

How to peer review

PLOTINA/University of Warwick summer school workshop

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Plan

- Introductions
- Objectives
- Overview of peer review models
- How to peer review for beginners
- Practical work in small groups
- Feedback and wrap up

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- Head of Programme Management, Research Integrity at Springer Nature
- Editor
- Researcher and author
- Peer reviewer

Who are you?

Objectives

- Have an understanding of the different types of peer review that are currently used.
- Understand the relationship between the author, peer reviewer and editor of a journal and how decisions are made.
- Be able to approach peer review in a structured and systematic way.
- Understand how to write a good peer review report
- Be confident about interacting with the journal editor as one professional to another.

Peer review models

Peer review models

Single blind

Peer reviewer knows who the authors are, but authors don't know who the peer reviewers are.

Double blind

The authors don't know who the peer reviewers are and the peer reviewers don't know who the authors are.

Open

The authors know who the peer reviewers are and the peer reviewers know who the authors are.

Peer review reports are published without peer reviewer names.

Peer review reports are published with the peer reviewers names.

Peer review reports are not published.

Also,

Collaborative

Post-publication

And more....

The author, editor and peer review

In an ideal world

The researcher, editor and peer reviewer should work in collaboration.

- Everyone should be objective, honest and constructive.
- The relationship is a form of scientific collaboration.
- Consider each other as equals.

How to approach peer review

When to accept an invitation to peer review

- Read the journal's scope
- Read the journal's guide for reviewers
- Read the abstract
- Consider whether you have any competing interests.

Check the journal's scope



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About

Aims and scope

Environmental Health publishes manuscripts on all aspects of environmental and occupational medicine and related studies in toxicology and epidemiology.

The journal is aimed at scientists and practitioners in all areas of environmental science where human health and well-being are involved, either directly or indirectly. *Environmental Health* is a public health journal serving the public health community and scientists working on matters of public health interest and importance pertaining to the environment.

What's a competing interest?

- Anything that might, or might be seen to, influence or bias your decision.
- They can be financial eg,
 - you might be receiving payment to represent an organisation that is a competitor of the author's employer.
 - You might hold shares in the manufacturer of a device or process which the author's research has shown to be ineffective.
- They can be non-financial eg,
 - You might have recently collaborated with the authors on a project.
 - An author might be your friend, neighbour or relative.

What to do if you have a competing interest

Does it definitely preclude you from accepting the peer review invitation?

- Eg. You are collaborating with the author.

If not, you can declare your competing interest to the editor. You may still be able to peer review the manuscript.

Before accepting an invitation

- Have you checked the journal's scope? (is it looking for sound science, or ground-breaking science?)
- Do you understand the peer review model? (are you okay with having your peer review published, maybe with your name to it?)
- Have you checked the deadline to return a report and do you have enough time?
- Do you have the expertise to do this peer review?
- Do you have any potential conflicting interests?

Declining an invitation

- Explain the reason for declining
 - You don't have the expertise
 - You have a competing interest
 - You don't have time
- If you don't have time, consider whether you might be able to peer review at a later date and let the editor know.
- Try to suggest someone else who might be able to do peer review.

How to start

- Check the format needed
- First read – what to think about
- Second read – what to think about

This is the traditional format

The format of a peer review report

Title and authors:

Summary: A short summary of the study findings with a comment on whether the findings are sound and novel or interesting.

Major essential revisions: These are issues that you feel are so important that the authors *must* address because they affect the validity or interpretation of the study.

Minor essential revisions : These are issues that are so important that the authors must address because they are good practice, are field specific requirements or part of internationally accepted convention for reporting scientific research.

Discretionary revisions: These are revisions that would improve the manuscript, but you don't think are essential to the validity or interpretation of the study.

Confidential comments: This section is where you can raise concerns about the ethics of the study or share any information with the editor that you do not wish the authors to see.

Recommendations : This is a very important section where you tell the editor whether you think the manuscript should be rejected, accepted without further revision (rare) or could be published after revision.

