Newer practices that add transparency and increase trust

Positive steps: A research publisher’s perspective

Chris Graf
Director, Research Integrity, Wiley
Research integrity: nine ways to move from talk to walk

<table>
<thead>
<tr>
<th>Area</th>
<th>Topic</th>
<th>Action*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>Research environment</td>
<td>Ensure fair assessment procedures and prevent hypercompetition and excessive publication pressure.</td>
</tr>
<tr>
<td></td>
<td>Supervision and mentoring</td>
<td>Create clear guidelines for PhD supervision (such as on meeting frequency); set up skills training and mentoring.</td>
</tr>
<tr>
<td></td>
<td>Integrity training</td>
<td>Establish training and confidential counselling for all researchers.</td>
</tr>
<tr>
<td>Organization</td>
<td>Ethics structures</td>
<td>Establish review procedures that accommodate different types of research and disciplines.</td>
</tr>
<tr>
<td></td>
<td>Integrity breaches</td>
<td>Formalize procedures that protect both whistle-blowers and those accused of misconduct.</td>
</tr>
<tr>
<td></td>
<td>Data practices and management</td>
<td>Provide training, incentives and infrastructure to curate and share data according to FAIR principles.</td>
</tr>
<tr>
<td>Communication</td>
<td>Research collaboration</td>
<td>Establish sound rules for transparent working with industry and international partners.</td>
</tr>
<tr>
<td></td>
<td>Declaration of interests</td>
<td>State conflicts (financial and personal) in research, review and other professional activities.</td>
</tr>
<tr>
<td></td>
<td>Publication and communication</td>
<td>Respect guidelines for authorship and ensure openness and clarity in public engagement.</td>
</tr>
</tbody>
</table>


Niels Mejgaard, Lex M. Bouter, George Gaskell, Panagiotis Kavouras, Nick Allum, Anna-Kathrine Bendtsen, Costas A. Charitidis, Nik Claesen, Kris Dierickx, Anna Domaradzka, Andrea Reyes Elizondo, Nicole Foeger, Maura Hiney, Wolfgang Kaltenbrunner, Krishna Labib, Ana Marušić, Mads P. Sørensen, Tine Ravn, Rea Šćepanović, Joeri K. Tijdink & Giuseppe A. Vettri
Newer practices

#1 Preprints
#2 Registered Reports
#2 FAIR Data (or Open Data)
#3 Open Access

“Ensure openness and clarity in public engagement...”
A preprint is a manuscript posted by its author on a preprint server usually prior to publication and that has not undergone peer-review. Preprint servers include bioRxiv (CSHL), and Authorea (Wiley), and also Zenodo and Open Science Framework.
As a young researcher, I find these draft versions of potential journal articles invaluable.

Elijah Lowenstein is a PhD candidate in biology at the Max Delbrück Center for Molecular Medicine in Berlin where he works on sensory neuron diversity @Lowensteined

https://blogs.scientificamerican.com/observations/i-love-preprints/
Predominant Patterns of Splicing Evolution on Human, Chimpanzee, and Macaque Evolutionary Lineages

Jiye Xiong, Xi Jiang, Angeliki Ditsiou, Yang Gao, Jing Sun, Elijah D. Lowenstein, Shuyun Huang, Philipp Khaitovich
doi: https://doi.org/10.1101/204255
Now published in Human Molecular Genetics doi: 10.1093/hmg/ddy058

ABSTRACT

Although splicing is widespread and evolves rapidly among species, the mechanisms driving this evolution, as well as its functional implications, are not yet fully understood. We analyzed the evolution of splicing patterns based on transcriptome data from five tissues of humans, chimpanzees, rhesus macaques, and mice. In total, 1,526 exons and exon sets from 1,236 genes showed significant splicing differences among primates. More than 60% of these differences represent constitutive-to-alternative exon transitions while an additional 25% represent changes in exon inclusion frequency. These two dominant evolutionary patterns have contrasting conservation, regulation, and functional features. The sum of these features indicates that, despite their prevalence, constitutive-to-alternative exon transitions do not arise with the same degree of evolutionary importance as do alternative inclusion and exclusion transitions.
Growth rate for preprints indexed by Europe PMC

The trendlines are based on cumulative year-on-year totals

- Expon. (Cumulative preprints)
- Linear (Cumulative articles)

Preprints indexed (solid line)

Articles indexed (dotted line)

Data from EurPMC
What does Wiley think about preprints?

Preprints add speed, and openness

At Wiley we love preprints: Preprints complement journals and journal articles

Registered Reports

Peer review of a study design before data are collected – can get you an “in principal acceptance” before you start your study

Designed to improve reproducibility

Governed by the Center for Open Science (COS), and available from 100s of journals [https://cos.io/rr/](https://cos.io/rr/)

UK Reproducibility Network Registered Reports Primer: [https://osf.io/8v2n7/](https://osf.io/8v2n7/)
How do Registered Reports work?

- Researchers submit the study proposal to a journal before the study starts.
- Stage 1 peer review focuses on the importance of the research question and proposed methodology.
- If peer review is positive, the paper is accepted in principle.
- The Stage 1 Registered Report can be registered in a repository or published by the journal.
- On completion of the study, Stage 2 peer review ensures the study is consistent with the proposed research plan and that it draws appropriate conclusions.
- The Stage 2 Registered Report is published.

https://www.cell.com/trends/neurosciences/fulltext/S0166-2236(19)30124-9
https://cos.io/rr/
What do Registered Reports look like?

