Review process: peer review, open review, quality issues

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Peer review

"The referee is the cornerstone on which science depends"
(Ziman, 1968)

- Having a peer review system is what sets a scientific journal apart from a technical or professional journal
- The process entails the **review of content** by researchers
- Peer review has been used since **mid-twentieth century**
- A great deal has been written about the **strengths and weaknesses**

It is often criticised because of

It is slow Conservative Partiality Bias

It does not always prevent scientific errors

Fraud and plagiarism Stolen ideas

Anonymity can be difficult to achieve

Nevertheless, it is essential in scientific process

However, it is the most used and accepted quality control mechanism in science

- In relation with EPPP a flexible approach may be appropriate, allowing journals to be included having opted for non-anonymous reviews
- This degree of flexibility should not imply a lowering of standards
- Space should be left to allow journals opting for an open peer review approach to be included in the future

Peer review as a selection filter in information systems

"Application of the peer review process is another indication of journal standards and indicates overall quality of the research presented and the completeness of cited references." (Testa, 2008)

THOMSON REUTERS

ISI Web of Knowledge℠

"All titles that conform to academic quality norms, specifically peer-review, and are published in a timely manner are accepted for consideration"

Peer review as a selection filter in information systems

APA PsycNET™ American Psychological Association

98% of the journals included in PsycINFO are peer reviewed

EUROPEAN SCIENCE FOUNDATION
SETTING SCIENCE AGENDAS FOR EUROPE

"This quality control is normally through peer review, and it is expected that journals would depart from peer review only where there is another system ensuring quality control. In some scholarly traditions peer-review is an unfamiliar procedure. It is one aim of ERIH to encourage top-journals to adopt a coherent peer-review system"

How to confirm if a journal apply or not a peer review process?

- a statement by the journal of the manuscript selection procedures applied (guidelines for authors or other sections)
- Periodic publication of lists of reviewers
- Reviewers' reports on random articles requested by evaluators
- Having already passed the selection filter for other information systems

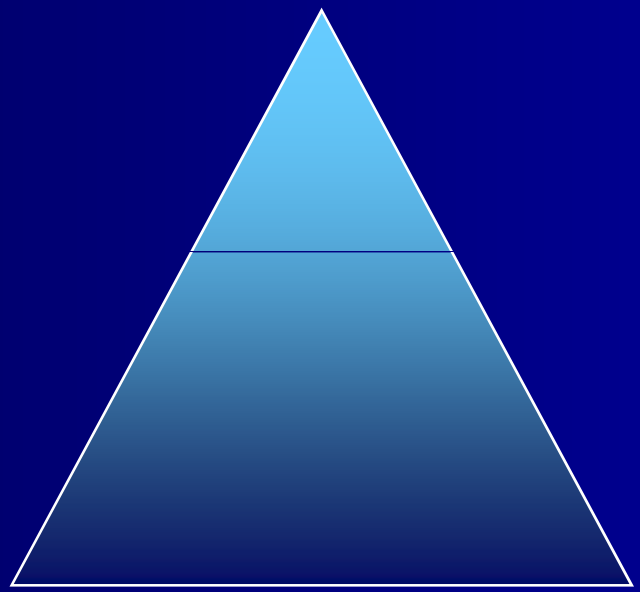
Variants of traditional peer review

- Anonymous (blind or double blind) or identified
- One, two or more reviewers
- Internal reviewers or external reviewers from outside the publishing institution.
- National or foreign reviewers

Two or more experts (anonymous or identified) who are from outside the publishing institution are recommended, at least, or EPPP

Open peer review

Process of non-anonymous peer review



Reviewing manuscripts on the web or using web 2.0 tools

Open peer review

Open Peer Review is a form of Peer Review, where readers have the right to consult the commentaries by peers in the scientific validation process.

*Open peer review consists of **signed reviews** that can be posted on the Internet. This transparency aims to resolve some of the drawbacks of anonymous reviewers in the normal peer review process.*

