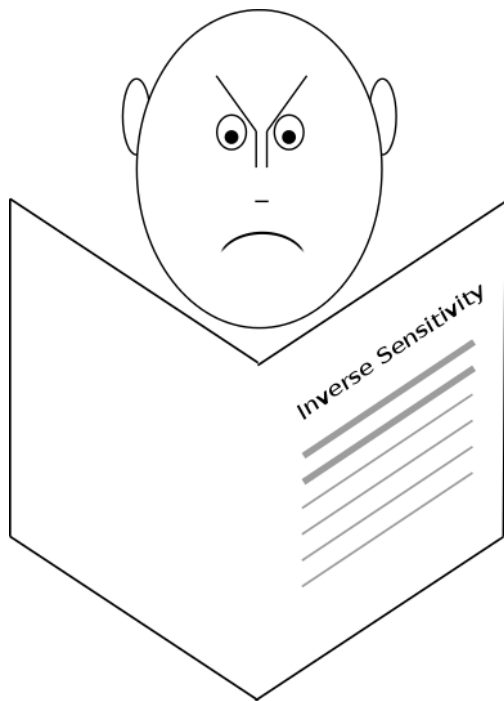


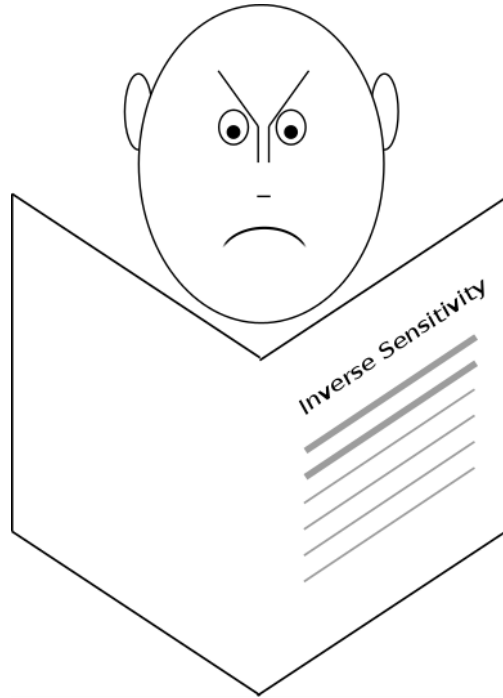
# **The PubPeer community and scientific quality**

Boris Barbour, PubPeer co-organiser

Around 1st year of  
PhD: not everything  
published is true

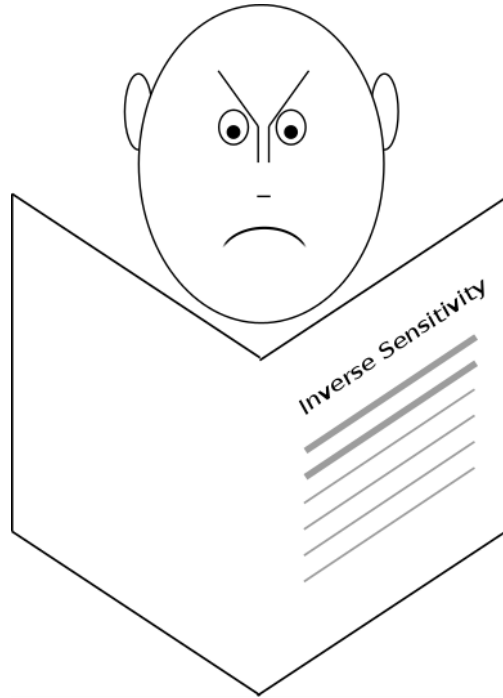


Around 1st year of  
PhD: not everything  
published is true



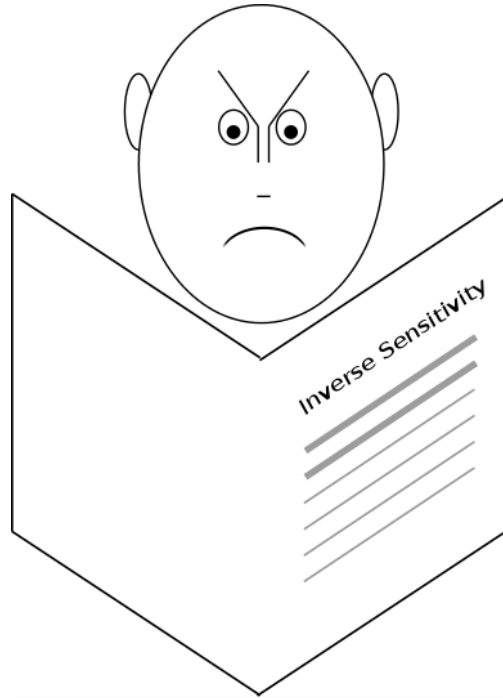
- Design, interpretation, analysis, statistics, error, misconduct...
- See John Ioannidis and Brian Nosek

Around 1st year of  
PhD: not everything  
published is true



- Design, interpretation, analysis, statistics, error, misconduct...
- See John Ioannidis and Brian Nosek
- Criticise in journal club
- Complain in pub
- Complain at conference

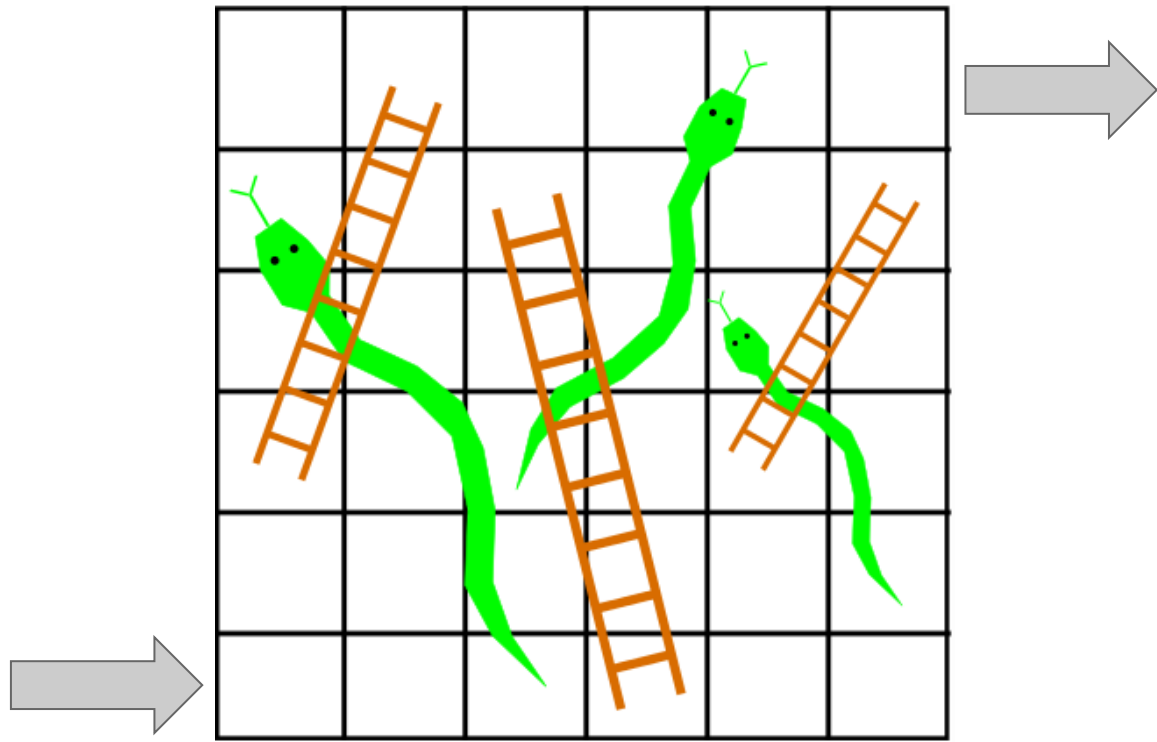
Around 1st year of  
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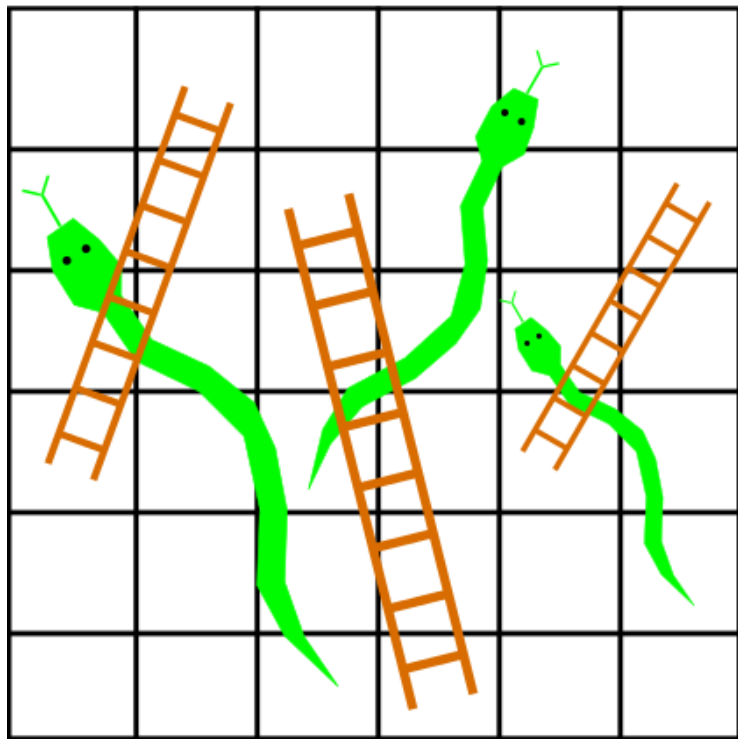


