Benefits of publishing preprints

Marc Robinson-Rechavi @marc_rr
The moral case for Open Access
Winners of Open Access

- researchers
- text mining
- start-ups & SMEs
- medical doctors
- patients
- journalists
- teachers
- amateur scientists
- the public (GMOs, vaccines, climate...)
Losers of Open Access

- Commercial publishers (profits 25-35%)
- Medium rich labs if Gold OA
  - too rich to waive publication costs
  - too poor to pay for all papers
- Some scientific societies
  - share profits of publishers
What stops Open Access?
Obstacles

• Our habits
  • prestige, evaluations
  • trust in editors

• Intermediaries
  • journalists
  • science publishers
Preprints
Principle of preprints

• Manuscrits available as early as possible, before journal publication
• DOI, publication date
  • stable, citable
• Dedicated websites:
  • arxiv.org in physics, maths, CS...
    • since 1991!
  • biorxiv.org in biology
  • Mixed model preprint + OA journal: PeerJ, F1000
  • ChemrXiv, paleorXiv, AgriXiv...
Advantages of preprints

• You the researcher chose when to publish
• Free for authors and readers
Green Open Access

- Preprint then publication in toll-access journal
- But final version might differ from preprint
- But copyright to editor

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Not convinced?
Some practical points

- Updates possible with versioning
- Supplementary materials can be included
- At publication, link to journal version
Actually a bit worried?
But Scooping?

• Results public with official date stamp
• Yes ideas can be used without citation
  • Like for papers
  • It's not legally forbidden, it's poor practice.
• Risk exists during anonymous peer review
• You are in control
Other concerns

• Will journal reject because preprint?
  • Most accept
  • Others often change policy when demands

• Less quality?
  • Do you want to attach your name publicly to poor work?

• Makes coordinated submissions easiers
My use #1
Grants
Proposal SNSF 2016: preprints used in "Current state of research"


3. Roux et al. *Selective constraints on coding sequences of nervous system genes are a major determinant of duplicate gene retention in vertebrates.*

(all published since)

http://tinyurl.com/mrrxiv
My use #2

The oak, the blue bird and the preprint
New Results

**Low Rate of Somatic Mutations in a Long-Lived Oak Tree**

doi: https://doi.org/10.1101/149203
This article is a preprint and has not been peer-reviewed [what does this mean?].

**Abstract**

Because plants do not possess a proper germline, deleterious somatic mutations can be passed to gametes and a large number of cell divisions separating zygote from gamete formation in long-lived plants may lead to many mutations. We sequenced the genome of two terminal branches of a 234-year-old oak tree and found few fixed somatic single-nucleotide variants (SNVs), whose sequential appearance in the tree could be traced along nested sectors of younger branches. Our data suggest that stem cells of shoot meristems are robustly protected from accumulation of mutations in trees.
New Results

Low Rate of Somatic Mutations in a Long-Lived Oak Tree


Article usage: June 2017 to November 2017

doi: https://doi.org/10.1016/j.sbi.2017.05.004

This article is a

<table>
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<th>Abstract</th>
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<td>Total</td>
<td>7,340</td>
<td>2,164</td>
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Abstract

Because be passe gamete! genome somatic could be stem cell in trees.

Blog posts linking to this article:
The Node, 05 Jul 2017

Our latest monthly trawl for developmental biology (and other cool) preprints. See last year’s introductory post for background…

Tweets referencing this article:

Casey Bergman
@caseybergman
@mike_schatz @notSoJunkDNA @ewanbirney @embl @wolfganghuber @Eileen_Furlong
Indeed, something like this! https://t.co/1npb87cYnP
22 Sep 2017

Richard Cronn
@rcronn
RT @marc_rr: Fun cool science: a 234 year old oak tree has few somatic mutations, and those we find perfectly follow tree shape. https://t.co/1npb87cYnP
21 Aug 2017
New Results

Low Rate of Somatic Mutations in a Long-Lived Oak Tree


Article usage: June 2017 to November 2017

do: 10.1038/nature23608

This article is a preprint.

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22 Sep 2017

Richard Cronn
@rcronn
RT @marc_rr: Fun cool science: a 234 year old oak tree has few somatic mutations, giving weight to idea that plants protect their stem cells. https://t.co/j0554ilvzK
21 Aug 2017

Ancient oak's youthful genome surprises biologists

DNA of 234-year-old oak tree has few mutations, giving weight to idea that plants protect their stem cells.

Heidi Ledford
19 June 2017

(preprint 13 June)
New Results

Low Rate of Somatic Mutations in a Long-Lived Oak Tree


Article usage: June 2017 to November 2017
doi: https://doi.org/10.1038

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Richard Cronn
@rcronn1
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21 Aug 2017

Accepted in Nature Plant Sciences
My use #3
being wrong
Attacked on bioRxiv!

- Paper published with my student Dec 2016
- March 2017: preprint saying we are wrong
  - they have a point
  - they missed some stuff
- Started work to improve on their approach
- Invited to discuss at their department

Contradictory Results

**Pairwise comparisons across species are problematic when analyzing functional genomic data**

Casey W Dunn, Felipe Zapata, Catriona Munro, Stefan Siebert, Andreas Hejnol
doi: https://doi.org/10.1101/107177

Now published in PNAS doi: 10.1073/pnas.1707515115
If it's not communicated, it's not science

@marc_rr  http://tinyurl.com/mrrxiv