P2P Foundation
http://www.p2pfoundation.net/Open_Peer_Review

Open peer review. Experiences

British Medical Journal

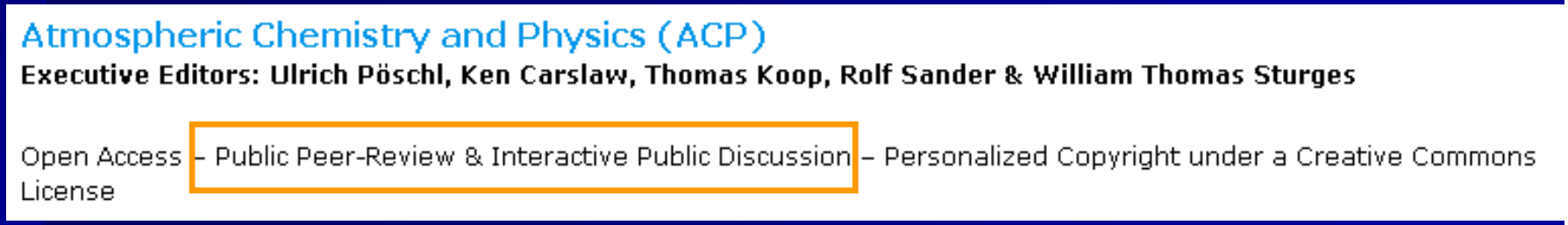
BMJ medical publication of the year

- Encourages reviewer identification
- It is considering publishing the name of reviewers at the end of each article
- "Rapid responses": opening up comments after publication to all readers

Open peer review. Experiences

Atmospheric Chemistry and Physics

- Selected experts post their signed comments on an article
- Authors can reply



Open peer review. Experiences

Nature

- It has failed in its attempt at open reviewing
- It maintains *Nature Precedings* where readers can post comments on preprints submitted by authors, but

  … a good score in this process does not count for anything.

Open peer review. Experiences

Psycoloquy, Behavioral & Brain Sciences

- They promote the signed comments from readers on articles in the post-print phase

Plos ONE

- It encourages public debate and implements a "digging" system, which allows papers to be ranked
- It encourages reviewers to identify themselves and publish their evaluation reports

BIOLOGY DIRECT

IMPACT FACTOR 3.29

This article is part of a series on Origin and early evolution of life, edited by Dr Eugene V Koonin.

Research

Highly accessed | Open Access

The Last Universal Common Ancestor: emergence, constitution and genetic legacy of an elusive forerunner

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Reviewers

This article was reviewed by Anthony Poole, Patrick Forterre, and Nicolas Galtier.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

BL devoted himself to the phylogeny and genetic constitution of LUCA, YX to the question of membrane adaptation in thermophily. NG conceived of the study after a thorough bibliographic search and wrote the first draft of the paper. All authors read and approved the final manuscript.

Reviewers' comments

Reviewers' report 1

Anthony Poole, Department of Molecular Biology & Functional Genomics, Stockholm University, Sweden – currently at: School of Biological Sciences, University of Canterbury, New Zealand

The main point of this paper is to put forth a scenario for the nature of the Last Universal Common Ancestor (LUCA) as a complex, protoeukaryotic lineage with an RNA genome and nuclear compartmentation. If I understand correctly, the argument is built on the proposal, adapted from Woese's Universal Ancestor model (ref. 9 in the paper) that there was an extremely diverse community of cells from which the three domains emerged. Woese's model is that rates of horizontal gene transfer were extremely high early in the evolution of life, and that transfer rates became lower with time, eventually leading to 'crystallisation' of the three domains independently from this early state. As far as I can tell, the authors are comfortable with this interpretation, and take this scenario as their starting probably as a consequence of the existence of distinct, discrete ecological niches. Why would have it been different in the past?

[Author's response: The main reason to think that the mode of genetic evolution was different in the era of LUCA {and before} from what it is now, is the assumption of genetic promiscuity between primitive cells presented originally by Kandler and Woese (op cit); however, to avoid

Open peer review. Advantages

- They encourage constructive criticism and promote discussion between specialists. Readers can judge for themselves.
- They increase editors' and reviewers' responsibility to give consistent, clear, useful and less spontaneous evaluations.
- They allow the evaluator's effort to be assessed more objectively.
- They avoid ideas being plagiarised or papers rejected to eliminate competitors.
- They allow discussion and reasoning to be shared so as to move research forward. These systems also have value as teaching tools, as young researchers can access reviews showing them how work is judged.

Our proposal for EPPP

- Create a platform including a wide selection of high quality publications, from varios European countries
- In this way, the best European scientific output in the area can be disseminated, while building a tool that is selective enough for it to be used for any kind of scientific evaluation purposes.
- To this end, an essential criterion would be that journals apply some form of expert review.

Other quality criteria that should be taken into account

- Basic publishing standards
- Definition of frequency of publication and compliance with it
- Presence in international databases
  - Psyclit, PsycINFO, Embase, Medline, Family & Society Studies Worldwide, Addiction Abstracts, E-psyche database, Toxibase, etc.
- Impact measures from JCR, Scopus, In Recs, etc.
- Authors' internationalisation or diversity
- Members of the editorial boards' internationalisation or diversity

Thank you!