



Universitat
de les Illes Balears

Scientific Research Methodology

Lesson 4 :
Review process

Hate the peer-review process? Einstein did too!

- A. Einstein, N. Rosen, “Do Gravitational Waves Exist?” (**NO**) submitted to *Physical Review*, June 1936
 - (Editor) “would be glad to have your reaction to the various comments and criticisms the referee has made.”
 - (Einstein) “Dear Sir, We (Mr. Rosen and I) had sent you our manuscript for publication and had not authorized you to show it to specialists before it is printed. I see no reason to address the - in any case - erroneous comments of your anonymous expert. On the basis of this incident I prefer to publish the paper elsewhere. Respectfully, Albert Einstein”
- A. Einstein, N. Rosen, “On Gravitational Waves” J. Franklin Inst. 223, 43 (1937) (**YES**)
 - This work included many of the recommendations stated in the review. Einstein could have improved the work earlier, simply by reading the reviewer’s report that he had dismissed so hastily

Responsibility of the reviewer

- Critically reading and evaluating a work in their specialty field
- Providing respectful, constructive and honest feedback to authors
- Discuss
 - the strengths and weaknesses of the work,
 - ways to improve the strength and quality
- Evaluate the relevance and originality

Why be a reviewer?

- Reading the most up-to-date papers by this work
- Know what others do in research, hence, the review broadens your scope
- Reviewing papers is a community service, one of the professional obligations of a researcher.
 - Reviewers are not paid

The publishing process

Journal

Conference

The publishing process

- Peer review:
 - Papers submitted to serious journals and conferences are subject to the scrutiny of other experts in the field (**reviewers or referees**), before publishing them.
- Objectives: maintain standards, improve performance, and provide credibility.
 - Prevents the dissemination of irrelevant findings, unwarranted claims, unacceptable interpretations, and personal views
 - In practice, it is very difficult to detect a deliberate fraud (retraction)

Example of fraud

- “Nature Communications journal retracted a study by Gonzalez that proclaimed an amazing recovery in mice with a common heart failure in humans. On the same day, the same magazine retracted González's other work on blood-forming stem cells. And a month before another specialized journal, Cell Cycle, withdrew another research from the biologist. **In all cases, duplicate images appeared and there was no evidence that the experiments were actually done.** Today's fourth retraction is the biggest blow, coming from one of the best scientific journals in the world, Nature.”

El País, 2017

Example of retraction

Por qué la premio nobel Frances Arnold tuvo que retractar su último estudio

Redacción
BBC News Mundo

4 enero 2020



La profesora Arnold trabaja en el departamento de ingeniería química de Caltech.

La científica estadounidense Frances Arnold, quien ganó el Premio Nobel de Química de 2018, retractó su más reciente estudio.

Arnold compartió el prestigioso premio con George P. Smith y Gregory Winter por su investigación sobre las enzimas.

Un estudio subsecuente sobre síntesis enzimática de beta-lactamasas **fue publicado en la revista *Science* en mayo de 2019.**

Pero el estudio fue retractado porque los resultados no pudieron reproducirse y los autores se dieron cuenta de que había datos ausentes en un cuaderno de laboratorio.

The publishing process

- Single-blinded peer review
 - The reviewers are maintained anonymous to the authors
- Double-blinded peer review
 - The reviewers are maintained anonymous to the authors
 - The authors are maintained anonymous to the reviewers

The Editorial Team for Journals / Conferences

- Editor-in-chief / Program Chair
 - Organizes, receives papers and distributes them to the editors
- Editors / Program Board / Area Chairs
 - Distribute papers to the Associate Editors
 - Receive their recommendations and adopt the final decision for publishing or rejecting each paper.
- Associate Editors / Program Committee members
 - Find 2-4 relevant experts willing to review each paper
 - Read the paper and the reviews and write down a recommendation for accepting or rejecting the paper
- Reviewers
 - Write a detailed report evaluating the paper