- Design, interpretation, analysis, statistics, error, misconduct...
- See John Ioannidis and Brian Nosek
- Criticise in journal club
- Complain in pub
- Complain at conference
- Inefficient
- Ephemeral

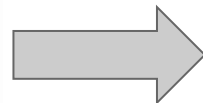
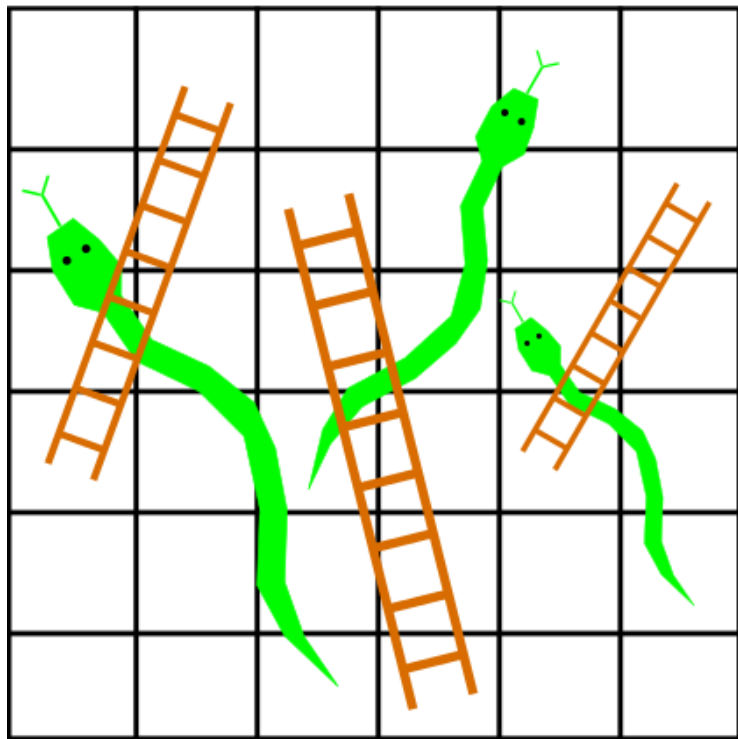
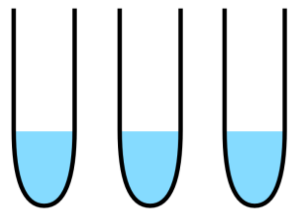
**“Science is self-correcting”**

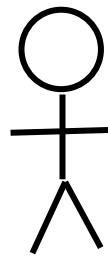
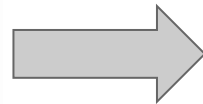
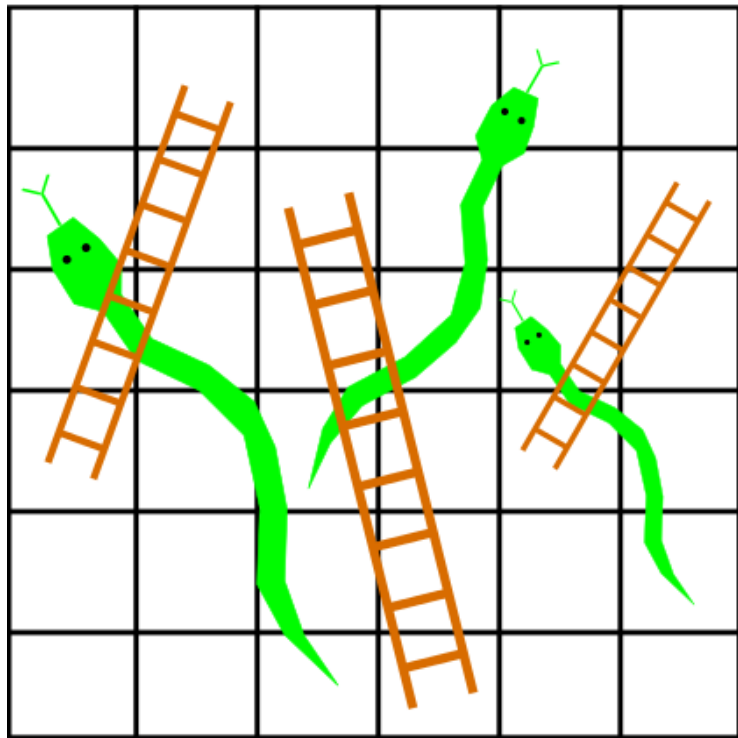
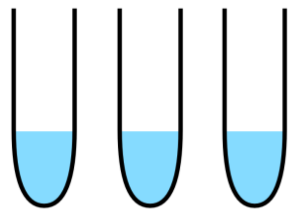
**But is today's self-correction optimal?**

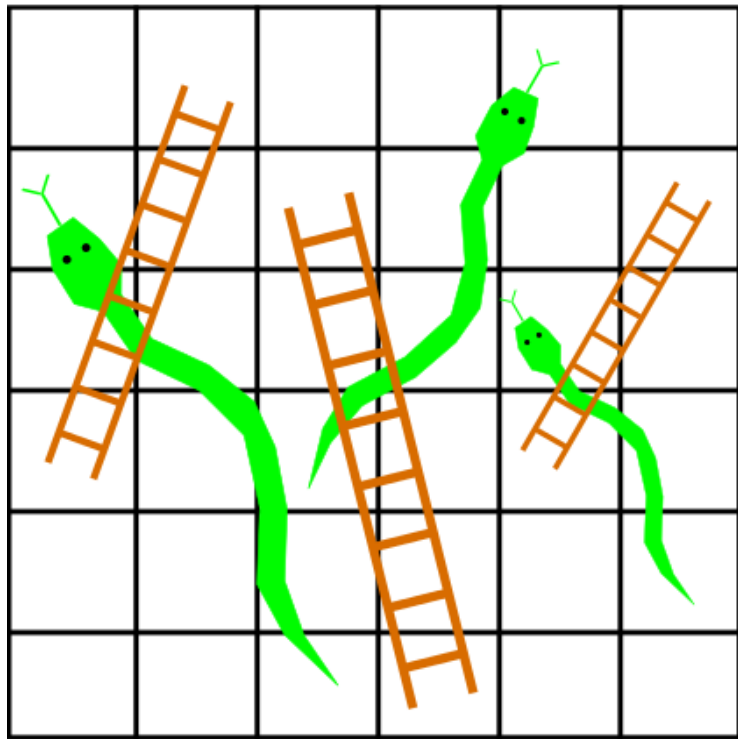
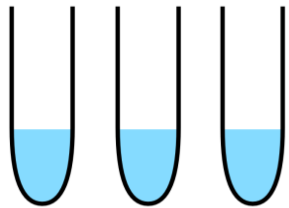






