



Peer review in biomedical journals

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Chief Editor, Eur Sci Editing

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Organisations concerned with the integrity of peer review



European
Association of
Science
Editors

1982-2012

EASE

Celebrating
30 years of editing

Peer review is a process of self-regulation by a profession or a process of evaluation involving qualified individuals within the relevant field. Peer review methods are employed to maintain standards, improve performance and provide credibility.

Wikipedia

A peer-reviewed journal is one that has submitted most of its published articles for review by experts who are not part of the editorial staff.

ICMJE, 2001

Peer reviewers are experts chosen by editors to provide written assessment of the strengths and weaknesses of written research, with the aim of improving the reporting of research and identifying the most appropriate and highest quality material for the journal. Regular reviewers selected for the journal should be required to meet minimum standards (as determined and promulgated by each journal) regarding their background in original research, publication of articles, formal training, and previous critical appraisal of manuscripts.

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Publication Ethics Policies for Medical Journals

Prepared by the WAME Publication Ethics Committee

- **Discovery of the double helix structure of DNA, James D. Watson and Francis H.C. Crick**
- **A two-page report in Nature, 25 April, 1953 (not peer reviewed)**
- **Nobel prize in physiology or medicine, 1962**



James Watson (February 2003)



Francis Crick
 Born June 8, 1916
 Weston Favell, Northamptonshire, England
 Died 28 July 2004 (aged 88)



This figure is purely diagrammatic. The two ribbons symbolize the two phosphate-sugar chains, and the horizontal rods the pairs of bases holding the chains together. The vertical line marks the fibre axis

on it. We radical the sa acid. helical the sar have 1 assumj chain ester § ribofur linkag not the dyad 1 axis. handec the dy atoms in op chain berg's² the he the ou of the near i 'stanc sugar ular t

No. 4356 April 25, 1953

NATURE

737

equipment, and to Dr. G. E. R. Deacon and the captain and officers of R.R.S. *Discovery II* for their part in making the observations.

- ¹ Young, F. B., Gerrard, H., and Jevons, W., *Phil. Mag.*, **40**, 149 (1920).
- ² Longuet-Higgins, M. S., *Mon. Not. Roy. Astro. Soc., Geophys. Supp.*, **5**, 285 (1949).
- ³ Von Arx, W. S., *Woods Hole Papers in Phys. Oceanog. Meteor.*, **11** (3) (1950).
- ⁴ Ekman, V. W., *Arkiv. Mat. Astron. Fysik. (Stockholm)*, **2** (11) (1905).

is a residue on each chain every 3.4 Å. in the z-direction. We have assumed an angle of 36° between adjacent residues in the same chain, so that the structure repeats after 10 residues on each chain, that is, after 34 Å. The distance of a phosphorus atom from the fibre axis is 10 Å. As the phosphates are on the outside, cations have easy access to them.

The structure is rather high. 738

expect the bas become more c King's College, London. One of us (J. D. W.) has been aided by a fellowship from the National Foundation for Infantile Paralysis.

The novel fe J. D. WATSON
 F. H. C. CRICK
 Medical Research Council Unit for the Study of the Molecular Structure of Biological Systems, Cavendish Laboratory, Cambridge. April 2.

- ¹ Pauling, L., and Corey, R. B., *Nature*, **171**, 346 (1953); *Proc. U.S. Nat. Acad. Sci.*, **39**, 84 (1953).
- ² Furberg, S., *Acta Chem. Scand.*, **6**, 634 (1952).
- ³ Chargaff, E., for references see Zamenhof, S., Brawerman, G., and Chargaff, E., *Biochim. et Biophys. Acta*, **9**, 402 (1952).
- ⁴ Wyatt, G. R., *J. Gen. Physiol.*, **38**, 201 (1952).
- ⁵ Astbury, W. T., *Symp. Soc. Exp. Biol.*, **1**, Nucleic Acid, 66 (Camb. Univ. Press, 1947).
- ⁶ Wilkins, M. H. F., and Randall, J. T., *Biochim. et Biophys. Acta*, **10**, 192 (1953).

