Open Research Europe

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European Commission

Powered by F1000Research

The Vision

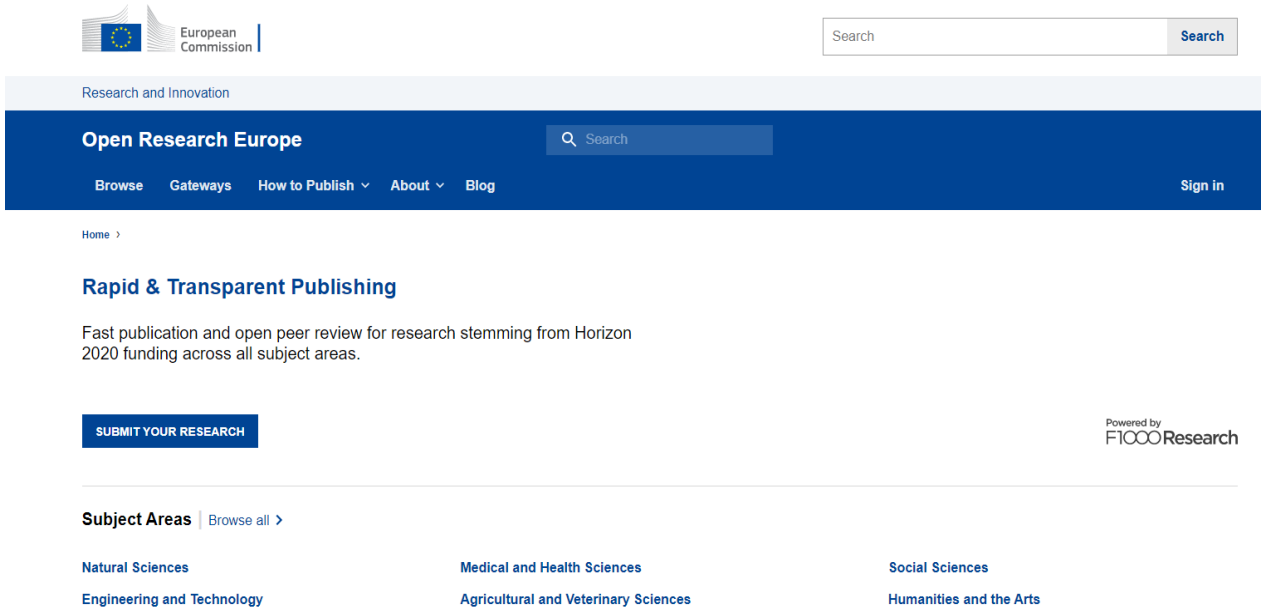
Why | Who | What

Open Research Europe (ORE)

Public Procurement – 5.8 Million EUR contract signed in March 2020 with F1000 Research

GYA, LIBER and **Eurodoc** as collaborators/subcontractors for communication and sustainability

OpenAIRE are a partner to help with syndication and communication of ORE



https://open-research-europe.ec.europa.eu/

Why a publishing platform?

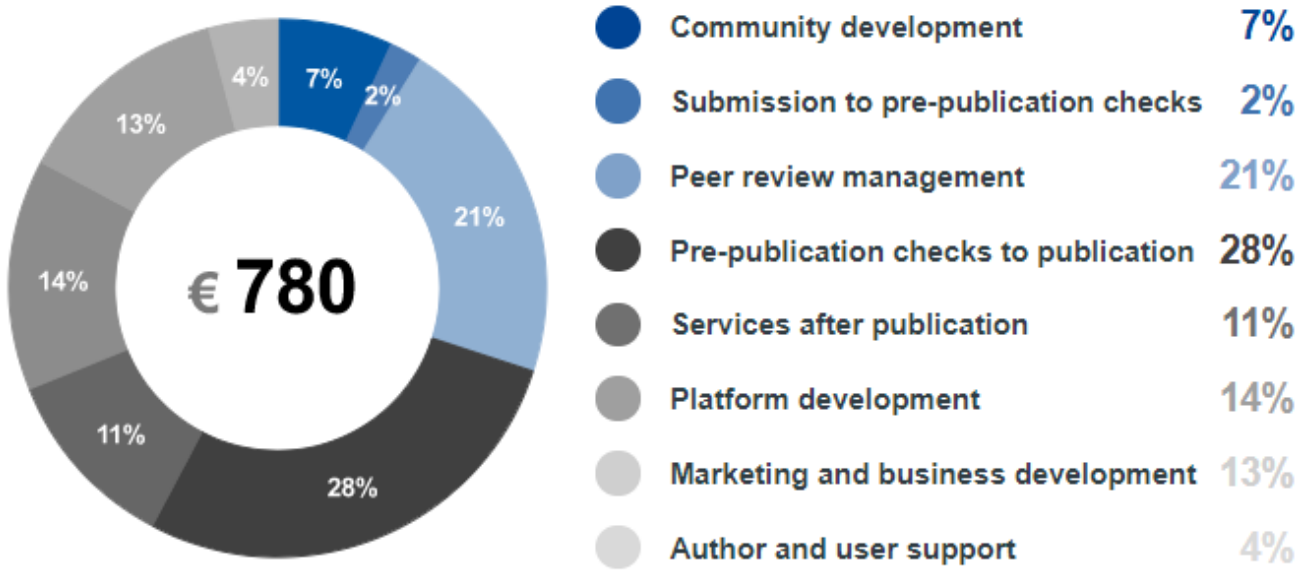
- ✓ **High-quality, reliable and efficient** publishing venue for Horizon research
- ✓ **High scientific standards**, and swift and transparent processes
- ✓ Expert Scientific Advisory Board
- ✓ No cost to **authors/beneficiaries** i.e. non-APC platform
- ✓ **Optional**, venue where grantees can **publish post-grant** the results of their work, while respecting their **open access** obligations