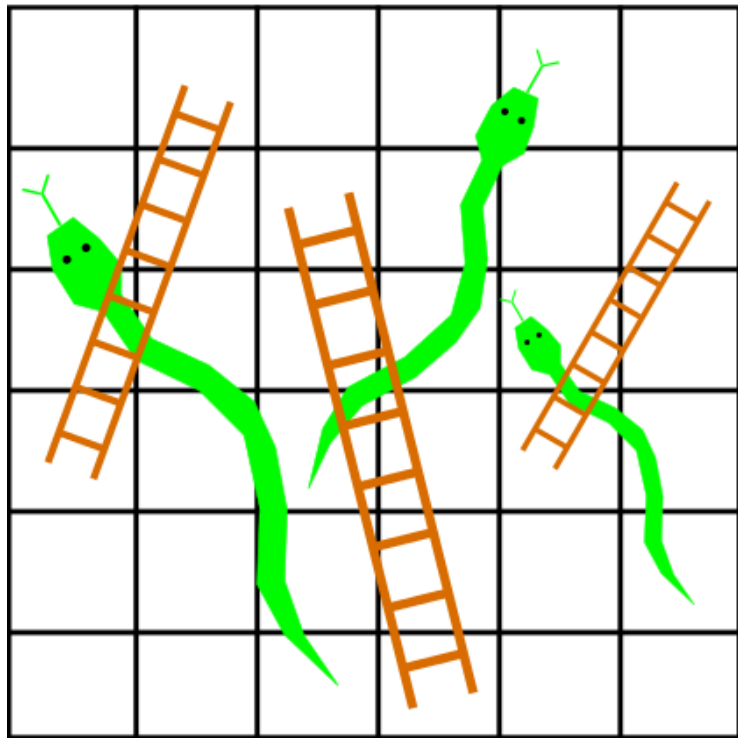
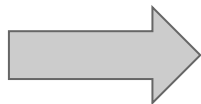
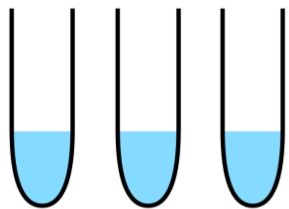






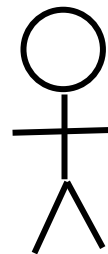
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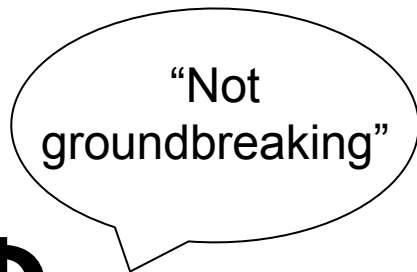
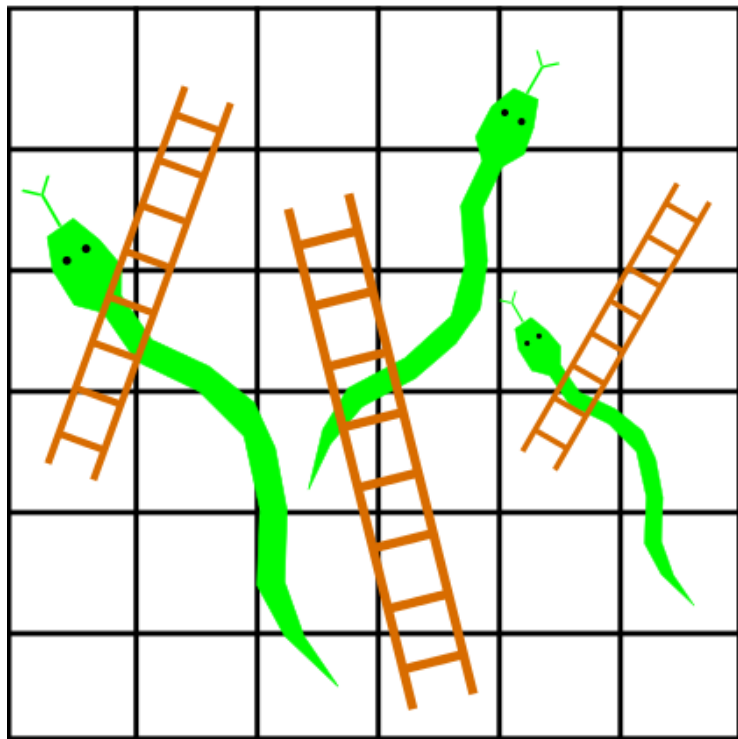




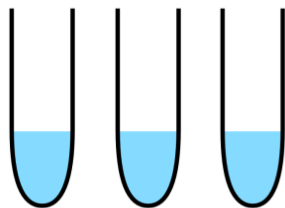
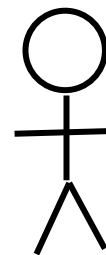
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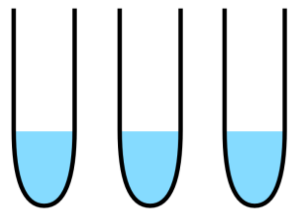
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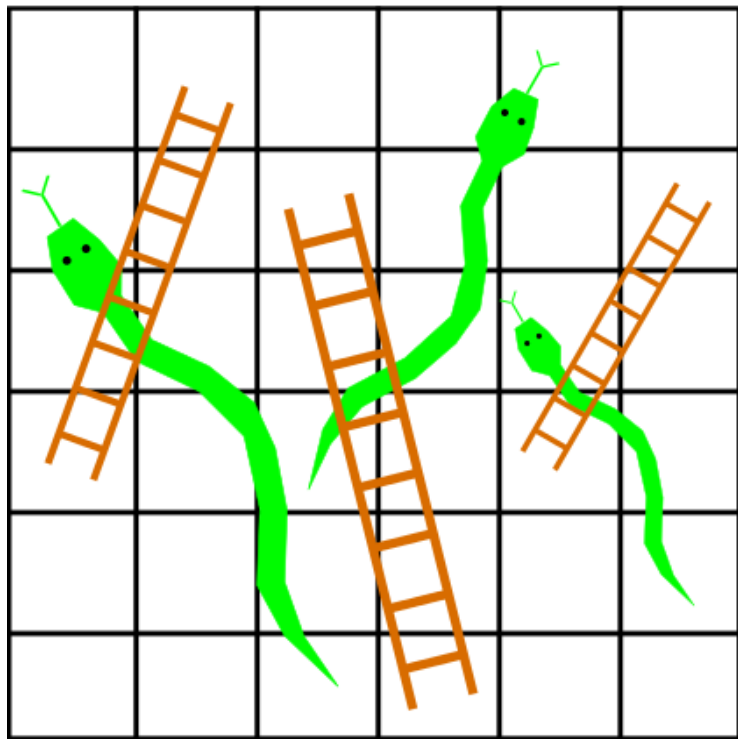


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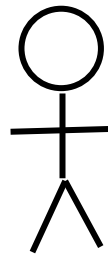