E
x
p
e
r
t
i
s
e

+

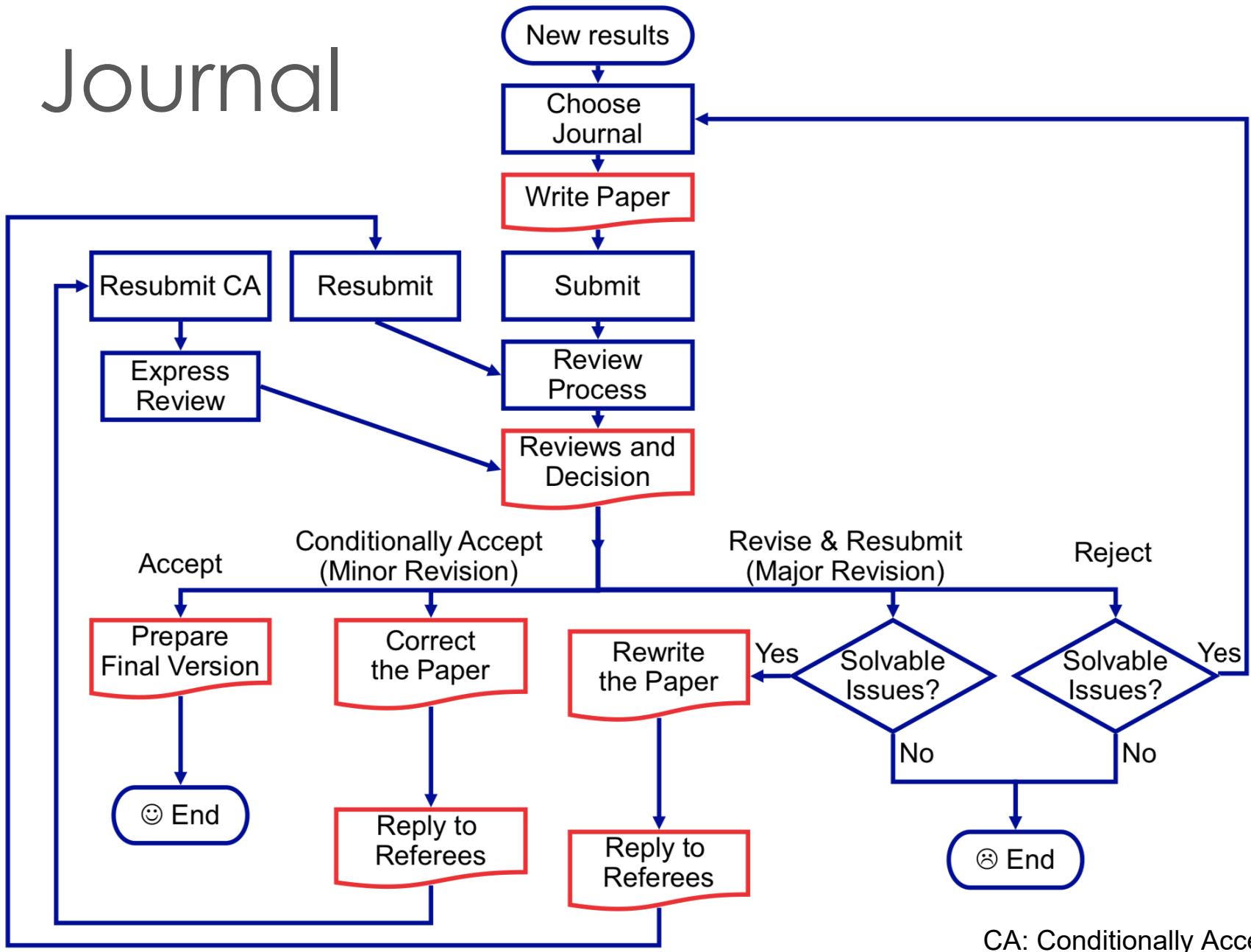
The decision letter

- Accept as is
 - On journals, almost never happens at the first round
- Conditionally Accept / Minor Revision (journals only)
 - Very high probability of being accepted if the authors perform the requested changes.
 - It will probably go through an express review by the associate editor and maybe by one of the previous reviewers.
- Revise and Resubmit / Major Revision (journals only)
 - The paper is not publishable in its current form, but could be published if the authors address the issues raised by the reviewers
 - Read carefully the wording. Do they encourage resubmission?
 - The resubmission will go through a new review cycle, most probably by the most critical reviewers and some fresh ones.

