EMBO Press – a new way to publish

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EMBO Press provides a platform for *The EMBO Journal* to publish papers that are more discoverable, accessible and optimized for sharing and promoting important research findings.

The EMBO Journal has published important research findings for 32 years, co-evolving with the field of molecular biology. As molecular and genomic tools and approaches have been co-opted by other biological disciplines, the journal broadened its scope and EMBO published three additional journals to represent this diversity, ranging from structural biology, biophysics and systems biology to cell- and developmental biology and molecular medicine. Over the last three decades, one invariant theme is well described by the EMBO motto: service to the community by promoting excellence in the life sciences.

What is EMBO press?

EMBO Press stands for innovation, reliability, fairness and best practice. EMBO Press is an independent new publishing platform that delivers enhanced functionality, content and design, and a consistent set of constructive policies, editorial processes and quality standards across the four EMBO publications. It is our aim to add maximal value to published research through the optimized presentation of research data. For the first time, the four EMBO journals will live up to the potential of online publishing.

The issues

Global research is growing in both quantity and diversity, with a tendency towards increased specialization as knowledge accumulates. With over one million papers listed on PubMed in 2013 alone, the filtering and highlighting of research by journals plays an increasingly important role in the effective navigation of the biomedical knowledge base.

At the same time, research assessment has come to rely heavily on journals – the editors of *The EMBO Journal* are concerned by the tendency to rely on journal name and Impact Factor as a proxy for the quality and importance of both research and researchers. We are acutely aware of the responsibility this places on journals and we have redoubled our efforts to develop processes that are informed, fair and transparent. EMBO Press strives for accountability, both for authors and readers: authors rightly expect to understand editorial decisions and that their research is published with minimal delay, while readers should be able to rely on research that is well-supported and reproducible, and papers that provide a high level of conceptual advance.

Transparent process – publishing after one revision

We started the Transparent Process about 5 years ago and have developed it ever since. Key attributes include the publication of referee reports and editorial communication alongside papers – a feature almost all authors choose now – detailed editorial decisions, the exclusion of confidential referee remarks and, most importantly, the focus on only essential experimental revision with clear communication of the requirements for publication. The editorial process at the EMBO Journal appears to live up to these goals: between 2009 and now, we accepted between 95–97% of invited revisions, 90–92% after a single round of experimental revision (that took, on average, 74 days). Editorial decisions are made within 1 week and peer review is completed in 1 month.

The transparent process has evolved further: for the past three years, we have been inviting referees to comment on each other's reports before making a decision, a feature that helps ensure balanced decisions

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and, where warranted, we invite an author response to referee comments before the editorial decision is made. Referee recommendations often dramatically improve a manuscript, but experimental revisions take time. Biological research is fast moving and one important aspect of constructive revision is to reassure authors that the time, costs and effort to be invested are worth it: for this reason the editorial assessment does not take into account other papers published during peer review or revision and we encourage authors to take the time necessary for constructive revision. In response to requests from the community, we will soon offer a double-blind peer review option for those authors who have concerns that author name or affiliation may flavor referee opinion. These policies are applied across the EMBO Press publications.

Prepublication data integrity checks

Similar to other journals, we have witnessed an apparent increase in the number of image and data processing problems or indeed other ethical concerns in manuscripts. Since last year, we have systematically checked all figures in manuscripts that are poised to be accepted for publication – we find issues in more than one-fifth of the manuscripts; in the vast majority of cases the issues fall clearly into the category of ‘data beautification’ and they are resolved satisfactorily in revision. Nevertheless, in a

handful of cases the issues cannot be resolved. In all cases it is clear that publication of the problematic figures would have necessitated the correction of the published record. EMBO Press standardizes these processes across the journals, including the adoption of author checklists and the appointment of ethics expert advisors to the editorial advisory boards.

Enhanced content

Biomedical research is becoming ever more complex. A primary aim of publishing is to reach a broad readership. Two key developments are necessary to ensure broad dissemination of important research results against the backdrop of the current information flood: means to make papers more accessible to the general reader and enhanced search functionality. We are actively engaged in addressing these challenges through the development of unique data-oriented search technology and will report on this in a subsequent editorial. The EMBO Press platform allows us to make papers more accessible by adding short synopses and visual abstracts rendered by dedicated designers in collaboration with the authors.

Deconstructing the paper: expanded view figures

We view the paper as a layered structure that allows the reader access to their preferred level of detail, from title/abstract/synopsis down to the actual data. The main

paper is optimized for the general reader, while at a deeper level, access is provided to source data, structured datasets or computer codes.

Supplementary Information has come to be the most controversial section in journals: it is often not sufficiently visible to readers and does not receive sufficient attention from referees and editors, yet it often contains a large fraction of the stand-alone figures presented in a paper. The EMBO Press journals have replaced supplementary data with 'Expanded View' figures: all data and information essential to support the author's conclusions is contained in peer-reviewed and copy-edited figures in the paper. Tangential or peripheral data should no longer form part of an EMBO Press paper. We do see the value in a less detailed view of the paper for the more general reader, so we will present these additional figures in the main manuscript in line with 'classical' figures, but in a collapsible form. Expanded View can encompass figures reporting controls, replicates, negative results, but also other information such as extended methods or protocols, algorithms, computer code, models and datasets.

Data and data editors

One goal of EMBO Press is to make papers more useful to the community. A key element of this is to ensure sufficient information is presented to render the paper informative and reproducible. The EMBO Press journals encourage the presentation of Source Data underlying the figures represent-

ing key findings in the paper – more than one-third of papers in the journal included such data last year. Source Data includes, for example, uncropped micrographs or blots and data files used to generate graphs. EMBO Press encourages inclusion of statistics only where appropriate and instead to present source data for the individual measurements. To ensure that these policies do not make publishing more cumbersome for authors, dedicated scientific data editors work with the authors on the optimized and structured presentation of their figures and data.

Readers and authors alike will benefit from the transformation of research articles into enriched and accessible records of research data that open up new possibilities for discovery and sharing.

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EMBO Press affords us the independence necessary to achieve our vision of the paper of the future. We are excited to be able to rely on the expertise of two publishers in this endeavour: Wiley, which contributes the production process, and HighWire Press of Stanford University, which provides the online platform. We are encouraged to see that a new standard is emerging around the EMBO Transparent Process, as other journals including most recently Development are adopting its principles.

EMBO Press squarely addresses pressing needs and bottlenecks in the research process by connecting EMBO's transparent editorial process to innovative design and technology. EMBO Press and *The EMBO Journal* stand for a reliable literature for important research. We invite you to experience the benefits of the EMBO approach to publishing first hand, whether as an author or a reader.

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