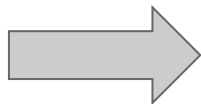
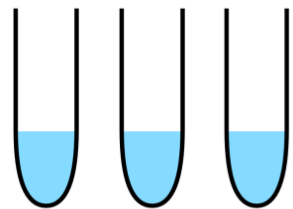
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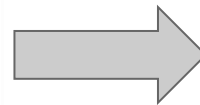
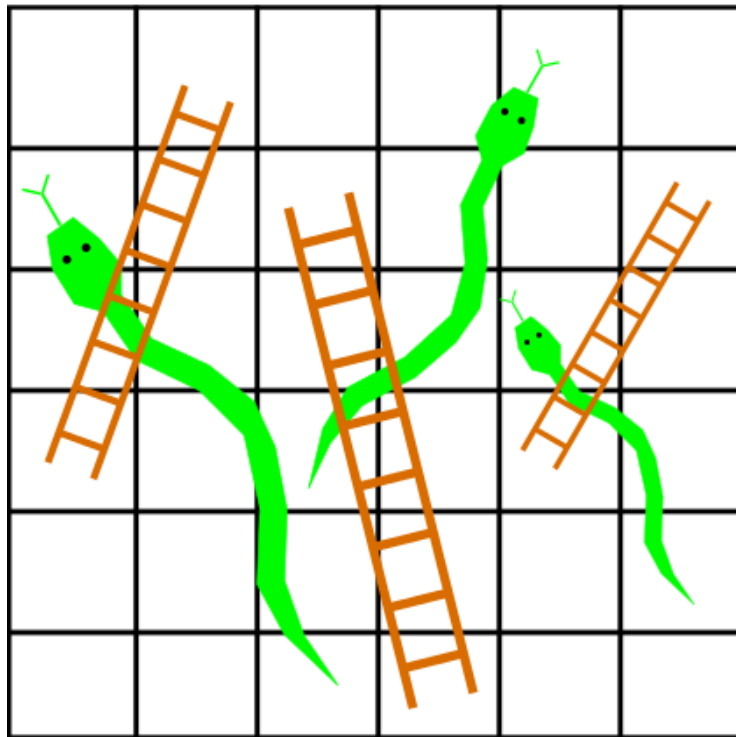
"Not  
groundbreaking"





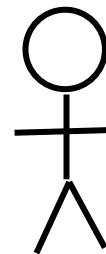
Grants  
Papers  
Promotion

Specialist journal



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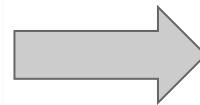
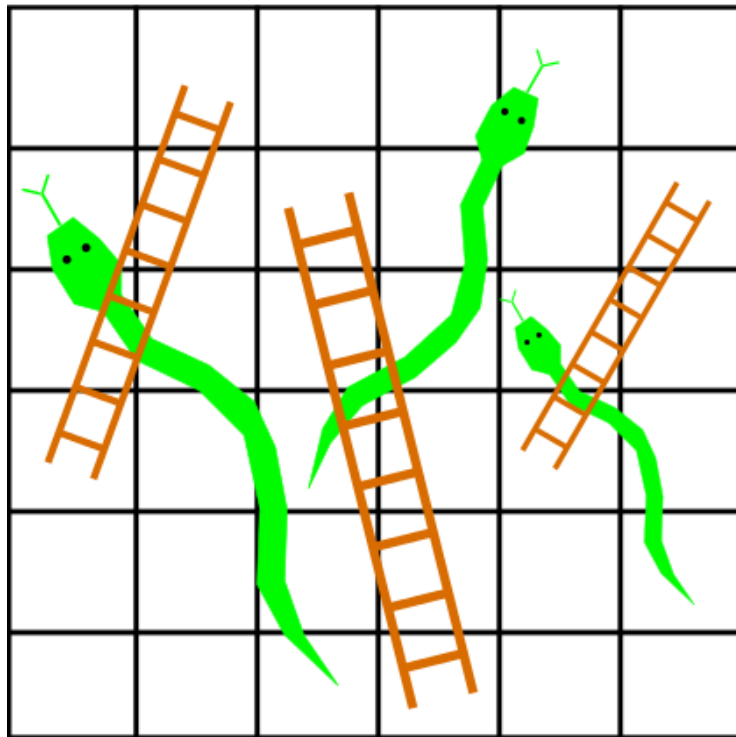
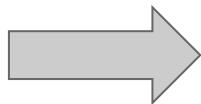
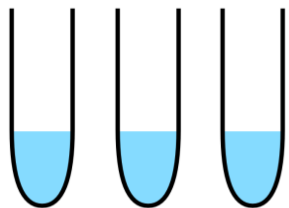
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Specialist journal