The European Commission's ambitions

- ✓ **To lead by example** in operationalising open science principles e.g. open peer review, open data, early sharing of research, article level metrics and indicators.
- ✓ Doing this while contributing to **transparency and cost-effectiveness** – APCs paid for by the Commission are set in procurement (780 euros).
- ✓ Exploring **sustainable** open access publishing **business models** – cost effective publishing, potential to broaden the platform to other European funders and be interoperable with existing infrastructure.

Price Transparency

Transparent about the costs and importantly the breakdown for the price that the Commission pays per article.



https://open-research-europe.ec.europa.eu/for-authors/article-processing-charges

The platform as a publishing service

✓ **Original peer-reviewed articles first posted as preprints**

Stemming from Horizon 2020-funded research (and later, Horizon Europe)

✓ **Immediate open access**

With content licensed for re-use

✓ **Open peer review**

Open reviewer identities, published reviews, post-publication comments

✓ **Connected to the scholarly ecosystem**

PIDs, connection to repositories, open data and software, interoperable technologies, preservation of content, TDM, etc.

The platform as a publishing service

✓ **New generation metrics**

Each article will have a dedicated metrics page

✓ **Explicit, accessible and transparent on business processes and publication policies**

All published on the site for everyone to see

✓ **Aligned with the EC policy and principles**

Takes burden from researchers as it is fully compliant

✓ **Following example of other funders**

Such as the Wellcome Trust (Wellcome Open Research) and others

Supporting research across all disciplines

Editorial guidelines and policies specifically for:

- Science, Technology & Medicine (STM)
- Social Sciences
- Humanities

Data guidelines and policies in line with EC policies

We will be supporting many different **article types** to support disciplinary areas

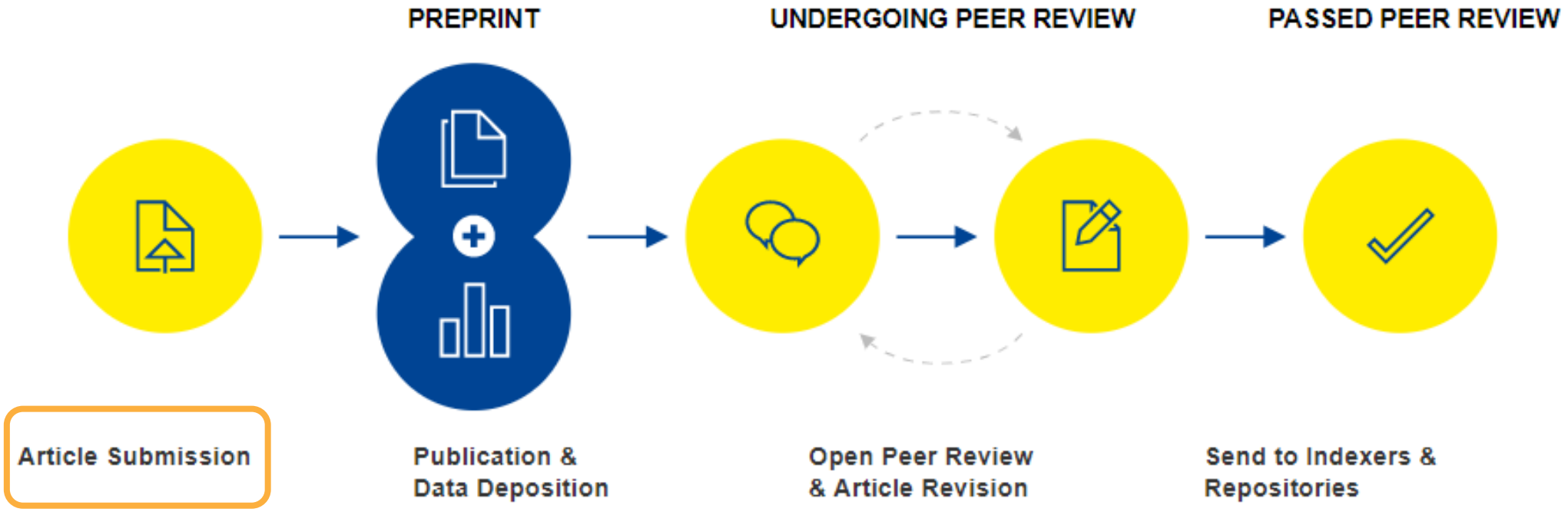
Content will be searchable by subject areas and by H2020 programme areas.

