How to Review a Paper

Prof. Dr. Guowang Xu

Elsevier Author Workshop

Apr. 17, 2009
Opening Question

• Why is peer review a part of the scholarly publishing process?
Objectives

- What is the history of peer review and what role does it serve?

- Why should I consider being a reviewer?

- How do I carry out a proper and thorough review?
What is the history of peer review and what role does it serve?
Background on Peer Review

- Cornerstone of the whole scholarly publication system
- Maintains integrity in the advancement of science
- Well-established process over 300 years old
Peer Review has two key functions:

- Acts as a filter by ensuring only good research is published. Helps to determine validity, significance and originality.

- Improves the quality of the research submitted for publication by giving reviewers the opportunity to suggest improvements.
Different Types of Peer Review

1. “Single blind” peer review
2. “Double blind” peer review
3. Open peer review
Who conducts reviews and why do they do it?
Who Conducts Reviews?

- Scientific experts in specific fields and topics
- Young, old, and mid-career
- Average number of completed reviews is 8 per year*

* “Peer Review in Scholarly Journals – perspective on the scholarly community: an international study”. M Ware and M Monkman. Publishing Research Consortium
Why Do Reviewers Review?

• Fulfill an academic ‘duty’
• Keep up-to-date with latest developments
• Helps with their own research
• Build associations with prestigious journals and editors
• Remain aware of new research
• Develop one’s career
Dear <Reviewer name>,

Re: <Name of journal Paper>

I would appreciate your critical review of the enclosed manuscript that has been submitted for publication in <journal name>. <journal name> wishes to be a natural choice for the publication of original papers of high quality in a broad range of <journal subject area> research. Consequently in reviewing the manuscript do not hesitate to reject it if it is scientifically flawed, provides no new insights, merely sets out observations with no analysis or is of insufficient priority to warrant publication.

If you recommend revision, please make your comments as constructive as possible to help the authors improve their paper. Do not attempt to re-write the paper. It is the responsibility of the authors to produce a clear manuscript in correct English. Extensive editing and/or rephrasing is not your task. It is however helpful if you can mark typographical, spelling and grammatical errors on the manuscript, but this is not essential. Authors are allowed to submit only one revision and therefore your comments should be sufficiently detailed for the authors to make all necessary changes that can eventually lead to acceptance. If a revised manuscript is sent back to you the only response required will be a simple yes or no to the question, 'Is the paper now suitable for publication'?

If the modifications you request do not necessitate the return of the manuscript please destroy it since it has been submitted in confidence. Please return the checklist and your detailed comments to me within 14 days. If you are unable to complete the review within this time, please return the manuscript to me immediately.

Thank you for your help.

Yours sincerely
How do I carry out a proper and thorough review?
Overview of Peer Review Process

Possible reviewer recommendations:
- **Rejected due to poor quality, or out of scope**
- **Accept without revision**
- **Accept, but needs revision**
  - Minor
  - Moderate
  - Major

Article Submitted → Confirmation of Receipt

Initial Decision by Editor

Reject → Decide to Review

Decide to Review → Reviewers Assigned

Reviewers Accept Invite → Reviews Completed

Reviews Completed → Reject

Reject → Article sent to Publisher

Article sent to Publisher → Revision Received

Revision Received → Revise

Revise → Accept

Accept → Notification to Author

Notification to Author → Revise

Revise → Accept
### Conducting the Review

#### Comments to Editor:

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<th>Question</th>
<th>Yes</th>
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<tr>
<td>Is the subject suitable for publication in the Journal of Pharmaceutical and Biomedical Analysis?</td>
<td>X</td>
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<tr>
<td>Has the paper sufficient scientific value and novelty?</td>
<td>X</td>
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<tr>
<td>Is it clearly presented and well organized (including experimental data and the optimization procedure)?</td>
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<td>Is the proposed method/procedure adequately validated?</td>
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<td>Does it give all the relevant as well as up-to-date references to related work?</td>
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<tr>
<td>Have the authors addressed the question of how their proposed methodology compares with previously reported methods?</td>
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<tr>
<td>Is the method supported by a demonstration of its application to real samples? (For bioanalytical methods human-/animal-derived real samples, not simply spiked, should be used)</td>
<td>X</td>
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<tr>
<td>Is the English satisfactory?</td>
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PLEASE ADD ANY FURTHER COMMENTS TO THE 'BLIND COMMENTS TO AUTHOR' SECTION
In this paper, in order to control the quality, standard fingerprint of P. cablin collected from different regions was developed by using GC-MS. Nine compounds, including β-patchoulene, caryophyllene, α-guaiene, seychellene, β-guaiene, δ-guaiene, spathulenol, patchouli alcohol and pogostone were identified among ten main peaks in P. cablin. Hierarchical clustering analysis based on characteristics of 10 investigated peaks in GC profiles showed that 18 samples were divided into were patchouliol-type, pogostone-type and an interim-type that was the one between the two chemotypes. The simulative mean chromatogram for the three types P. cablin was generated using the Computer Aided Similarity Evaluation System.