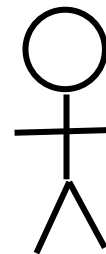
Original journal

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Papers  
Promotion

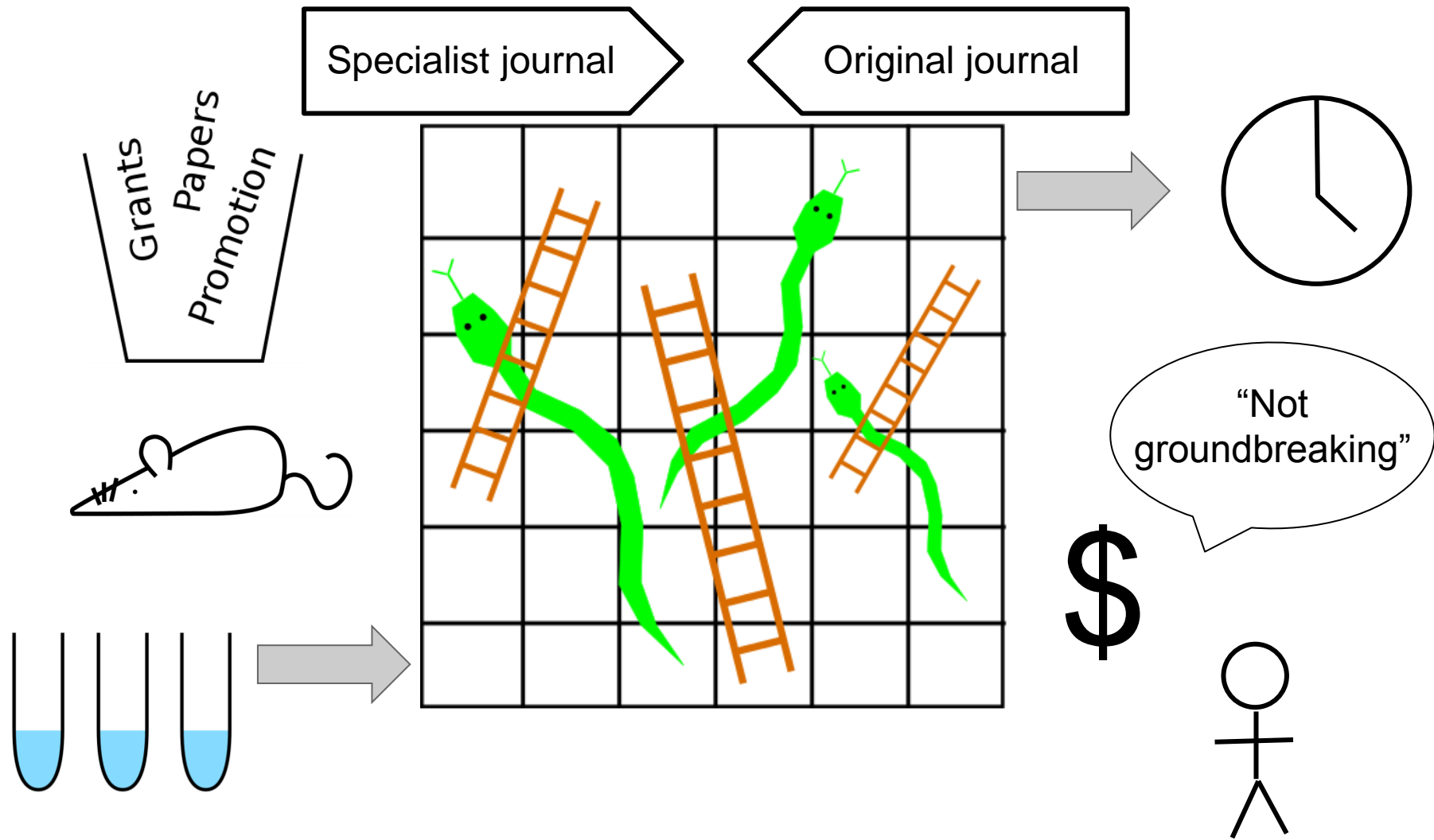


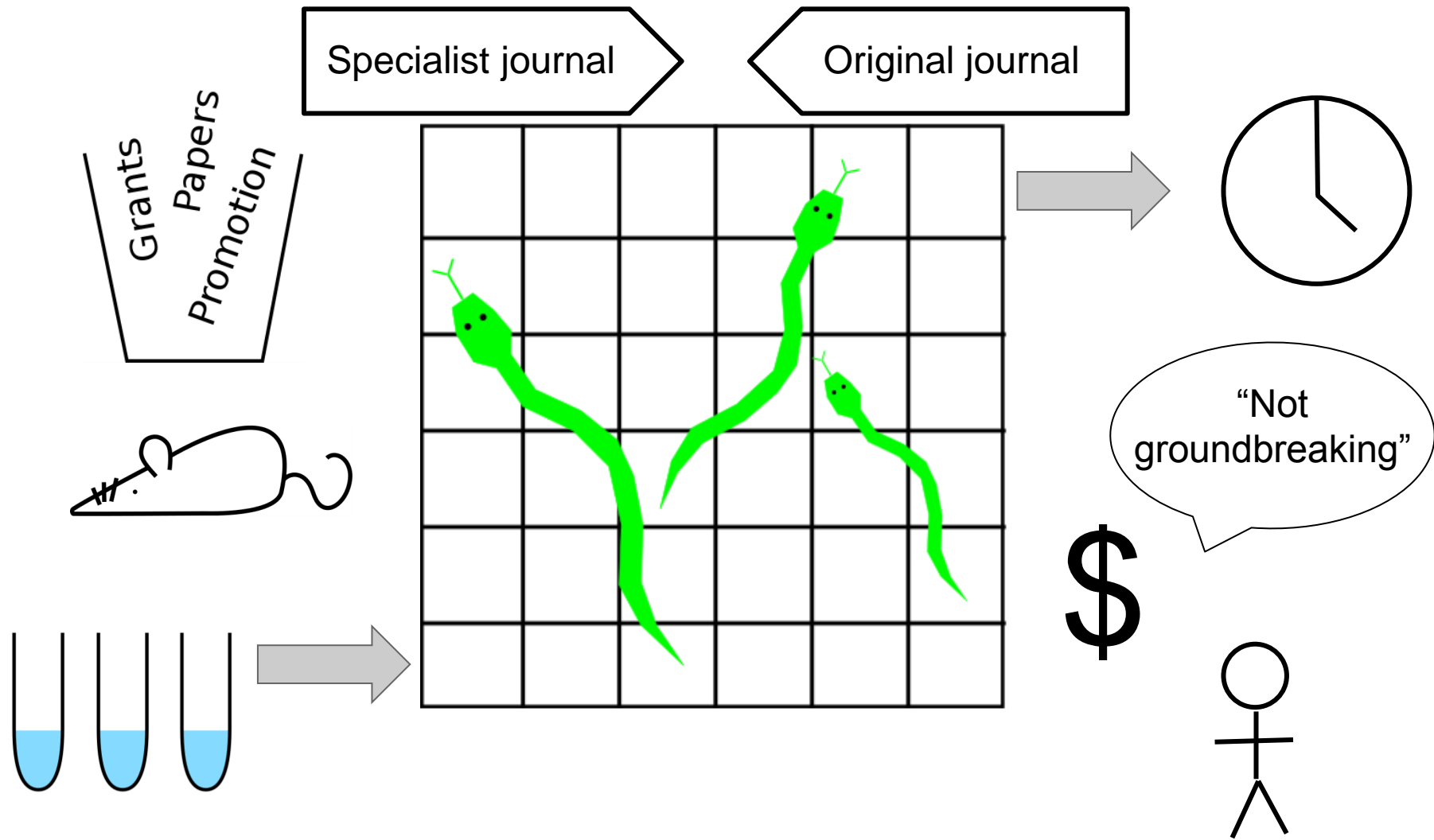
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"Not  
groundbreaking"









# Conflicts of interest block correction

Authors

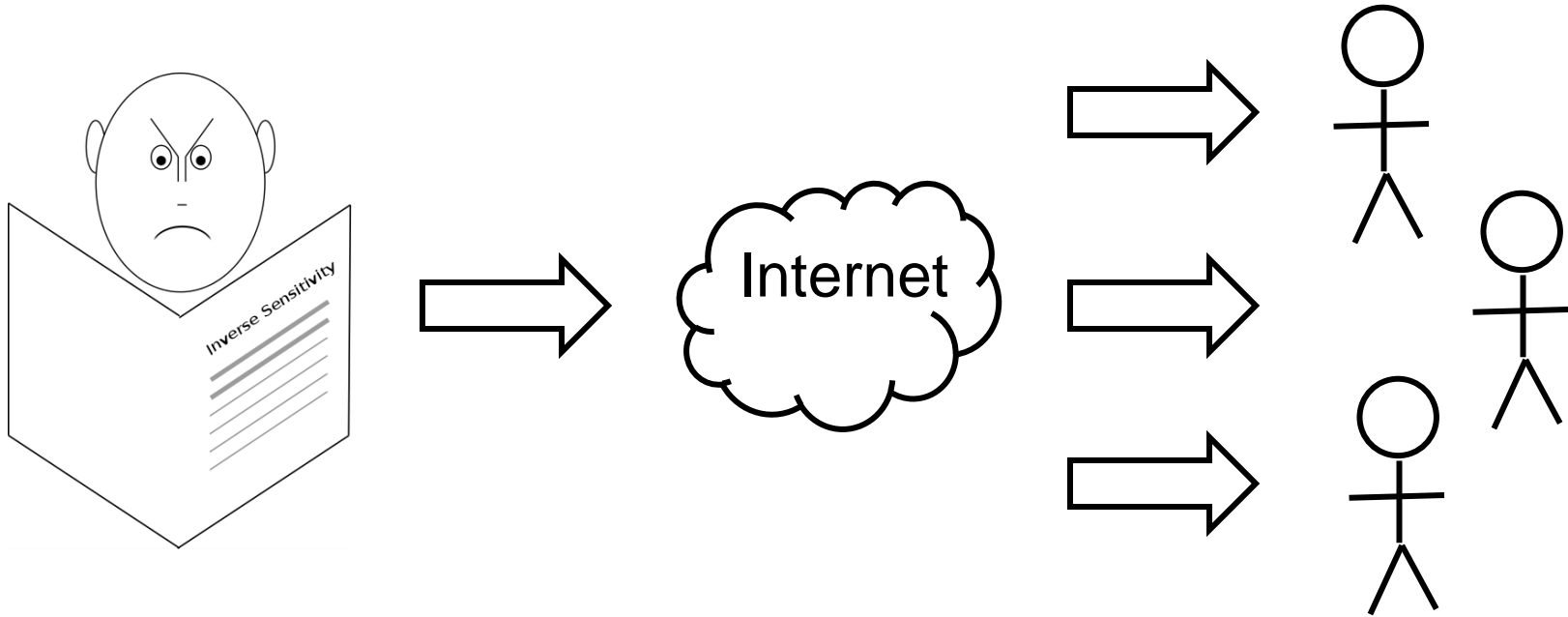
Journals

Institutions

"It is difficult to get a man to understand something, when his salary depends upon his not understanding it!"

- Upton Sinclair

# Bypass conflicts of interest



Researcher to researcher - no intermediaries

# PubPeer



Founders in 2012: Brandon Stell, George Smith, Richard Smith. Now nonprofit foundation.