Cancer Reports

A phase III randomized controlled trial of radiation dose optimization in non-Hodgkin lymphoma-diffuse large B-cell lymphoma (DOBL study): Study protocol and design

Jayant S. Goda, Shirly C. Lewis, Siddartha Laskar, Sadhna Kannan, Nehal Khanna, Hasmukh Jain, Bhausahib Bagal, Sridhar Epari

First published: 14 February 2019 | https://doi.org/10.1002/cnr2.1161

Increasing propensity to mind-wander by transcranial direct current stimulation? A registered report

Nya Mehnwolo Boayue, Gábor Csifcsák, Per Aslaksen, Zsolt Turi, Andrea Antal, Josephine Groot, Guy E. Hawkins, Birte Forstmann, Alexander Opitz, Axel Thielisch, Matthias Mittner


Read the full text >


Feedback from 17 researchers

Authors were enthusiastic about Registered Reports:

- Format is easy to use
- Stage 1 process very helpful
- Increased reproducibility or transparency in support of the initiative
- All would recommend the Registered Report format to their peers

“The experience was nothing less than amazing! The reviewers were incredibly helpful and contributed pages of comments and suggestions.”

Matthias Mittner,
Associate Professor,
The Arctic University of Norway

- Preprint: https://osf.io/preprints/metaarxiv/ndvek
- Poster: https://zenodo.org/record/3516211#.Xe112vZ2tEx
FAIR Data

Shared data, FAIR data, Open Data

FAIR data are data which meet principles of findability, accessibility, interoperability, and reusability.

UK Reproducibility Network Data Sharing Primer https://osf.io/wp4zu/
Horizon Europe challenges funded researchers to deliver FAIR data

It requires open access to publications, to research data, and to research data management plans, starting 2021

Pretty soon all science will be data science

Jean-Claude Burgelman at the United Nations Open Science Conference, November 2019

https://research.un.org/c.php?g=961229&p=6989510
https://www.fosteropenscience.eu/resources
What’s the view from Wiley?

Journals will increasingly ask you for a “data availability statement”

AUTHORS’ CONTRIBUTIONS

LM conceived the idea and carried out analyses. LM and RV designed the methodology. LM and RV wrote the manuscript.

DATA AVAILABILITY STATEMENT

Open access

OA is a set of principles and a range of practices through which research outputs are distributed online, free of cost or other access barriers. Barriers to copying or reuse are also reduced or removed by applying an open license for copyright.

UK Reproducibility Network Open Access Primer https://osf.io/94rsp/
Papers freely available obtain 18% more citations...

... accounting for both age and discipline

From analysis of three samples of 100,000 journal articles

Heather Piwowar is a researcher in research data availability and reuse, and cofounder of Impactstory, @researchremix

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5815332/
What do publishers like Wiley think about open research?

Open access choices

Publishers like Wiley support open access choices

https://authorservices.wiley.com/open-research/open-access/index.html
How to comply with open access policies

Wiley makes it easy to ensure compliance with your funder and/or institution mandates.

Select your funder or institution below, then select your journal of choice to see if its policies comply with the policies of your funder or institution.

Author Compliance Tool

<table>
<thead>
<tr>
<th>Select your funder</th>
</tr>
</thead>
<tbody>
<tr>
<td>UKRI (United Kingdom Research and Innovation)</td>
</tr>
<tr>
<td>University of Sheffield</td>
</tr>
<tr>
<td>Select journal...</td>
</tr>
</tbody>
</table>

Select your institution

Select your journal
To close...

... newer practices put greater openness and clarity within easy reach

<table>
<thead>
<tr>
<th>Area</th>
<th>Topic</th>
<th>Action*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>Research environment</td>
<td>Ensure fair assessment procedures and prevent hypercompetition and excessive publication pressure.</td>
</tr>
<tr>
<td></td>
<td>Supervision and mentoring</td>
<td>Create clear guidelines for PhD supervision (such as on meeting frequency); set up skills training and mentoring.</td>
</tr>
<tr>
<td></td>
<td>Integrity training</td>
<td>Establish training and confidential counselling for all researchers.</td>
</tr>
<tr>
<td>Organization</td>
<td>Ethics structures</td>
<td>Establish review procedures that accommodate different types of research and disciplines.</td>
</tr>
<tr>
<td></td>
<td>Integrity breaches</td>
<td>Formalize procedures that protect both whistle-blowers and those accused of misconduct.</td>
</tr>
<tr>
<td></td>
<td>Data practices and management</td>
<td>Provide training, incentives and infrastructure to curate and share data according to FAIR principles.</td>
</tr>
<tr>
<td>Communication</td>
<td>Research collaboration</td>
<td>Establish sound rules for transparent working with industry and international partners.</td>
</tr>
<tr>
<td></td>
<td>Declaration of interests</td>
<td>State conflicts (financial and personal) in research, review and other professional activities.</td>
</tr>
<tr>
<td></td>
<td>Publication and communication</td>
<td>Respect guidelines for authorship and ensure openness and clarity in public engagement.</td>
</tr>
</tbody>
</table>


Niels Meijgaard, Lex M. Bouter, George Gaskell, Panagiota Kavouras, Nick Allum, Anna-Kathrine Bendtsen, Costas A. Charitidis, Nik Claesen, Kris Dierickx, Anna Domaradzka, Andrea Reyes Elizondo, Nicole Foeger, Maura Hiney, Wolfgang Kaltenbrunner, Krishna Labib, Ana Marušić, Mads P. Sørensen, Tine Ravn, Rea Ščpanović, Joeri K. Tijdink & Giuseppe A. Veltri