NATURE

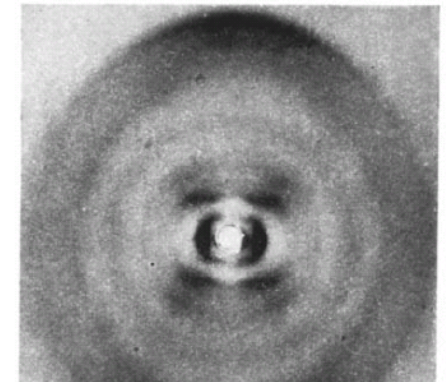
April 25, 1953 VOL. 171

MOLECULAR STRUCTURE OF NUCLEIC ACIDS

A Structure for Deoxyribose Nucleic Acid

WE wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest.

A structure for nucleic acid has already been proposed by Pauling and Corey¹. They kindly made



- Discovery of “The Krebs cycle” by Hans A. Krebs and William A. Johnson
- A paper on the role of citric acid **rejected** by Nature in 1937 – “insufficient importance”
- Later published in [*Krebs HA, Johnson WA. The role of citric acid in intermediate metabolism in animal tissues. Enzymologia 1937;4:148-156*], a Dutch journal
- Reprinted in FEBS letters in 1980
- Nobel prize in physiology or medicine 1953



25 August 1900
Hildesheim, Germany
22 November 1981 (aged 81)
Oxford, England



25 August 1980

153

Volume 117, Supplement

FEBS LETTERS

25 August 1980

148

**The role of citric acid in intermediate metabolism
in animal tissues**

BY

H. A. KREBS AND W. A. JOHNSON

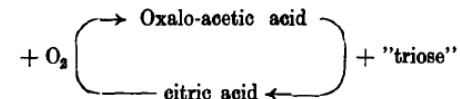
(From the Departm. of Pharmacol., Univ. of Sheffield)

(29.VI.37)