1. It's well known in China that the fingerprint can be used to control the quality of TCMs. In P. cablin volatile oil, normally, there are several tens of peaks based on 1D GC or hundreds of peaks on GCxGC (see following literature 1), but in this paper, authors used only 10 peaks to investigate the fingerprint, information content is not enough. Authors didn't say why they didn't make use of the peaks with the retention times longer than 36 min.

2. In Table 2 authors used the relative content (%) of investigated compounds in Pogostemon cablin. They assigned the total relative content of 10 peaks is 100%, this is not suitable because there are many peaks in volatile oil. The better mode is using relative content of total volatile component peaks.

3. The manuscript is not well organized. For example, in Legends, peak identification information in Figure 1 is repeated with Table 1, and peak 9 and peak 10 are not corresponded. The sample information in the legends of Fig. 3 and Fig. 4 is totally repeated with the footnote in Table 2.

4. The references haven't been well cited. Perhaps following relative literatures should be cited,

2) Li W, Wei G, Pan CM, et al. [Investigation on the influential factors of the volatile oil and main constituent content in Pogostemon cablin] Zhongguo Zhong Yao Za Zhi (China), Jan 2004, 29(1) p28-31
5) Luo J, Guo X, Feng Y [Constituents analysis on volatile oil of Pogostemon cablin from different collection time cultivated in Hainan] Zhong Yao Cai (China), Jan 2002, 25(1) p21-3

Reviewer Recommendation Term: Requires major revision
Conducting the Review - Originality

- Sufficiently novel and interesting to warrant publication?
- Adds to the canon of knowledge?
- Answers an important research question?
- Satisfies the journal’s standards?
- Falls in the top 25% of papers in this field?
- A literature scan of review articles can help the reviewer determine originality
Conducting the Review - Structure

Key sections are included and are laid out clearly

- Title
- Abstract
- Introduction
- Methodology
- Results
- Discussion/Conclusion
- References

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<tr>
<td>Title</td>
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<tr>
<td>Abstract</td>
<td>• Does it reflect what was done and what the major findings</td>
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<td>Introduction</td>
<td>• Does it clearly state the problem being investigated and accurately</td>
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<td>describe what the author hopes to achieve?</td>
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<td>• Does it summarize relevant research to provide context?</td>
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<td>• Does the article make it clear what type of data was recorded;</td>
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<td>has the author been precise in describing measurements?</td>
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<td>Results</td>
<td>• Clearly laid out and in a logical sequence?</td>
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<td>• Has the appropriate analysis been conducted?</td>
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<td>• Are the statistics correct? If you are not comfortable with statistics</td>
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<td>advise the editor when you submit your report.</td>
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<td>• If any interpretation has been included in this section – it should</td>
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<td>Discussion/Conclusion</td>
<td>• Are the claims in this section supported by the results, do they</td>
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<td>seem reasonable?</td>
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<td>scientific knowledge forward?</td>
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<td>work appropriately?</td>
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<td>• Are there any important works that have been omitted?</td>
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<td></td>
<td>• Are the references accurate?</td>
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Conducting the Review - Structure
Conducting the Review – Tables & Figures

- Relevant and important
- Consistency
- Color
- Caption length and appropriateness
- Figures describe the data accurately

Fig. 3. FE-SEM images of RFP-50 at 1,0000×

Functionalized polymer clusters (7 to 10 nm in diameter). These clusters then aggregate together through organic-organic interaction between curing agent molecules and organic clusters and finally form RF polymer.

Fig. 2. A schematic diagram of the RF polymer formation mechanism.
Conducting the Review – Ethical Issues

- Plagiarism
- Fraud
- Medical ethical concerns
Sending Your Report to the Editor

- Anticipate the deadline
- Summarize the article at the top of your report
- The report should be comprehensive
- Explain and support your judgments
- Make a distinction between your own opinions and your comments based on data
- Be courteous and constructive
Dear Sir or Madam,

I am submitting a paper entitled "Normalization Strategies for Metabonomic Analysis of Urine Samples" for publication in the Journal of Chromatography B. Prior to submission, the abstract for this paper was reviewed by Dr. D.K. Lloyd of the Journal of Chromatography B Editorial Board and he confirmed that this topic was within the scope of the journal.

