

## Jessica POLKA ASAPbio







OUVRIR LA SCIENCE !



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# New forms of publication

Why? How? How far?













These slides: tinyurl.com/osec-polka

# Science is not article-shaped.

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# Affordances of digital publishing

- Reduced cost
- Distributed ownership & curation
- Versioning
- Open feedback & dialog
- Integration with data & code
- Immediate dissemination



# Despite technological advances, journal publication is taking longer than ever



Accelerating scientific publication in biology, Ronald D. Vale Proceedings of the National Academy of Sciences Nov 2015, 112 (44) 13439-13446; DOI: 10.1073/pnas.1511912112 See also <u>Life Science's Average Publishable Unit (APU) Has Increased</u> <u>over the Past Two Decades</u> Cordero RJB et a 2016



# Untangling "publishing"



Motivates delaying sharing for the creation of a complete "story" that will enable a scientist to be competitive for jobs & funding

Ron Vale (2015) http://www.pnas.org/content/112/44/13439



### 1. Micropublications





#### 2. Preregistration & registered reports





### 3. Beyond the pdf





#### 4. Publish, then review



Stern BM, O'Shea EK (2019) A proposal for the future of scientific publishing in the life sciences. PLOS Biology 17(2): e3000116. <u>https://doi.org/10.1371/journal.pbio.3000116</u>

https://elifesciences.org/collections/d72819a9/executable-research-articles



#### Preprints enable rapid dissemination







#### Preprints in progress

**Iain Cheeseman** @iaincheeseman · Dec 14, 2020 ···· Welcome to our first preprint "in progress". We made an unexpected discovery we hope will be a valuable tool. Still work to do. But wanted to share this reagent ASAP, get your feedback, and share the fun story behind it.



A Golgi-localized peptide encoded by the CENP-R ... Understanding cell biological behaviors requires the ability to visualize different cellular structures and ...  $\mathscr{S}$  biorxiv.org

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https://twitter.com/iaincheeseman/status/1338449967963369474 https://www.biorxiv.org/content/10.1101/2020.12.13.422530v1.full

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A Golgi-localized peptide encoded by the CENP-R tran script provides a valuable tool for live cell imaging



#### Preprints in progress

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#### Iain Cheeseman @iaincheeseman · Apr 5

Welcome to our revised "Preprint in Progress". If you are just tuning in, we found a hidden peptide with beautiful Golgi localization. A valuable imaging tool, but a new area for us. @alexpnavar has now conducted new experiments based on your feedback.



Identification of a Golgi-localized peptide encoded... Understanding cell biological behaviors requires the ability to visualize different cellular structures and ... S biorxiv.org

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https://twitter.com/iaincheeseman/status/1379026335633399811 https://www.biorxiv.org/content/10.1101/2020.12.13.422530v2

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bioRxiv

the CENP-R transcript

Identification of a Golgi-localized peptide encoded by



#### Nearly 400,000 life sciences preprints + millions more in other disciplines & other repositories (eg HAL)



https://europepmc.org/preprints



#### **Disparities in preprinting**



bioRxiv only pre-pandemic





#### Preprints embraced early in the pandemic



Waltman, Ludo; Pinfield, Stephen; Rzayeva, Narmin; Oliveira Henriques, Susana; Fang, Zhichao; Brumberg, Johanna; et al. (2021): Scholarly communication in times of crisis: The response of the scholarly communication system to the COVID-19 pandemic. Research on Research Institute. Report. https://doi.org/10.6084/m9.figshare.17125394.v1



#### Concerns with preprints





#### A remedy for misinformation: public feedback



inserts being discontinuous on the primary amino acid sequence, 3D-modelling of the 2019-nCoV suggests that they converge to constitute the receptor binding site. The

"[T]he reaction from the scientific community to the bioRxiv paper was swift. In a nutshell, **commenters on bioRxiv and Twitter** said, the author's methods seemed rushed, and the findings were at most a coincidence. By Saturday morning, bioRxiv had placed a <u>special warning</u> on all papers about coronavirus. Later Saturday, the authors commented on their paper, saying they were withdrawing it. **And on Sunday, a <u>more formal</u>** <u>retraction</u> appeared."

https://www.statnews.com/2020/02/03/retraction-faultycoronavirus-paper-good-moment-for-science/

15640



Public feedback must be encouraged

# ~6%

#### bioRxiv preprints that have public comments on the server

Malički M, Costello J, Alperin JP, Maggio LA. Analysis of single comments left for bioRxiv preprints till September 2019. *Biochem Med (Zagreb)*. 2021;31(2):020201. doi:10.11613/BM.2021.020201



#### How to encourage reviewing?

Create communities
 Make it visible
 Recognize it



#### Peer review communities



>3,000 reviews from non-journal projects (and >5,000 from eLife) Source: <u>sciety.org</u>



### Visualizing preprint review





### Recognizing preprint review





### Recognizing preprint review





# Moving forward

- 1. Explicitly invite listing non-peer reviewed outputs on CVs as evidence of productivity
  - Momentum for preprints (see <u>asapbio.org/funder-policies</u>), but code, data, open notebooks also need recognition



- 2. Recognize peer review of preprints & other outputs
- 3. Support new models of feedback & curation
  - Move toward agreement on how & what to formally recognize



#### Thank you

These slides: tinyurl.com/osec-polka

**ASAPbio** Iratxe Puebla Victoria Yan THE LEONA M. AND HARRY B. HELMSLEY CHARITABLE TRUST





#### SIMONS FOUNDATION



Support provided by the Open Society Foundations