The first read

- Is the manuscript understandable?
- Is all the information available for you to make a judgement?

The second read (and maybe more)

Checking the methodology

Background:

- Is there an aim, research question or reason for doing the research, and has this research been put in the context of previous work?

Methods:

- Is the study design appropriate for the study aim, research question, or reason for doing the research?
- Has the study been conducted with the appropriate materials or participants?
- Have appropriate methods been used and variables been measured?
- Is there a need for a control? Has an appropriate control been used?
- Have appropriate statistical tests been used?

Results:

- Have the results been presented clearly and completely?
- Do the results presented match the methods described?
- Are there any results missing?
- Do the results support the authors' conclusions?

Have the authors made exaggerated claims that are not supported by their findings or put a 'spin' on the way they discuss their results to suit a particular point of view?

Do you think there might be competing interests?

Some ethics considerations

- If the study involves human or animal participants, have the correct approvals, permissions and consents been obtained
- Do you have any concerns about the ethics of the study?
- If there are competing interests, do you think the authors have been objective in their interpretation of the results?
- Have the authors complied with any specific requirements of your field, for example data deposition?
- Have the authors provided appropriate references?

Writing the report

It should not just be a list of what's wrong.

It needs to:

- be useful to the authors and editor
- make a recommendation on whether to reject, accept or revise
- raise ethical concerns if there are any
 - in confidence
 - directly to authors to address

How to practice peer review

Make it a habit to critically scrutinize every article you read.

Critically scrutinize peer review reports published in open peer review journals.

Examples of reports from open peer review journals.

RESEARCH ARTICLE

REVISED Report
Hemibagrus
for aquaculture

Previously titled
wyckii Bagridae

Netti Aryani¹, I

Author details

Abstract

Background: *Hemibagrus* is one of the most important fish species in the rivers and reservoirs of Southeast Asia. The reproductive performance of *Hemibagrus* is affected by environmental factors. **Methods:** A total of 100 eggs and sperm, an artificial method. Egg weight for each fish) was measured in a saline solution was

Research

Assess
association


BMJ 2018

Cite this article

- Abstract
- Background
- Methods
- Results
- Discussion
- Conclusion
- Declarations
- References

Research article | Open Access | Open Peer Review

Accuracy of seizure semiology obtained from first-time seizure witnesses

Taim A. Muayqil , Mohammed H. Alanazy, Hassan M. Almalak, Hussain Khaled Alsalmán, Faroq Walid Abdulfattah, Abdullah Ibrahim Aldraiherm, Fawaz Al-hussain and Bandar N. Aljafen

BMC Neurology 2018 18:135

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Article accesses: 19

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Responses

Peer review

Katerina Trajanoska, PhD student^{1 2}, John A Morris, PhD student^{3 4}, Ling Oei, assistant professor^{1 2}, Hou-Feng Zheng, professor^{5 6}, David M Evans, professor^{7 8}, Douglas P Kiel, professor^{9 10}, Claes Ohlsson, professor¹¹, J Brent Richards, professor^{3 4}, Fernando Rivadeneira, associate professor^{1 2} on behalf of the GEFOS/GENOMOS consortium and the 23andMe research team

Practical

For each case

Look at the peer reviewers comments.

Compare this with the checklist.

- What you think is done well?
- What is not and covered?
- Put yourself in the shoes of the editor who has to make a decision about what to do next.
- Put yourself in the shoes of the authors who have to respond to the comments.
- How useful are these reports for a journal with a 'sound science' threshold?
- How useful are these reports for a journal with a 'ground-breaking science' threshold?

The basic assumption of genetic epidemiology is that two alleles of a gene are present in the population and one of the allele (usually minor) has altered frequency in cases and controls. However, if a gene is mono-morphic as is the case here for TLR9C296T, then it is non-informative and there is no point to look for its association.

Therefore, the very basis of study is wrong, even though it has been carried out technically correct.

I therefore feel that this publication will not anything the present knowledge.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

No

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Partly

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

I have read this submission. I believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.