Following are three potential referees for the paper.

Professor Elizabeth Want  
Department of Biomolecular Medicine  
Imperial College London  
Sir Alexander Fleming Building  
South Kensington  
London SW7 2AZ - UK  
e.want@imperial.ac.uk

Professor Liang Li  
University of Alberta  
Department of Chemistry  
Chemistry Centre W3-39  
Edmonton, AB T6G 2G2  
Canada  
liang.l@ualberta.ca

Dr. William H. Schaefer  
Merck Research Labs  
WP81-203  
770 Sumneytown Pike  
West Point, PA 19486  
USA  
william_schaefer@merck.com

Thank you for your consideration.

Sincerely,
Bethanne M. Warrack
Dear %TITLE% %LAST_NAME%,

I am writing to you with regard to the manuscript %MS_NUMBER%:%ARTICLE_TITLE%, which has been submitted for possible publication in %JOURNALFULLTITLE%.

I would like to ask if you would be willing to review this paper. To view the PDF, please click on the link below: %VIEW_REVIEWER_PD%.

As a reviewer you are entitled to access references, abstracts, and full-text articles in Scopus and ScienceDirect for 30 days. Full instruction details will be provided upon accepting this invitation to review.

If you are willing to review this manuscript, please click on the link below: %ACCEPT_REVIEW_INVITATION%.

If you are not able to review this manuscript, please click on the link below. We would appreciate receiving suggestions for alternative reviewers: %DECLINE_REVIEW_INVITATION%.

Alternatively, you may also register your response by accessing the Elsevier Editorial System for %JOURNALFULLTITLE% as a REVIEWER using the logon credentials below:

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%BLINDED_USERNAME%
%BLINDED_PASSWORD%

Once you accept to review this paper, you will find this manuscript in your "Pending Reviews" menu and will be allowed to complete your review online.

In order for us to be able to keep the time taken for review to a minimum, our reviewers are generally requested to return their comments within three weeks. If this timeframe does not suit you, or if the subject area is outside your field of expertise, I would welcome any suggestion for alternative reviewers.

NOTE: If this is your first time reviewing for us in the Elsevier Editorial System for %JOURNALFULLTITLE%, please update your personal contact information and your
Let Scopus and ScienceDirect assist you in your reviewing process. Try it!

Scopus Want to know more? Find out! ScienceDirect
### Your UltraMed Query:

A method for enzyme quenching in microbial metabolome analysis successfully applied to gram-positive and negative bacteria and yeast.

#### Concept Mappings:

- **ANALYSIS (SUBHEADING)**
- **BACTERIA (BACTERIA)**
- **ENZYMES (ENZYME)**
- **METABOLIC PROFILE (METABOLIC MODEL)**
- **METABOLISM (METABOLIC MODEL)**
- **MIASMA (NEGATIVE)**
- **YEASTS (Yeast)**

**RESULT SET**: 4 documents displayed out of 2231724 documents found

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<th>Abstract Included</th>
<th>Select</th>
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<tr>
<td>63%</td>
<td>Yes</td>
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- **View** - Export - Email selected

- Find authors
- Related titles

Submit review result

**Reviewer Recommendation**

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<th>Term:</th>
<th>Minor Revision</th>
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<tr>
<td>Rate Reviewer:</td>
<td>(Select 1-100)</td>
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</table>

**Comments to Editor:**

1. Does the subject matter primarily address analytical methodologies related to biological systems as described in the scope of the Journal of Chromatography B (see http://www.elsevier.com/jctfe/chromb)? **YES**
2. Is, in your opinion, the paper clearly presented and well organized? **YES**
3. Does it give adequate references to related work? **YES**
4. Does the Abstract provide a quantitative summary? **YES**
5. Is the English satisfactory? **YES**

**Comments to Author:**

JCB 08 1181

This is an interesting paper on a timely topic that of LC-MS based metabonomics analysis. The authors use an innovative approach to study the effect of normalisation or non-normalisation strategies. Findings are very interesting. I recommend publication after revision.