The decision letter

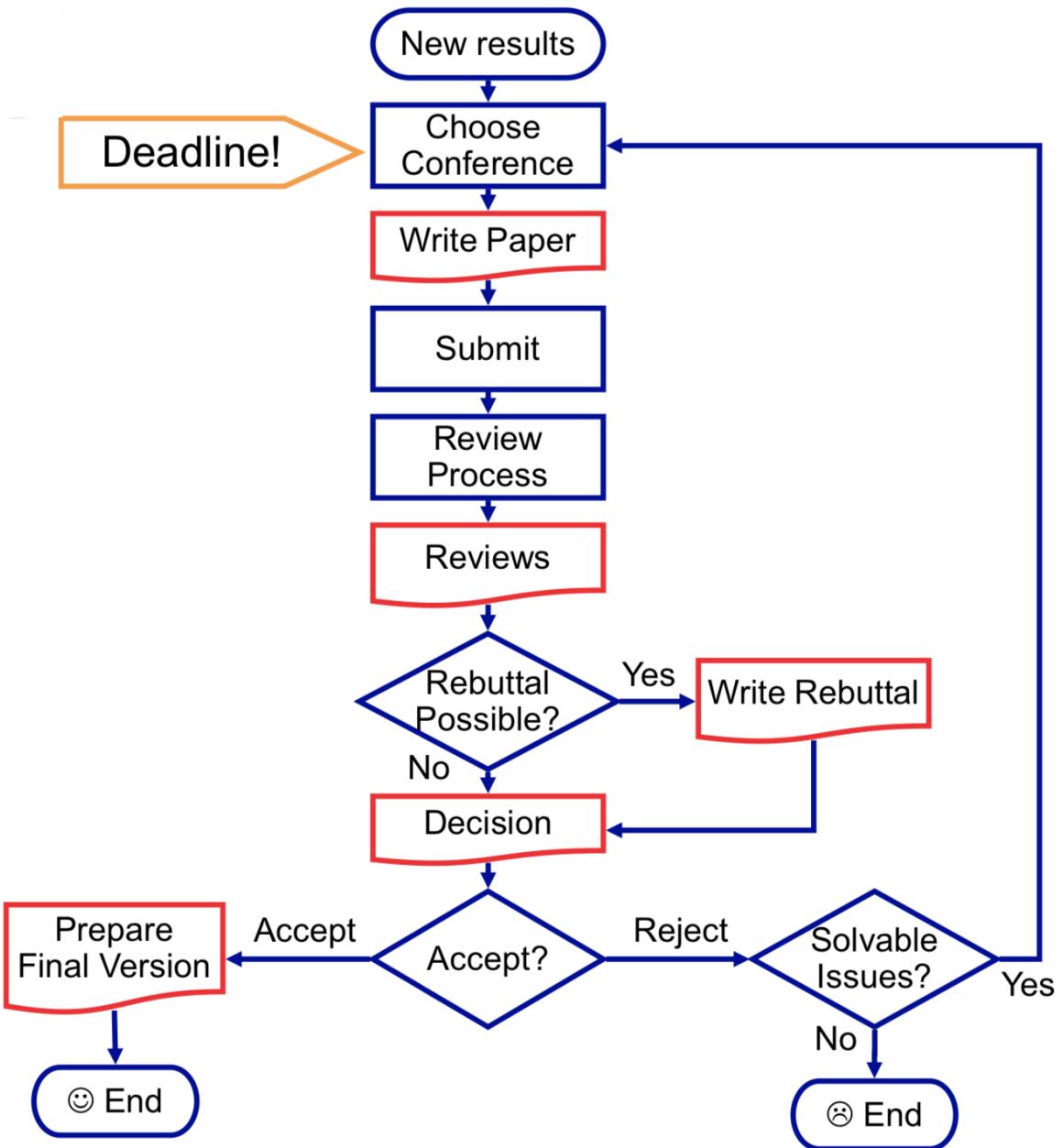
- Reject
 - Don't dismay
 - Consider revising the paper and submitting to another place
 - Be careful: It may go to some of the same reviewers!
 - Complain to the editor? Unlikely to succeed. Try it only if you have strong evidence to support your complain.
- Reject without Review / Editorial Reject
 - The paper is not appropriate or clearly bellow the standard for that journal or conference, and was not sent out for reviews.