STM	SS	Humanities
Research Article	Research Article	Research Article
Brief Reports	Essay	Essay
Data Notes	Review	Review
Method Articles	Case Studies	
Software Tool Articles	Brief Reports	
Study Protocols	Data Notes	
Registered Reports	Method Articles	
Reviews	Software Tool Articles	
Systematic Reviews	Study Protocols	
Clinical Practice Articles	Registered Reports	
Case Reports	Systematic Reviews	
Case Studies		

ORE: How it works

The publishing model

Open Research Publishing Model



Prepublication checks

Upon Submission

- Assess author eligibility
- Check article scope
- Check for plagiarism

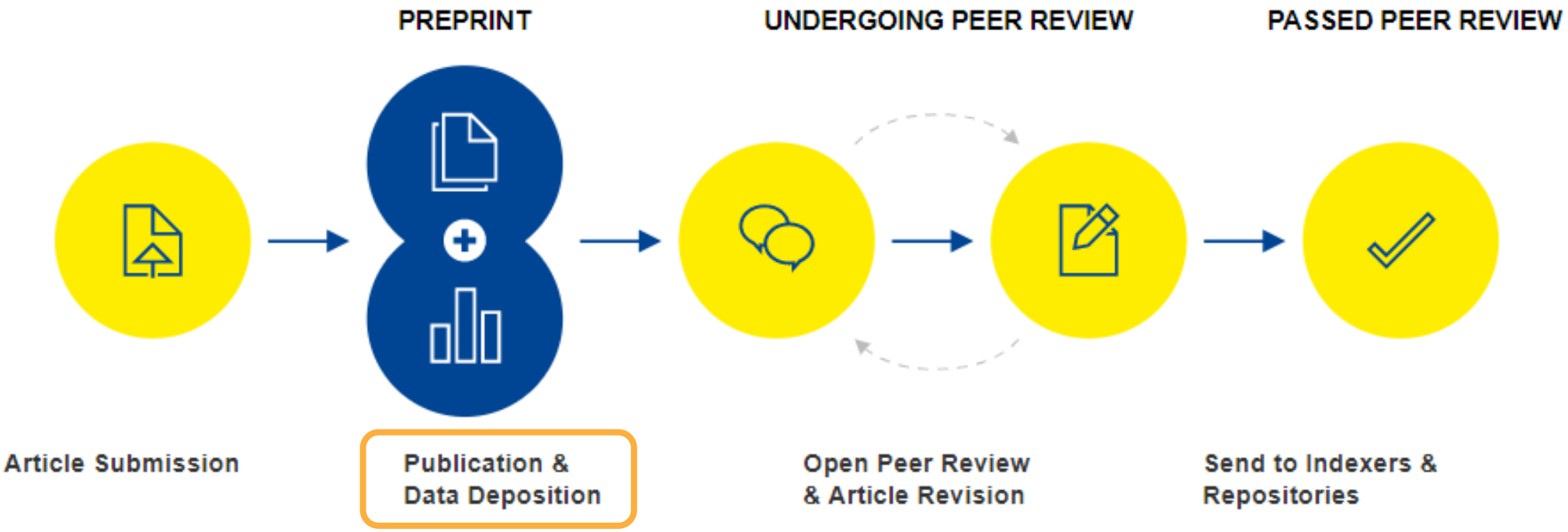
Pre-publication Checks

- Comprehensive checks on reporting, editorial & ethical guidelines
- Check for data availability
- Support authors in making data and software FAIR