# Immediate, centralised, available worldwide, permanent

PubPeer > Cell

## "CRISPR-Cas9 Knockin Mice for Genome Editing and Cancer Modeling"

Randall J Platt, Sidi Chen, Yang Zhou, Michael J Yim, Lukasz Swiech, Hannah R Kempton, James E Dahlman, Oren Parnas, Thomas M Eisenhaure, Marko Jovanovic, Daniel B Graham, Siddharth Jhunjhunwala, Matthias Heidenreich, Ramnik J Xavier, Robert Langer, Daniel G Anderson, Nir Hacohen, Aviv Regev, Guoping Feng, Phillip A Sharp, Feng Zhang, Cell, 159 (2014)

Comments (17):

1

**Unregistered Submission:** ( November 12th, 2014 4:26pm UTC )

Very nice paper. Congrats. Quick question: in Figure 3D, the CTR lane on the blot is, according to the legend, extracts derived from mice injected with AAV1/2-sgLacZ. If this vector is a non-specific sgRNA control (ie schematized in 3B but with sequence directed against lacZ rather than NeuN), should these mice not also be expressing Cre, and also Cas9 by virtue of the Cre activity?

Reply

Report

Permalink

1

**Unregistered Submission:** ( November 16th, 2014 8:42pm UTC ) **Author**

Thank you for your great question. The legend for this figure (Figure 3) reads: "(D) Representative immunoblot of brain tissue dissected from Cre-dependent Cas9 mice injected with either AAV1/2-sgNeuN or AAV1/2-sgLacZ or not injected, showing NeuN depletion only in NeuN-targeted mice. b-tubulin was used as a loading control." In the western shown "CTR" is the contralateral non-injected side and therefore we don't expect to see Cre or Cas9 staining. The other controls are not depicted in that particular western but go into the quantification in Figure 3G. In the case

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## External links

### Popular press ( 5 )

- CRISPR Knock-in Mouse Debuts

- Researchers engineer 'Cas9' animal models to study disease and inform drug discovery

- Team engineers 'Cas9' animal models to study disease and inform drug discovery

- Researchers engineer 'Cas9' animal models to study disease, inform drug discovery

- Researchers at Broad Institute and MIT engineer "Cas9" animal models to study disease and inform drug discovery

# Future research builds on past research

Unreliable research:

- wastes researchers' time (and damages their careers)

- wastes taxpayers' money (NIH budget \$30bn/yr)

- wastes private investments

- leads to unethical clinical trials

# Public policy also based on research

Environmental policy

- agriculture

- pollution

- climate change

- genetically-modified organisms

Other evidence-based policy

- economic

- social

- education



# Medical guidelines

Wakefield

- falsified vaccination-autism claims

- measles epidemics

Poldermans

- unreliable evidence for peri-operative beta-blockers

- Europe-wide guidelines

- many exposed to increased mortality risk

# Sharing information is important

Saves careers

Saves taxpayers' money

Saves lives

PubPeer priority is to alert readers and users of articles

Time-critical mission

(Incompatibility with most integrity procedures)

# PubPeer allows full anonymity

## "CRISPR-Cas9 Knockin Mice for Genome Editing and Cancer Modeling"

Randall J Platt, Sidi Chen, Yang Zhou, Michael J Yim, Lukasz Swiech, Hannah R Kempton, James E Dahlman, Oren Parnas, Thomas M Eisenhaure, Marko Jovanovic, Daniel B Graham, Siddharth Jhunjhunwala, Matthias Heidenreich, Ramnik J Xavier, Robert Langer, Daniel G Anderson, Nir Hacohen, Aviv Regev, Guoping Feng, Phillip A Sharp, Feng Zhang, Cell, 159 (2014)

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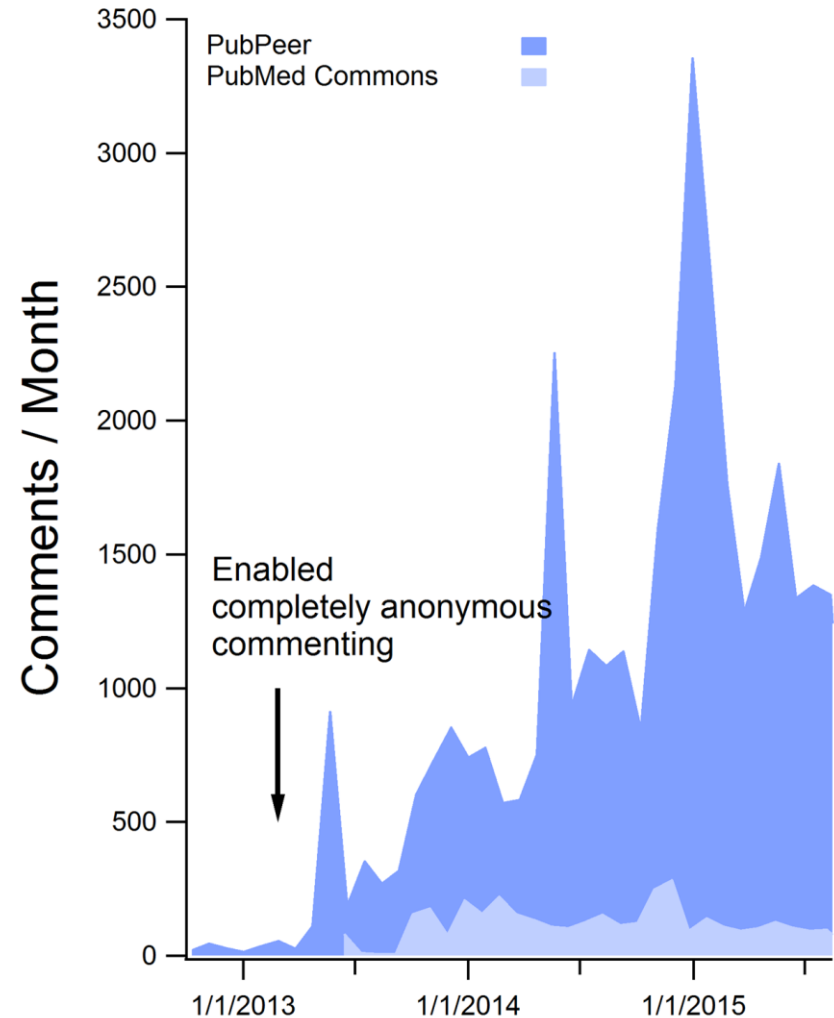
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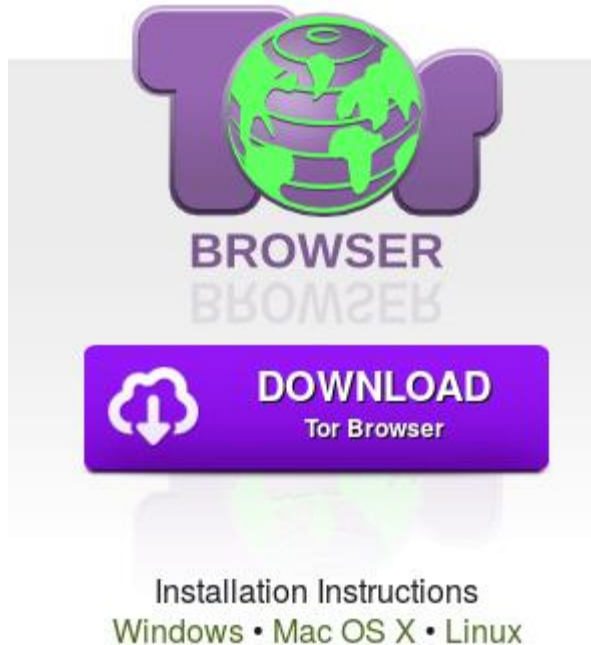
Full anonymity strongly  
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Over 70,000 user comments...  
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Registered and unregistered  
comments are of equivalent  
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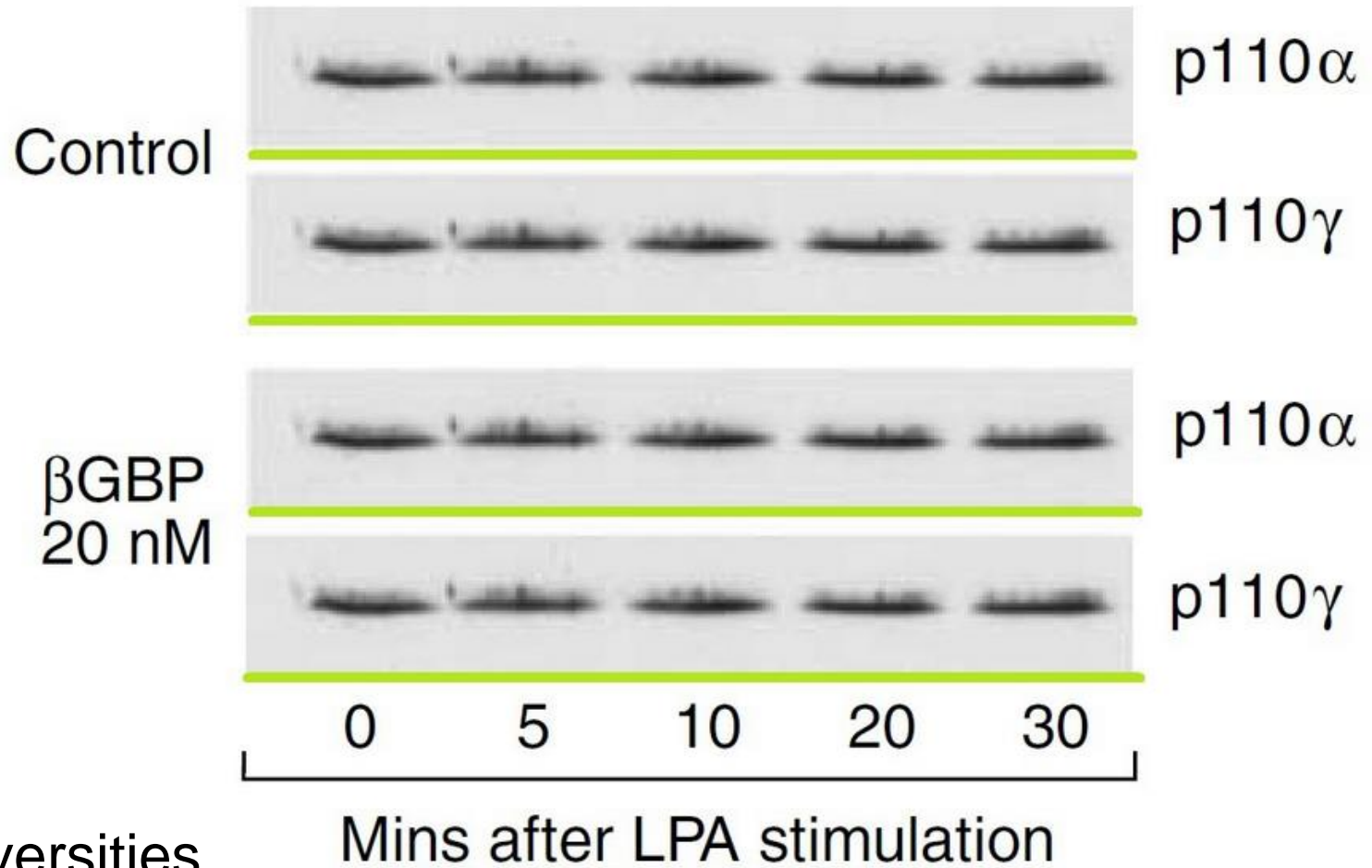
- Court case
- Site hack
- Screw-up

