, and understanding of prescribed medications. Moreover, pharmacology continues to provide invaluable tools that are used in all subdisciplines of biomedical research. Thus, 50 years after its founding, the journal remains a premier venue for delineating the molecular mechanisms of drug action and for providing an understanding of molecular probes and their biologic targets that can be carried forward into complex systems, including humans. More than ever, the journal lives up to its name, *Molecular Pharmacology*.

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