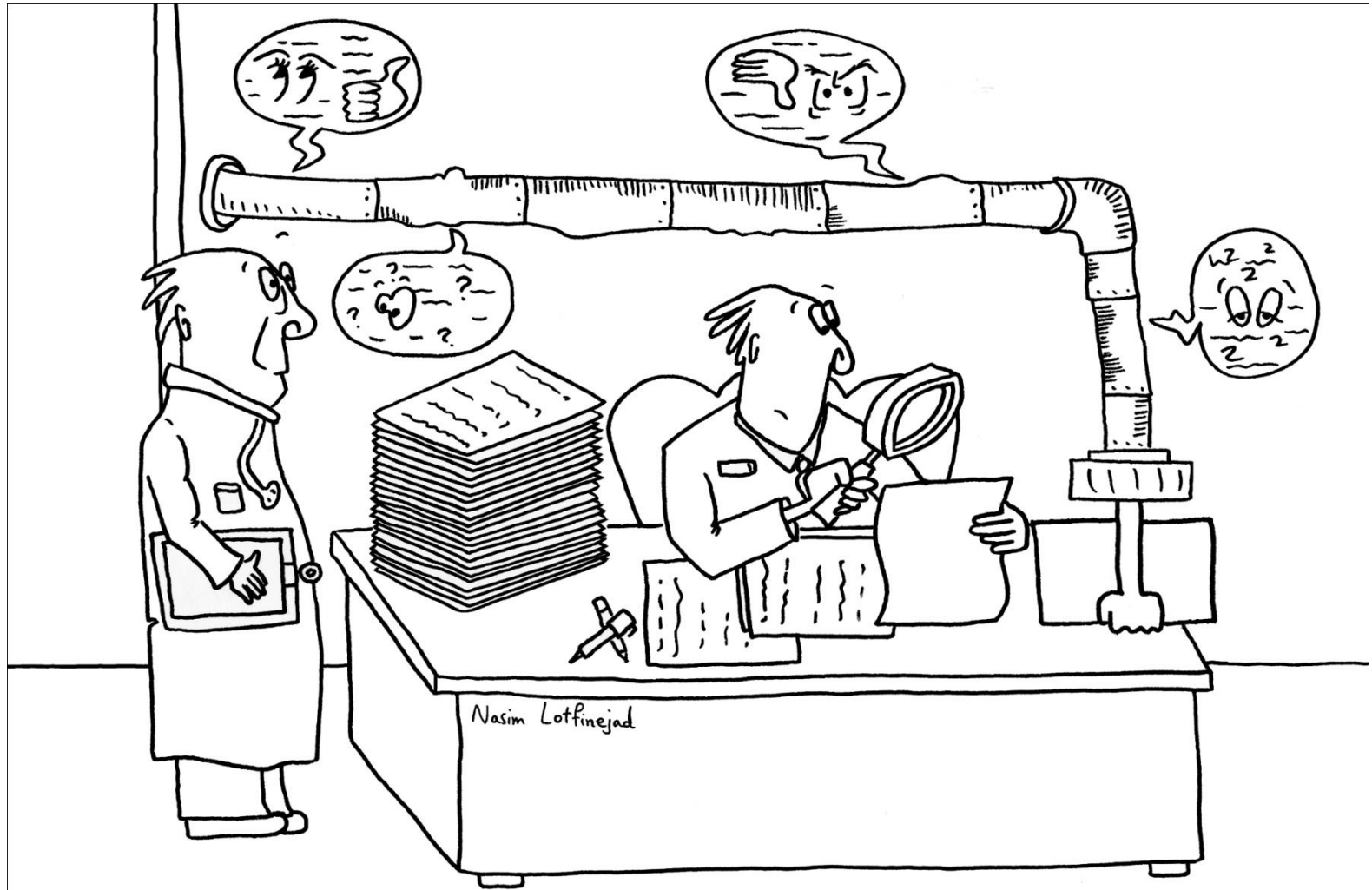
7, Supplement

FEBS LETTERS

These facts suggest that citric acid acts as a catalyst in the oxidation of carbohydrate in the following manner:



During the last decade much progress has been made in the analysis of the anaerobic fermentation of carbohydrate, but very little is so far known about the intermediate



"An innovative method of strict selective approach"

Peer review as a part of professional service

- ✓ **Peer review is a part of culture of service to profession; those who want to publish should be skilled to act as peer reviewers**
- ✓ **Peer review keeps specialists updated of current developments. It is intellectually enriching**
- ✓ **It gives more credits/scientific prestige**

Best reviewers

Primus Inter Pares

✓ Training in epidemiology or statistics, age <60, residency in North America and current involvement in research

Black N, et al. JAMA 1998;280(3):231-233

- ✓ Aged under 40 yo (BMJ)
- ✓ Those acted as reviewers before
- ✓ The author who published recently (within 2-3 years) relevant articles in PubMed, ISI, Scopus, Google Scholar
- ✓ **Authors' suggestions (???)**
- ✓ Editorial board members
- ✓ Editors personal contacts
- ✓ Those from reference lists

First Among Equals Ad (1987)

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 **Peer-review strategy**

Adding a statistical reviewer

- ✓ A prospective study of original papers reviewed in a weekly journal *Medicina Clinica* (Barcelona)
- Modified Manuscript Quality Assessment Instrument (MQAI) by Goodman et al. (5 points scale)
- Two blinded evaluators rated the quality of manuscripts at initial submission and final post peer review version
- 129 articles were evaluated
- ✓ **Adding a statistical reviewer to the field expert peers increased the quality of accepted papers (5.5 [95% CI: 4.3–6.7])**

Author- vs. editor-suggested reviewers

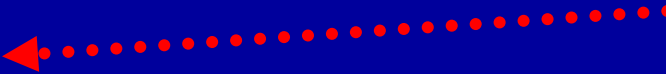
- ✓ 10 biomedical journals (BMJ, Heart, etc)
- ✓ No difference in the quality of comments
- ✓ Author-suggested reviewers made favourable recommendations

Schroter S, et al. JAMA 2006;295(3):314–317

Table 2. Impact of Reviewer Status on Review Quality and Recommendation to Publish

	Editor-Suggested Reviewers	Author-Suggested Reviewers
Review Quality Instrument		
Reviews, mean score	2.64	2.58
Papers, mean paired difference (95% CI)	Reference	-0.05 (-0.15 to 0.04)
Reviewer recommendation, No. (%)		
Accept	115 (46.0)	119 (56.9)
Revise	76 (30.4)	63 (30.1)
Reject	59 (23.6)	27 (12.9)
Odds ratio (95% CI)		
Accept (vs revise or reject)		
Papers with blinded reviews*	Reference	1.64 (1.02 to 2.66)
Papers with open reviews (BMJ)	Reference	12.4 (1.60 to 95.8)
Accept or revise (vs reject)		
Papers with blinded reviews*	Reference	2.66 (1.43 to 4.97)
Papers with open reviews (BMJ)		†

A checklist for reviewer evaluation will help in choosing more effective and helpful reviewers in the future. Some items that can be included in reviewers' evaluation are:

