A platform for reproducibility

The production and publication of scientific articles is the main tool researchers have developed to communicate and discuss their discoveries. However, the current 'journal-based peer-reviewed publication of studies' (1) has historically led to competition among journals for novelty. In a conflation of 'novelty' with 'quality' (2), a journal's impact factor (IF), far from its original intention (3), has become an indicator used to decide career advancement and funding allocation for authors. Due to such intertwine, scientists (competing to publish) could be grossly misled by the relevance and confidence of a given observation. The consequence of this bias is less reliable published material; exemplified in recent problems of reproducibility. In psychology, only 39% of results published in high impact journals could be replicated (4); results from other fields do not inspire much more confidence (5). In reality, if anything, a high IF seems to indicate lower than average reliability (6).

A contributing factor to this unreliability of the scholarly literature is the "file-drawer effect": a significant amount of valuable data is never peer-reviewed and published as scientific articles, because this material is an attempt to replicate (successfully or not) previously published studies. There is little reward for successful replications and publishing unsuccessful attempts can face downright opposition. Consequently, a huge amount of helpful data remains inaccessible to researchers.

In the absence of a facilitatory infrastructure that does not discriminate against replications; and in the presence of a publishing ecosystem dominated by commercial interests often opposed to those of scholarship, we decided to provide an outlet that actively encourages replication work. Therefore, backed by the University of Helsinki, we are launching an academic-led journal exclusively dedicated to publish results of replication studies. The ***Journal for Reproducibility in Neuroscience*** (JRN) will use the university library infrastructure to host and organize its repository, while the editorial and peer-review processes will be conducted voluntarily by the scientific community, as in many other scientific publications.

All data and code used in the manuscripts will be freely available in open formats, respecting the FAIR principles (findable, accessible, interoperable, and reusable). The use and description of adequate statistical analysis - and whether they support the conclusion - will be the main parameters considered in the review process. Since the articles are expected to be shorter than usual manuscripts, the evaluation of the text content is simplified. We will also recommend for the authors to pre-register their replication attempts, as has become a good scientific practice.

Following these principles, the JRN will be open access and no article processing fees will be requested from the authors. Our goal is to become a platform where researchers can freely obtain information about the reproducibility of models and experiments in the field of basic and applied neuroscience.

In the spirit of collaboration over competition, we welcome contributions of attempts to replicate whole studies or single experimental observations, as well as commentaries and mini-reviews on the topic of reproducibility and replicability.

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References

1. Walter P, Mullins D. From symbiont to parasite: the evolution of for-profit science publishing. Mol Biol Cell. 2019 Sep 15;30(20):2537–42.
2. Brembs B. Reliable novelty: New should not trump true. PLoS Biol. 2019 Feb;17(2):e3000117.
3. Archambault É, Larivière V. History of the journal impact factor: Contingencies and consequences. Scientometrics. 2009 Jun 1;79(3):635–49.
4. Open Science Collaboration. PSYCHOLOGY. Estimating the reproducibility of psychological science. Science. 2015 Aug 28;349(6251):aac4716.
5. Kaiser J. Plan to replicate 50 high-impact cancer papers shrinks to just 18 [Internet]. Science. 2018. Available from: http://dx.doi.org/10.1126/science.aau9619
6. Brembs B. Prestigious Science Journals Struggle to Reach Even Average Reliability. Front Hum Neurosci. 2018 Feb 20;12:37.