Journal



CA: Conditionally Accept

Conference



What is a publishable paper?

- “A paper is publishable if it makes a *sufficient contribution*”
 - A contribution can be new and interesting research results
 - A new and insightful synthesis of existing results
 - A useful survey or tutorial on a field
 - A combination of those types.

What is a publishable paper?

- Small results which are surprising and might spark new research should be published;
- Papers which are mostly repetitions of other papers should not;
- papers which have good ideas badly expressed should not be published but the authors should be encouraged to rewrite them in a better, more comprehensible fashion

The reviewer's work

Before reviewing

- Does the article you are being asked to review match your expertise?
 - Fair review
 - Takes longer time to understand and revise
- Do you have time to review the paper?
 - Don't waste time: Fake and low quality journals
 - <https://beallslist.weebly.com>
- Are there any potential conflicts of interests?

The review: general overview

- Direct your critics at the paper, not at the authors
- A recommendation for or against publication in a specific publication or presentation at a specific forum. Sufficient discussion must be provided to justify the recommendation.
- Report: a list of reasons for the reject decision or necessary and recommended changes and revisions for a potential acceptance of a paper

The review

- The review should summarize the point of the paper in 1-5 sentences, both for the use of the editor/program chair, and to ensure that the referee actually understand the point of the paper

The review

- **Content Quality and Originality**
 - Is the article sufficiently novel and interesting to warrant publication?
 - Does it add to the canon of knowledge?
 - Does the article adhere to the conference/journal's standards?
 - Is the research question an important one?

The review

- **Organization and Clarity**
 - Title: Does it clearly describe the article?
 - Abstract: Does it reflect the content of the article?
 - Introduction/Related work:
 - Does it **summarize relevant research** to provide **context**, and explain what other authors' findings, if any, are being challenged or extended?
 - Does it describe what the author hopes to **achieve** accurately, and clearly **state the problem** being investigated?

The review

- **Organization and Clarity**
 - Method:
 - Does the author accurately explain how the **data was collected**?
 - Is the **design suitable** for answering the question posed?
 - Is there sufficient information present for you to **replicate** the research?
 - Does the article identify the **procedures** followed? Are these **ordered** in a meaningful way?
 - If the **methods are new**, are they explained in detail?
 - Was the **sampling** appropriate?
 - Have the **equipment and materials** been adequately described?
 - Does the article make it clear what type of **data was recorded**; has the author been precise in describing **measurements**?

The review

- **Organization and Clarity**
 - Results: This is where the author/s should explain in words what he/she discovered in the research. It should be clearly laid out and in a **logical sequence**. You will need to consider if the **appropriate analysis** has been conducted.
 - Are the statistics/mathematics correct?
 - Are the evidences correct?
 - Are the results convincing?

The review

- **Organization and Clarity**
 - Conclusion/Discussion:
 - Are the **claims** in this section supported by the results, do they seem **reasonable**?
 - Have the authors indicated **how the results relate to expectations** and to earlier research?
 - Does the conclusion explain how the research has **moved the body of scientific knowledge forward**?

The review

- **Organization and Clarity**
 - Tables, Figures, Images: Are they appropriate? Do they properly show the data? Are they easy to interpret and understand?
 - Typographical errors and necessary corrections in grammar, punctuation, and wording
 - **Scope** - Is the article in line with the aims and scope of the journal/conference/venue?

To which category does the paper belong?

- Major results; very significant (<1%)
- Good, solid, interesting work; a definite contribution (<10%)
- Minor, but positive, contribution to knowledge (10-30%)
- Elegant and technically correct but useless “flying pigs”
- Neither elegant nor useful, but not actually wrong
- Wrong and misleading
- So badly written that technical evaluation is impossible

The review - tips

- Don't start your review when you are not in a good mood
- Be responsible and do it in time
- Try to write in a simple and clear English*
- Be open to new ideas
 - Short with breakthrough ideas
- Complicated papers are not necessarily of good quality.