- timeliness;
- ease of communication; 
- depth of the review;
- clear and instructive comments;
- positive attitude;
- lack of bias;
- willingness to cooperate

European
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Workshop

**How to get peer
reviewed**

Remedios Melero

Facultat de Biblioteconomia i Documentació,
Universitat de Barcelona

Barcelona, 20 June 2011



Initial invitations

- **Get at least two reviews** - whose interests reflect the scope of the manuscript. Try to avoid bias and conflicts of interest (e.g. reviewers from the same institute, close collaborators)
- **Over-invite reviewers.** Invite three or four; as soon as two have agreed, you can let the others know that they will not be needed this time



Singapore Statement on Research Integrity



PRINCIPLES

Honesty in all aspects of research

Accountability in the conduct of research

Professional courtesy and fairness in working with others

Good stewardship of research on behalf of others

RESPONSIBILITIES

8. *Peer Review:* Researchers should provide fair, prompt and rigorous evaluations and respect confidentiality when reviewing others' work.

9. *Conflict of Interest:* Researchers should disclose financial and other conflicts of interest that could compromise the trustworthiness of their work in research proposals, publications and public communications as well as in all review activities.

<http://www.singaporestatement.org/>

Table 5. Ten qualities of a good reviewer

1. Competence (and/or expertise) in the field
2. Consistency (within and between reviews)
3. Confidentiality
4. Responsibility in feedback (constructive, educational, unbiased)
5. Knowledge of the scientific process (research and writing)
6. Integrity
7. Impartiality
8. Timeliness (punctuality)
9. Detail orientation
10. Outstanding language skills

Gus M Garmel, MD, FACEP, FAAEM, is a Senior Emergency Medicine Physician at the Santa Clara Medical Center. He is also the Co-Program Director of the Stanford/Kaiser Emergency Medicine Residency Program, and an Associate Professor of Emergency Medicine (Surgery) at Stanford University. He is a Senior Editor for *The Permanente Journal*. E-mail: gus.garmel@kp.org.

Does peer review really work?

JOURNAL OF THE ROYAL SOCIETY OF MEDICINE Volume 99 April 2006

SERIES

Peer review: a flawed process at the heart of science and journals

Richard Smith

J R Soc Med 2006;99:178-182

- **Slow and expensive** – 100 GBP for rejected and 1000 GBP for accepted paper in BMJ
- **Inconsistent**
- **Biased**
- **Abused**
- **Conclusion...**peer review is a flawed process, full of easily identified defects with little evidence that it works. Nevertheless, it is likely to remain central to science and journals because there is no obvious alternative...

Support for reviewers

- Access to ISI, Scopus while reviewing
- Reviewer form
- Instructions how to review

ScholarOne Manuscripts - Windows Internet Explorer

http://mc.manuscriptcentral.com/cpla

File Edit View Favorites Tools Help

ScholarOne Manuscripts

Platelets **informa** healthcare

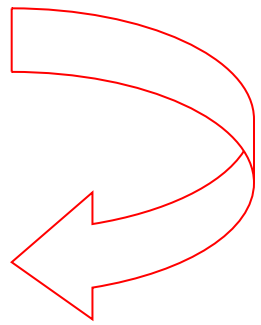
Log Out

You are logged in as Arm

View Manuscripts

Manuscripts assigned to you for review are listed in the "Awaiting Reviewer Scores" list below. You can view the manuscript by clicking on its title. To view reviewer instructions and access the score sheet, click on the "Perform Review" button.

Review and Score			
Manuscript ID	Title	Due Date	Perform Review
CPLA-2012-001	level [View Submission]	30-Mar-2012	



informa healthcare

SCHOLARON Manuscripts

View Manuscripts → Reviewer Score Manuscript

You are logged in as Armen Gaspa

Review Manuscript

- Click the "HTML" button to view the online version of the manuscript; click the "PDF" button to view a printer-friendly version of the manuscript.
- Be sure to read the reviewer instructions on the "Instructions" tab.
- Navigate to the "Score Sheet" tab to access the reviewer form. Be sure to click "Save" at the bottom of the scoresheet to retain your work in the system.
- To submit your review, click the "Submit" button at the bottom of the score sheet.