Specific comments:

- The major finding is the application and the good result of MSTUS. My opinion is that more details are needed to describe the way this tool operates and more specifically how this algorithm identifies the total intensity of components common to all samples (I suggest using the term "peaks" in Pg4L1n15). My skepticism is bigger towards the claim that "MSTUS, provides a means of normalization that includes only real endogenous components and excludes xenobiotics and biological and analytical artefacts". How can this be achieved? Are the agent metabolites considered as xenobiotics? Are these excluded from the process? Do the authors know of all the metabolites of the agent administered to the animal? The authors should explain the mechanism, show proof of the end-result or delete the sentence.
- More results/proof of concept would be welcome. For example in addition to the PCA plots, some evidence comparing directly ion intensities of randomly selected peaks with and without normalisation.

Minor comments: 
PgL1n8: Principal Component
Pg3Ln3 stressor
Pg3Ln45: induce instead of produce?
Fig 2 Legend. Day14 necropsy. This should be given earlier in text. Please describe this in the experimental (in-vivo sample collection)
View Reviews and Comments for Manuscript
JCB-08-1181
“Normalization Strategies for Metabonomic Analysis of Urine Samples”
Revision 1

Click the recommendation term to view the comments for the submission.

View Manuscript Rating Card

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<th>Revision 1</th>
<th>Original Submission</th>
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<td>(None)</td>
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<tr>
<td>Eun H. Kim</td>
<td>(None)</td>
<td>Minor Revision</td>
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<tr>
<td>Guowang Xu (Editor)</td>
<td>Accept</td>
<td>Minor Revision</td>
</tr>
<tr>
<td>Author Decision Letter</td>
<td>Accept</td>
<td>Minor Revision</td>
</tr>
<tr>
<td>Bethanne M. Warrack, B.A. (Author)</td>
<td></td>
<td></td>
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</tbody>
</table>
Date: 05 Dec 2008
To: "Bethanne M. Warrack" bethanne.warrack@bms.com
From: "Journal of Chromatography B" chromb@elsevier.com
Subject: Manuscript JCB-08-1181

Ref.: JCB-08-1181
Title: Normalization Strategies for Metabonomic Analysis of Urine Samples
Corresponding Author: Ms. Bethanne M. Warrack

Dear Ms. Warrack,

On behalf of the editor handling your manuscript, Professor Guowang Xu, I am writing to you in reference to your manuscript entitled:

"Normalization Strategies for Metabonomic Analysis of Urine Samples"

I am pleased to inform you that the paper has been favorably received and that publication after minor revision is recommended (please see the comments below). I should be grateful if you would revise the paper in accordance with these recommendations and submit your revised manuscript within 30 days.

Please submit your revision online by logging onto the Elsevier Editorial System for Journal of Chromatography B:

http://ees.elsevier.com/chromb/

The manuscript record can be found in the "Submissions Needing Revision" menu.

Please upload the following items:

1. A detailed, point-to-point response to each point raised, specifically describing all changes, or the reason why no change was made. This document should be uploaded as "Response to Reviews".

2. A complete, editable, electronic copy (i.e. Word, WordPerfect, RTF, or LaTeX) of the revised manuscript.

3. An electronic copy of the revised manuscript that has all changes made in response to these comments clearly indicated (preferably underlined in red). Please identify such a marked copy on the title page and in the file name. This document should be uploaded as an "Marked Manuscript".

4. Figures should be uploaded individually as TIFF or EPS files with the figure number clearly indicated in the file name.

Thank you for your cooperation.

We look forward to receiving your revised manuscript.
Comments:

Editor:

1. the conclusions section is too long, should be simplified.
2. The title of each section should be numbered with the Arabic numeral, for example, 1. Introduction, ...

Reviewer #1: JCB 06 1181

This is an interesting paper on a timely topic that of LC-MS based metabolomics analysis. The authors use an innovative approach to study the effect of normalization or non-normalization strategies. Findings are very interesting. I recommend publication after revision.

Specific comments:

The major finding is the application and the good result of MSTUS. My opinion is that more details are needed to describe the way this tool operates and more specifically how this algorithm identifies the total intensity of components common to all samples (I suggest using the term "peaks" in Pg4Ln15). My skepticism is bigger towards the claim (Pg8h36) that "MSTUS, provides a means of normalization that includes only real endogenous components and excludes xenobiotics and biological and analytical artefacts". How can this be achieved? Are the agent metabolites considered as xenobiotics? Are these excluded from the process? Do the authors know all the metabolites of the agent administered to the animal? The authors should explain the mechanism, show proof of the end-result or delete the sentence.

More results/proof of concept would be welcome. For example in addition to the FCA plots, some evidence comparing directly ion intensities of randomly selected peaks with and without normalization.