# Layered safeguards

1. Comments based on **PUBLICLY VERIFIABLE** information
2. Unregistered comments moderated (not scientific review)
3. Facilities for reporting abuse
4. Permanent right of reply (author alerts)
5. Show original data (full access coming!)
6. Community surveillance

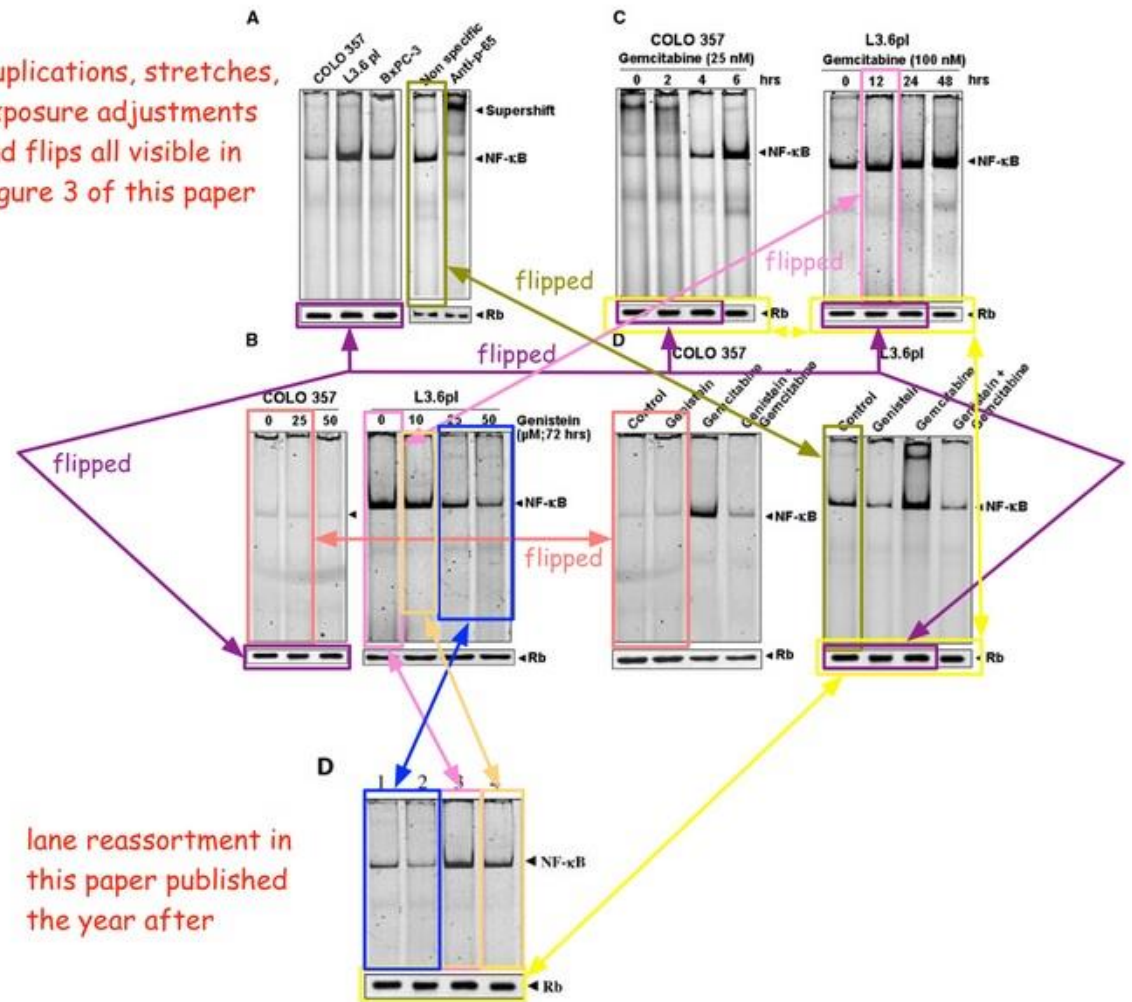


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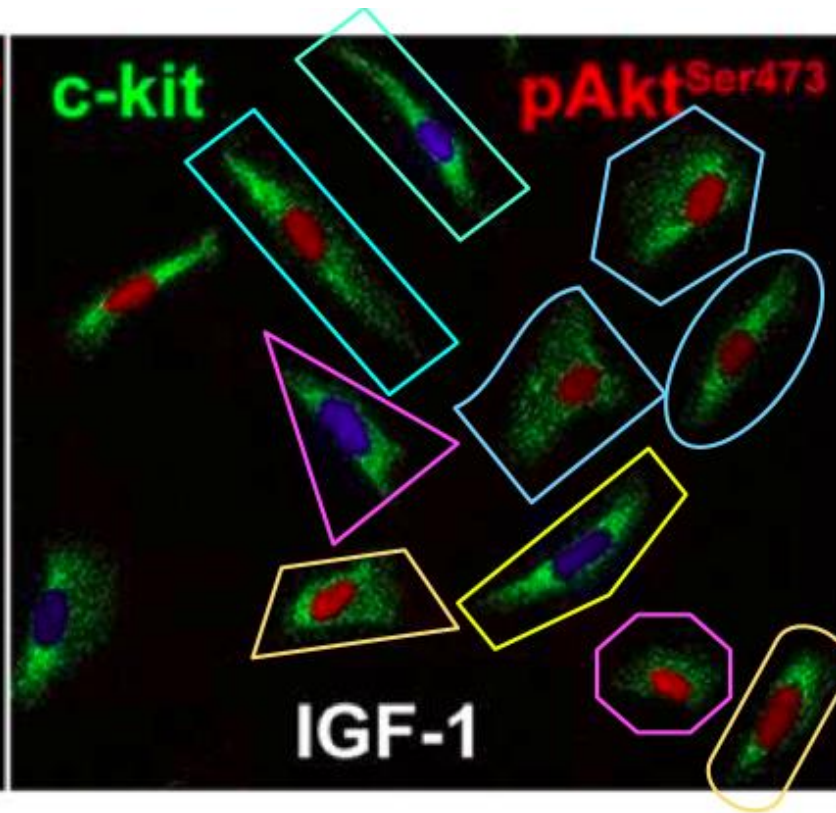
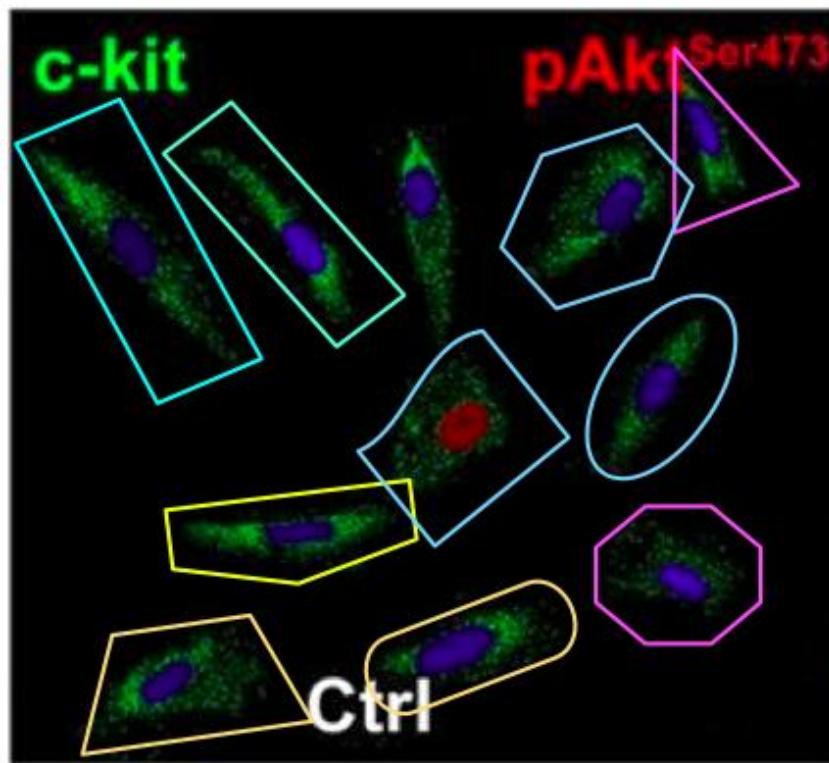




Duplications, stretches,  
exposure adjustments  
and flips all visible in  
Figure 3 of this paper



> 20M\$ in grants



Top US university



# PubPeer - present and future

- Potentially critical information about articles in ALL fields
  - Possibility of carefully considered expert opinion
  - Readers must evaluate comments for themselves
  - Highly specific comments
  - Browser plugins (next slide)
- Community evaluation, for researchers by researchers
  - Content-focused (and soon data-focused)
  - Independent of journal, metrics or reputation
  - Preprint-friendly
  - Encourage best practice

# Browser Add-ons

Put comments directly on  
journals

Cell



Volume 159, Issue 2, 9 October 2014, Pages 440–455

Resource

## CRISPR-Cas9 Knockin Mice for Genome Editing and Cancer Modeling

Randall J. Platt<sup>1, 2, 3, 4, 14</sup>, Sidi Chen<sup>5, 6, 14</sup>, Yang Zhou<sup>2, 3</sup>, Michael J. Yim<sup>1, 2, 3, 4</sup>, Lukasz Swiech<sup>1, 2, 3, 4</sup>, Hannah R. Kempton<sup>1, 2, 4</sup>, James E. Dahlman<sup>5, 7, 8</sup>, Oren Parnas<sup>1</sup>, Thomas M. Eisenhaure<sup>1, 11</sup>, Marko Jovanovic<sup>1</sup>, Daniel B. Graham<sup>1</sup>, Siddharth Jhunjhunwala<sup>5</sup>, Matthias Heidenreich<sup>1, 2, 3, 4</sup>, Ramnik J. Xavier<sup>1</sup>, Robert Langer<sup>5, 7, 8, 9</sup>, Daniel G. Anderson<sup>5, 7, 8, 9</sup>, Nir Hacohen<sup>1, 10, 11</sup>, Aviv Regev<sup>1, 6, 12</sup>, Guoping Feng<sup>1, 2, 3, 13</sup>, Phillip A. Sharp<sup>5, 6</sup>,  , Feng Zhang<sup>1, 2, 3, 4, 13</sup>,  