Instructions Details Score Sheet

Title: M...
ini

Manuscript ID: CPLA-2012-001

Authors: [Redacted]

Manuscript Type: Letter to the Editor
Date Submitted: 13-Mar-2012 (Last Updated: 13-Mar-2012)
Total Time in Review: 3 days, 0 hours

Other: mean platelet volume

Search Across:

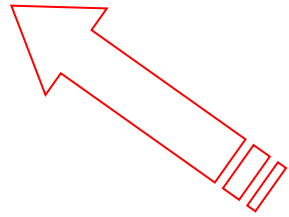
Click [here](#) to search **Web of Science®**

Click [here](#) to search **PubMed**

Click [here](#) to search **HighWire**

INSTRUCTIONS TO REVIEWERS

General Instructions



req Recommendation

- Accept
- Minor Revision
- Major Revision
- Reject & Resubmit
- Reject

Would you be willing to review a revision of this manuscript?

- Yes
- No

Comments

Confidential Comments to the Editors

req Comments to the Author

Elements of successful peer review

- ✓ **On time** acceptance or decline of invitation (24-48 h)
- ✓ Sending comments within 7-21 days (reading and commenting – 3 hours)
- ✓ **Good service to authors**, patients, journal and profession
- ✓ **Confidentiality** (do not unmask yourself, do not share the manuscript with others, delete after commenting)
- ✓ **Objectivity, evidence-based**, constructive criticism, and courteous tone
- ✓ **Making comments being updated by new findings**, relevant publications (including those in the journal) and statements (e.g. CONSORT)

Table 2. Reviewers' responsibilities to authors

- Provide written, honest, and unbiased feedback in a timely manner
- Express a critical opinion about the manuscript, as experts in the field, in a collegial and constructive manner
- Comment on the style of writing, especially its clarity
- Rate the work's detail, methodology, relevance, accuracy, and originality
- Avoid comments or criticism of a personal nature
- Maintain professionalism and confidentiality, especially given the competitive nature of research, funding availability, and publication
- Refrain from directly contacting authors without permission from the editor, unless the journal stipulates otherwise

Adapted with permission from Jordan K, Pederick R. Guidelines for reviewers [cited 2009 Jul 18]. Available from: <http://people.bath.ac.uk/liskmj/living-spring/journal/reviewgd.htm>.³⁰

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Table 3. Reviewers' responsibilities to editors

- Respond to the editors promptly if unable or unavailable to review a manuscript
- Recommend names of other experts as potential reviewers if unavailable
- Determine the scientific merit of the submission, with recommendations for acceptance or rejection
- Identify possibilities to improve the manuscript to the authors
- Point out potential ethical concerns about research methodologies or similarities with other papers or ongoing research
- Acknowledge personal or author conflicts of interest and inform the editor of these

Adapted with permission from Jordan K, Pederick R. Guidelines for reviewers [cited 2009 Jul 18]. Available from: <http://people.bath.ac.uk/liskmj/living-spring/journal/reviewgd.htm>.³⁰

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Table 4. Reviewers' responsibilities to the readers

- Ensure that published articles adhere to journal standards, as well as to standards of scientific practice
- Protect readers from incorrect or flawed research
- Identify missed references or erroneous citations (including misquoting or misinterpreting an author's findings)

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Priority for publication in a general med journal

- ✓ Original research articles with conclusive data (including syst. reviews) ✓ **High**
- ✓ Narrative reviews ✓ **High**
- ✓ Editorials ✓ **Moderate**
- ✓ Letters ✓ **High**
- ✓ Case reports ✓ **Low**
- ✓ Short communications ✓ **Low**
- ✓ Reports of meetings ✓ **?**
- ✓ News notes ✓ **Low**

Types of peer review

- ✓ Internal (in-house) – by staff
- ✓ External – by external peers
- ✓ Internal and external
- ✓ Open
- ✓ Single-blind
- ✓ Double-blind
- ✓ Paid
- ✓ Unpaid
- ✓ Rejecting or accepting outright
- ✓ Making decision based on 2 or more comments
- ✓ Rejecting based on at least one negative comment

Open

The reviewer and author are known to each other

Advantages:

- Prevent malicious comments?
- Stop plagiarism?
- Increase objectivity?

Disadvantages:

- Overly polite?
- Restrict criticisms?
- Discouraging for junior reviewers?
- Prejudice against country, institution, and author?

Blind

The reviewer's identity is not known to the author

Advantages:

- Allows impartial decisions free of author influence?

Disadvantages:

- Competitors delay paper?
- Encourage harsh or personal criticism?
- Plagiarism?