* Authors' mother tongue may not be English

The review - tips

- Remember, your style of writing is not standard
- Being tough sometimes is ok but not “Rude”
 - be tough (or even harsh) when you see plagiarism.
- Don’t build your impression for the paper based on the author/institute name
- Never ever look at the country of origin of the paper or institute.

The review - tips

- When you start reading the paper, do the review in two stages, first is the fast screening review (write down your notes), and second, detail review.
- Try to give useful advice even if you are going to reject the paper.
- Be specific and don't give general comments. Specify exactly the point of weakness and where in the paper?

The review - tips

- The length of the paper is significant
- Check the citation of the references and assure that references really support the sentence that cited for
- Check the references for fake journals and conferences
- Check the quality of the figures and graphs (zoom in)

The review - tips

- When you ask for a revision, you have to be specific about what you want exactly from the author.
- Reviewers should walk the uncertain line between being overly permissive ("publish everything") and overly restrictive ("nothing is good enough to publish")

The review - tips

- Ethical Issues:
 - Plagiarism
 - Fraud
 - Other ethical concerns: For medical research, has confidentiality been maintained? Has there been a violation of the accepted norms in the ethical treatment of animal or human subjects?

Submit a review

- Think twice when you filled the review form and about to choose your decision before submission.
- Almost in all revision, there is some section for the confidential comment for the editor. Here you can write your opinion on the paper frankly. Try to make it clear and don't confuse the editor.

Example Comments to Editor

- “I think that this paper hasn't enough quality to be published based on the paper format, their method and their experimentation, please check the comments to author.

The authors used some results from a previous paper called "xxx" without putting the reference where 3 of the 4 authors of his paper are the same.”

Example Comments to Editor

- “More a student project than a research paper, it tackles an interesting research domain but does not reach at all the quality requirements of this journal.”

How to reply to reviewers

- When resubmitting paper, journals require a letter with the response to the reviewers
- Goal: convince the reviewers and the Associate Editor that the paper has been improved to warrant publication
- Listen to the reviewers, they have given their time for free to help you improve your paper
- **The three golden rules:**
 1. Answer completely
 2. Answer politely
 3. Answer with evidence

1. Answer completely

- Copy and paste the comments from the Associate Editor and the reviewers, and insert your answer to each comment.
- Numbering the comments may help:

Associate Editor

Comment 1

Response

Reviewer 1

Comment 1

Response

- Address the issues **in the paper**, and describe your changes in the response letter.

2. Answer politely

- Be grateful for both praise and criticism
- If a reviewer misunderstands, it's **your fault**
 - [NO] The reviewer does not know the field
 - [NO] The reviewer did not understand, we meant X
 - [YES] We have modified section Y to make clearer X
 - [YES] To clarify the issue we have added this paragraph to section Y:
“<copy and paste the paragraph here>”
- For critical comments
 - [YES] We agree with the referee that ..., but ...
- For comments not that critical
 - [YES] We agree that this is an important area that requires further research

2. Answer politely

- How to say no
 - [YES] With all due respect to the reviewer, we believe that this point is not correct. <And then, **provide evidence**>
 - The reviewer's comment about the limited size of the experiment is unfair, the experiment that we show is the largest to date [1] [5] [8].
 - We respectfully disagree with the reviewer in the need to compare with [7]: their method does not work with a single camera and ours does.

3. Answer with evidence

- Editor's assumption: the reviewer is correct
- If you argue back with opinions instead of evidence, the paper is dead
- If you disagree with the reviewer
 - Explain why and provide a solid argument
 - Back it up with facts supported by references
- If the reviewer found your results not convincing
 - Provide more compelling experiments
 - Compare your results with previous techniques

The reply - tips

- Referees with conflicting viewpoints
- The referee is wrong
- The referee is just plain rude
- Reduce the paper by x% request

Rebuttal stage for conferences

- Usually you cannot provide a revised paper with your rebuttal
- If space is limited, answer only the most critical comments
- If the reviewer is wrong, provide evidence
- Explain how you will change the paper to address the issues
- If the changes are too important, the paper is dead