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doi:10.1016/j.cell.2014.09.014

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### Highlights

- Generation of mouse lines with Cre-dependent and constitutive Cas9 expression
- Viral/nonviral delivery of sgRNA to the brain, vasculature, immune cells, and lung

# Browser Add-ons

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Morales V, Naranjo L, Peralta M, Peralta AC, Venter SS, Zhang T, Zhou Q.  
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6. Platt RJ, Chen S, Zhou Y, Yim MJ, Swiech L, Kempton HR, Dahlman JE, Parnas O, Eisenhaure TM, Jovanovic M, Graham DB, Jhunjhunwala S, Heidenreich M, Xavier RJ, Langer R, Anderson DG, Hacohen N, Regev A, Feng G, Sharp PA, Zhang F.

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# Thank you

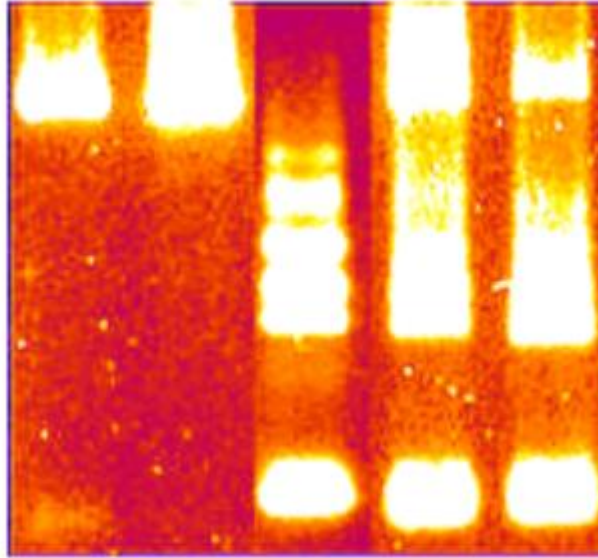
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- “Meet the experts”, today at 12:45 in room 1A-44

Further reading - PubPeer blog posts:

- *A crisis of trust* (conflicts of interest in publishing)
- *Vigilant scientists* (anonymity)
- *Nature editors - all hat and no cattle* (correction and replication)

# Undeclared gel splicing



Often innocent, but impossible for reader to know (false-colour image)



NATURE | ARTICLE



日本語要約

# Stimulus-triggered fate conversion of somatic cells into pluripotency

Haruko Obokata, Teruhiko Wakayama, Yoshiki Sasai, Koji Kojima, Martin P. Vacanti, Hitoshi Niwa, Masayuki Yamato & Charles A. Vacanti

# Where to stop?