Double blind

Both reviewer and author remain anonymous

Advantages:

- Prevents review bias against country, institution, author
- No influence of author's reputation

Disadvantages:

- Unrealized conflicts of interest?
- Often author's identity can be guessed

European
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Science
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Workshop

How to get peer reviewed

Remedios Melero

Facultat de Biblioteconomia i Documentació,
Universitat de Barcelona

Barcelona, 20 June 2011



Major and minor points

- ✓ **General comment**
- ✓ **Major comments**
- ✓ **Minor comments**
- ✓ **Confidential information on acceptance (for editors)**

Main points in peers comments

- ✓ **General comment, interest to the readership of the target journal**
- ✓ **Title – concise, reflective, correct?**
- ✓ **Abstract – structured, contain numeric data, reflect the content, conclusions?**
- ✓ **Introduction, justification of the study and aims**
- ✓ **Novelty and originality**

Main points in peers comments (2)

- ✓ **Where and when the study conducted**
- ✓ **Patients and controls, inclusion and exclusion criteria**
- ✓ **Methodological merit – new, modified tests; reproducibility tested or not**
- ✓ **Sample size calculation, distribution checked**
- ✓ **Statistical analyses – correction for confounders**
- ✓ **Methods and Results – is there a logical sequence**
- ✓ **Validity of the results**
- ✓ **Table and graphs are self-explanatory**
- ✓ **Discussion – strength and limitations**
- ✓ **References – up-to-date; suggest relevant refs**
- ✓ **Justification of the conclusions**
- ✓ **Quality of abstract**
- ✓ **Style and clarity of writing, typos and formatting**



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Welcome to the EQUATOR Network website – the resource centre for good reporting of health research studies



Too often, good research evidence is undermined by poor quality reporting.

The EQUATOR Network is an international initiative that seeks to improve reliability and value of medical research literature by promoting transparent and accurate reporting of research studies.

Reporting guidelines



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Research Reporting](#)

Authors



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authors of research
reports](#)

Statements of interest to reviewers

- Editorial policy of the target journal
- **CONSORT** – Consolidated Standards of Reporting Trials
- **PRISMA** - for systematic reviews and meta-analyses
- **STARD** – Standards for Reporting of Diagnostic Accuracy
- **STROBE** - for observational studies
- **QUOROM** – The Quality of Reporting of Meta-analyses
- **MOOSE** – Meta-analysis of Observational Studies in Epidemiology

Do's of the peer review

- ✓ Make your enthusiasm for the paper clear to the authors
- ✓ Be consistent with the comments to the authors and editors
- ✓ Provide a detailed commentary if a manuscript has correctable shortcomings
- ✓ Recommend revision if the manuscript will make a significant contribution
- ✓ Provide references to support critiques
- ✓ Reread your comment to avoid harsh or inappropriate comments
- ✓ **Treat authors as your equals**, regardless of the quality of the manuscript

Don'ts of the peer review

- ✓ **Do not state in comments to authors anything about decision** (i.e. reject, revisions, or accept)
- ✓ Don't provide detail if you recommend rejection; a description of the major errors and flaws is sufficient
- ✓ Don't recommend a revision if changes will not substantially improve the quality
- ✓ Don't make vague references or *a priori* statements

ann. behav. med. (2011) 42:1–13
DOI 10.1007/s12160-011-9269-x

ORIGINAL ARTICLE

Reviewing Manuscripts for Peer-Review Journals: A Primer for Novice and Seasoned Reviewers

Travis I. Lovejoy, M.S., M.P.H. •
Tracey A. Revenson, Ph.D. •
Christopher R. France, Ph.D.