POLÉMICA Premio Nobel de Medicina 2013

'Nunca más publicaré en Nature o Science'

- Randy Schekman pide el boicot para las grandes revistas
- Considera que priman más el impacto que la calidad

EL MUNDO > Madrid

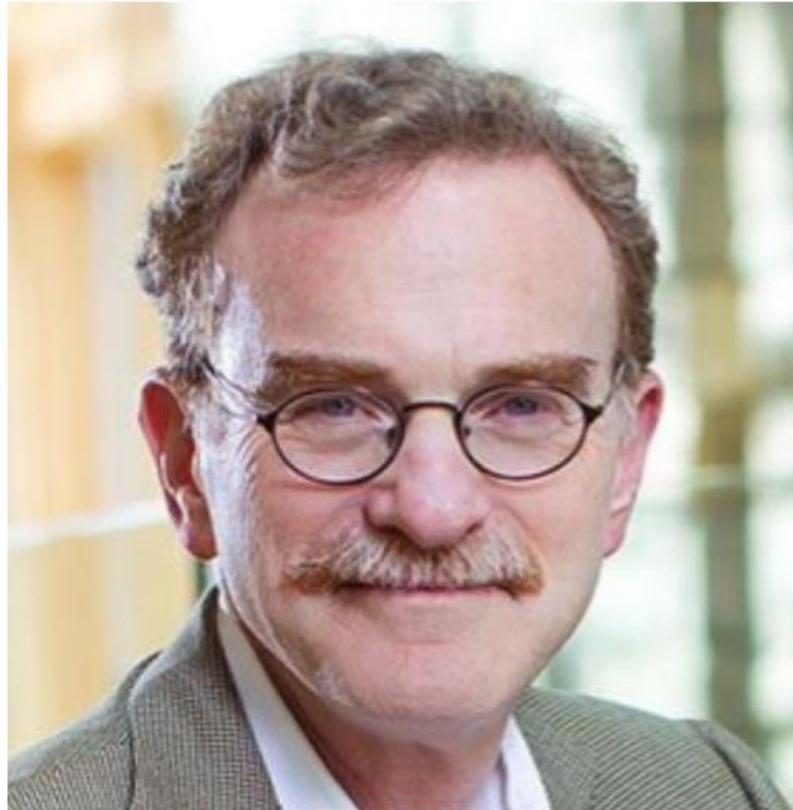
Actualizado: 10/12/2013 16:28 horas

13

"Son como diseñadores de moda o la cultura del **bonus de Wall Street**". La comparación puede parecer sorprendente refiriéndose a la élite de las revistas científicas, pero eso es lo que ha hecho el Nobel de Medicina 2013 Randy Schekman, que ha declarado el boicot a publicaciones como *Nature*, *Science* o *Cell* por el daño que a su juicio le están haciendo a la ciencia.

En un artículo publicado en el diario británico *The Guardian* coincidiendo con la ceremonia de entrega de los Nobel en Estocolmo, Schekman ha lanzado un duro alegato contra la política de publicación de estas revistas, las más prestigiosas de su campo, porque considera que **priman más el impacto que puedan tener los estudios que recogen que su propia calidad**.

Y cita, entre otros problemas, que muchos de los responsables de estas publicaciones no son científicos en activo, sino profesionales del mundo editorial, más preocupados por el eco que van a tener que por el contenido científico propiamente dicho.



Randy Schekman en una imagen difundida por la organización del Premio Nobel

a+ a- ☐ ☒

 Comunidad





Noticias Relacionadas

Un logro histórico

'No todos los fármacos homeopáticos tienen que demostrar eficacia'

Una nueva alternativa para la tuberculosis resistente

¿Qué es la medicina regenerativa?

References

- B.S. Ahmed. Tips and advice when you review a scientific paper. Elsevier (last accessed October 2019)
- Guidelines for Reviewers. Elsevier (last accessed October 2019)
- H.C. Williams. How to reply to referees' comments when submitting manuscripts for publication, J. American Academy of Dermatology, 51(1): 79-83, July 2004.
- J.D. Tardós. Publish or Perish. (Doctorado en Ingeniería de Sistemas e Informática, UZ, 2018)