Minor comments: Pg11Ln6: Principal Component
Pg3Ln3 stress
Pg3Ln45: induce instead of produce?
Fig 2 Legend: Day14 necropsy. This should be given earlier in text. Please describe this in the experimental (in-vivo sample collection)

Reviewer #2: General Comments

This manuscript describes normalization approaches for mass spectrometry-based metabolomics studies. This is an important area of metabolomics and certainly one that needs addressing. This is a thorough investigation of several different normalization strategies. The manuscript is well written and on the whole provides a clear account of the study. I would have appreciated more detail regarding the sample analysis and also the data analysis. It is interesting to find out that when the data was normalized to urine volume, separation between the groups was reduced compared with un-normalized data. I think that this manuscript will be of great interest to the field and I recommend that it is published with minor revisions. My specific comments are below.

Specific Points

Methods:

Editor decision -2
Author’s Revisions to Detailed Comments

Editor:
1. the conclusions section is too long, should be simplified.

The conclusions have been shortened (see marked copy of manuscript pp. 13-14).

2. The title of each section should be numbered with the Arabic numerals, for example, 1. Introduction, ...

Sections have been numbered.

Reviewer #1: JCB 08 1181
The major finding is the application and the good result of MSTUS. My opinion is that more details are needed to describe the way this tool operates and more specifically how this algorithm identifies the total intensity of components common to all samples (I suggest using the term “peaks” in Pg4Ln15).

We are using a developmental algorithm that is not ready to publish in detail, but the concept is closely related to the references cited and is simply to integrate all peaks that arise from bona fide endogenous components in the sample.

My skepticism is bigger towards the claim (Pg8n36) that “MSTUS, provides a means of normalization that includes only real endogenous components and excludes xenobiotics and biological and analytical artefacts”. How can this be achieved? Are the agent metabolites considered as xenobiotics? Are these excluded from the process? Do the authors know of all the metabolites of the agent administered to the animal? The authors should explain the mechanism, show proof of the end-result or delete the sentence.

Sentence was changed: In doing this, the MSTUS approach attempts to limit the contributions of xenobiotics and artifacts to the normalization factor by including only those peaks that are present in all samples, including the controls.

More results/proof of concept should be welcomed. For example, in addition to the BCA data, 2009
Manuscript JCB-08-1181R1
“Normalization Strategies for Metabonomic Analysis of Urine Samples”
Revision 1

Guowang Xu (Editor)

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View Manuscript Rating Card
Normalization strategies for metabonomic analysis of urine samples

Bethanne M. Warrack a,b,*, Serhiy Hnatyshyn a,b, Karl-Heinz Ott a,c, Michael D. Reily a,b, Mark Sanders a,b,2, Haiying Zhang a,b,1, Dieter M. Drexler a,d

a Bristol-Myers Squibb Company, Research and Development, USA
b Pharmaceutical Candidate Optimization – Discovery Analytical Sciences, Princeton, NJ 08543, USA
c Applied Genomics, Pennington, NJ 08534, USA
d Pharmaceutical Candidate Optimization – Discovery Analytical Sciences, Wallingford, CT 06492, USA

ARTICLE INFO

Article history:
Received 28 October 2008
Accepted 7 January 2009
Available online 14 January 2009

Keywords:
Normalization
Mass spectrometry
Metabonomics
Non-targeted

ABSTRACT

Unlike plasma and most biological fluids which have solute concentrations that are tightly controlled, urine volume can vary widely based upon water consumption and other physiological factors. As a result, the concentrations of endogenous metabolites in urine vary widely and normalizing for these effects is necessary. Normalization approaches that utilized urine volume, osmolality, creatinine concentration, and components that are common to all samples ("total useful MS signal") were compared in order to determine which strategies could be successfully used to differentiate between dose groups based upon the complete endogenous metabolite profile. Variability observed in LC/MS results obtained from targeted and non-targeted metabolomic analyses was highly dependent on the strategy used for normalization. We therefore recommend the use of two different normalization techniques in order to facilitate detection of statistically significant changes in the endogenous metabolite profile when working with urine samples.

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Summary

• What is the history of peer review and what role does it serve?
  – Peer review is the cornerstone of the scholarly publication process
  – Filters out good research and improves it

• Why should I consider being a reviewer?
  – Reviewing can be a career building activity that also keeps one in touch with the latest research in the field

• How do I carry out a proper and thorough review?
  – Analyze the article for its originality, structure, and ethical sufficiency
  – Provide detailed, constructive comments and communicate clearly with the Editor