Reviewer acknowledgements

**CURRENT
PHARMACEUTICAL
DESIGN**

A scientific journal at its best

BENTHAM SCIENCE PUBLISHERS

March 22, 2011

TO WHOM IT MAY CONCERN

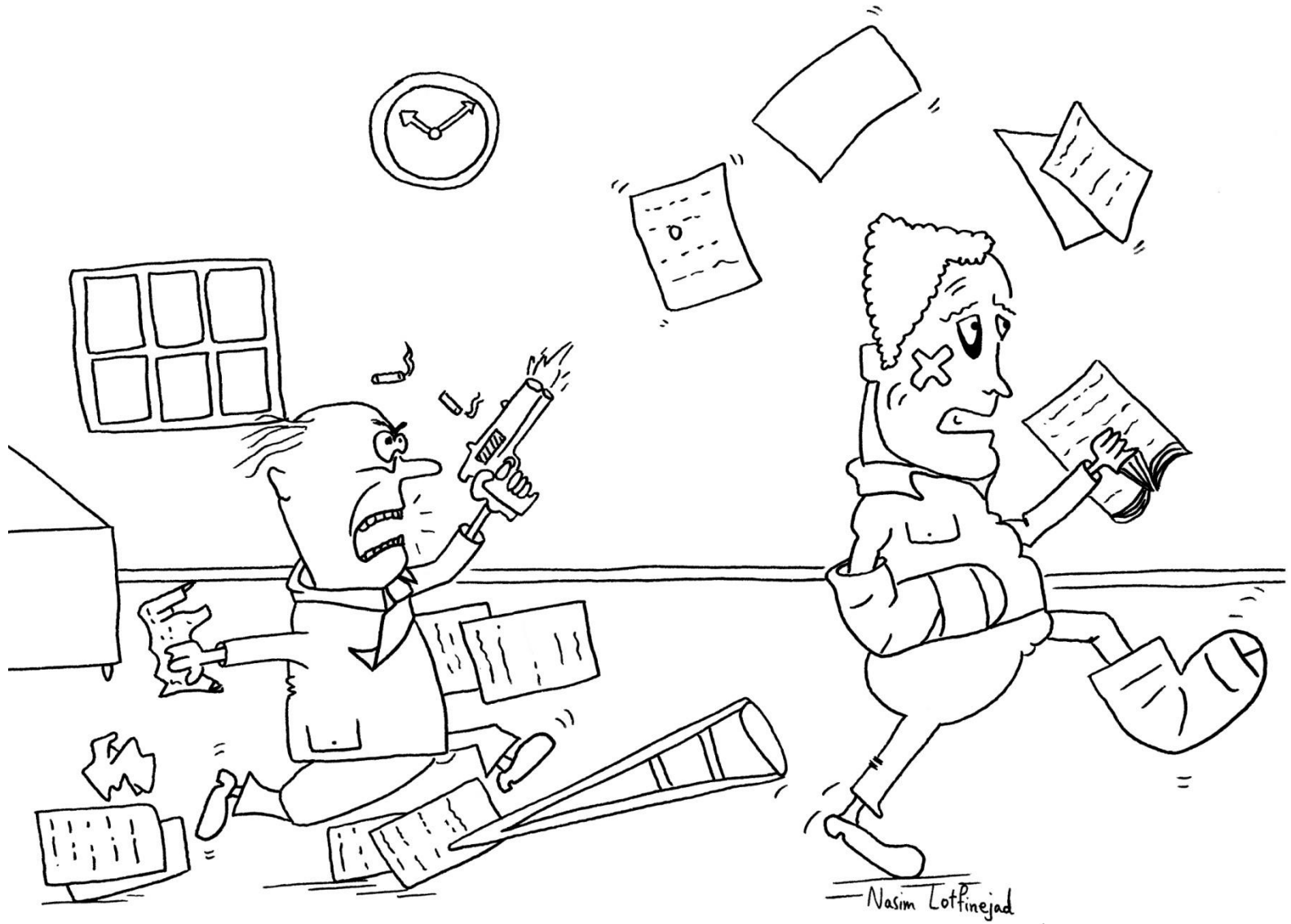
This is to certify that Dr. Theodoros Dimitroulas, MD, PhD, consultant rheumatologist served as a peer reviewer for Current Pharmaceutical Design, the leading journal in the field of rational drug design, molecular medicine and disease mechanism (Journal Impact Factor 4.774, h index 83). In 2011, he reviewed one manuscript for themed issue entitled "Cardiovascular Risk and Inflammation: Pathophysiological Mechanisms, Drug Design, and Targets", which is published in 2012. Peer review is an important part of the service to profession and a pillar of current science editing. Time and efforts of each expert reviewer devoted to the thorough evaluation of manuscripts allow further increasing the quality of journal publications and their impact.

Editors of Current Pharmaceutical Design hope that Dr. Dimitroulas will maintain his interest in the journal and will continue to contribute as an author and reviewer for the journal in the future.

Sincerely,



Mirza Kazim Ali Baig
Director
Current Pharmaceutical Design
Bentham Science Publishers



"The peer review process, final round!"