I think this study is not only very relevant but also very useful for anyone at risk of, suffering from, or treating osteoporosis, especially as there is a widespread assumption that calcium or vitamin D supplements will reduce the risk of osteoporotic fractures. The conclusions, if valid (which I have no reason to doubt), and if replicated, would be applicable in practice, provided they became widely known and adopted. There might well be a reluctance to accept that calcium and vitamin D supplementation are not effective.

I found this a particularly difficult paper to read in its entirety: I realise that is probably more to do with my own intellectual shortcomings. But I was put off by the use of the word "leveraging" in the title, which I don't understand in this context.

I think the Conclusions as described at the end of the text (on page 20) are slightly better expressed than those given in the Abstract. Both versions, however, would benefit from being given further attention, and possibly redrafting. For example, in the Abstract's Conclusions the first line doesn't make any sense grammatically: a study cannot possibly be both the first and the largest. And in the main text's Conclusions the second and third line have acquired misleading punctuation.

I can find no mention of any patient or public involvement. That is a great shame, and I imagine that - as a proxy - any of the organisations involved in osteoporosis (eg in the UK, the National Osteoporosis Society) would have been willing to offer advice.

Despite these slight misgivings, I consider the publication of this research would be worthwhile: challenging the conventional wisdom is always useful.

The authors performed a tailored seq2HLA method to quantify expression of HLA and proteasome related genes in a large sample size (4340 public RNA-seq datasets). In addition to provide a rich resource for the community, they found class I and II HLA genes are highly expressed in lymphatic tissues while less expressed in immune privileged organs. They also found distinct expression pattern of two types of proteasomes: the constitutive proteasome is expressed ubiquitously while the immunoproteasome is enriched in tissues of the lymphatic system and almost absent in immune privileged organs. Such study provides rich resource and knowledge in the field. However, a few points need to be addressed before the consideration of publication.

1. There are quite some methods for normalization of RNA-seq data especially for data from diverse tissues and cells, since batch effect and expression distribution will significantly affect the conclusion of expression difference. In this manuscript, only rpkm was used. More data normalization methods (such as Quantile, Relative Abundance and ComBat) need to be applied to validate the reproducibility of the conclusion, although only HLA and proteasome related genes are considered.
2. Page 4, line 47, when mention "clearly enriched", a test model and p value need to be included.
3. Page 5, line 48. "Observed d in B cells", I guess "d" needs to be deleted.
4. Page 8, line 56-60. It would be nice if additional analysis can be performed to confirm whether expression of CIITA is correlated with the expression of HLA genes.
5. Page 9, line 42-44. There is no figure S6 in the supplemental materials. The number needs to be corrected. Please also check the figure number through the manuscript.

Are the methods appropriate and well described? If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls? If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown? If not, please explain in your comments to the authors.

Take home message

A good peer review report provides:

- A clear unambiguous opinion on the importance and scientific soundness of the research.
- Clear unambiguous advice to the authors on how, if at all, the authors can improve their manuscript.
- A recommendation to the editor based on the scope of their journal.

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Further information



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9 Sep 2018

<https://blogs.biomedcentral.com/bmcblog/2015/05/13/beginners-guide-peer-review-part-one/>

<https://blogs.biomedcentral.com/bmcblog/2015/06/08/beginners-guide-peer-review-part-two/>

<https://blogs.biomedcentral.com/bmcblog/2015/07/09/beginners-guide-peer-review-part-three>

Online courses




Focus on Peer Review

An online course on peer review, containing 4 modules with bite-size videos and interactive activities.
Free to access when you [register](#) – takes 60 seconds.

6 Modules

Getting started: About This Course

^ 1 item

 **Welcome!** By Andrea Aguilar >

Your Role as Peer Reviewer

∨ 14 items

What you'll learn

- > Receive a certificate when you complete 80% of the course
- > The importance and responsibilities of peer reviewers
- > How to prepare a peer review report
- > The ethics of peer review
- > Innovations in different types of peer review

The Instructors

Thank you

Please fill in feedback form.

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