Production

- Converted to text and data-mining formats (PDF, HTML, XML)
- Proofs and editing if necessary
- Quality checks on citations, references, image resolutions & multimedia
- Ensure persistent identifiers are assigned and resolve correctly

Open Research Publishing Model



Data and Software Availability

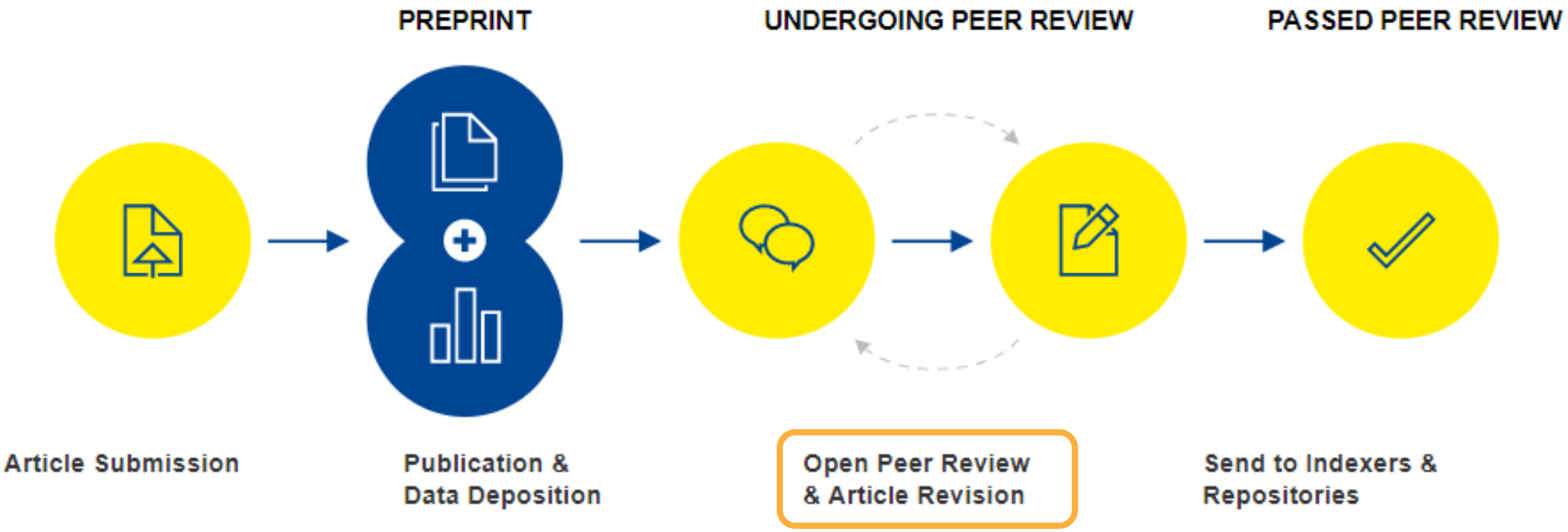
Open Research Europe requires that, where possible, the source data underlying the results are made available at publication.

However, the sharing of research data **must**:

- Protect the confidentiality, security and privacy of individuals
- Respect the terms of consent by individuals who are involved in research
- Be consistent with Horizon 2020 legal, ethical and regulatory frameworks
- Guard against unreasonable costs

https://open-research-europe.ec.europa.eu/for-authors/data-guidelines

Open Research Publishing Model



Open Peer Review

Open Identities

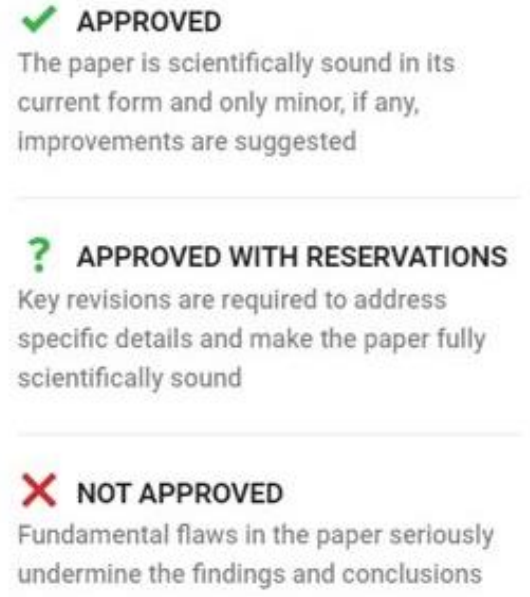
- Reviewers must provide name and affiliation
- Must identify conflicting interests

Open Reports

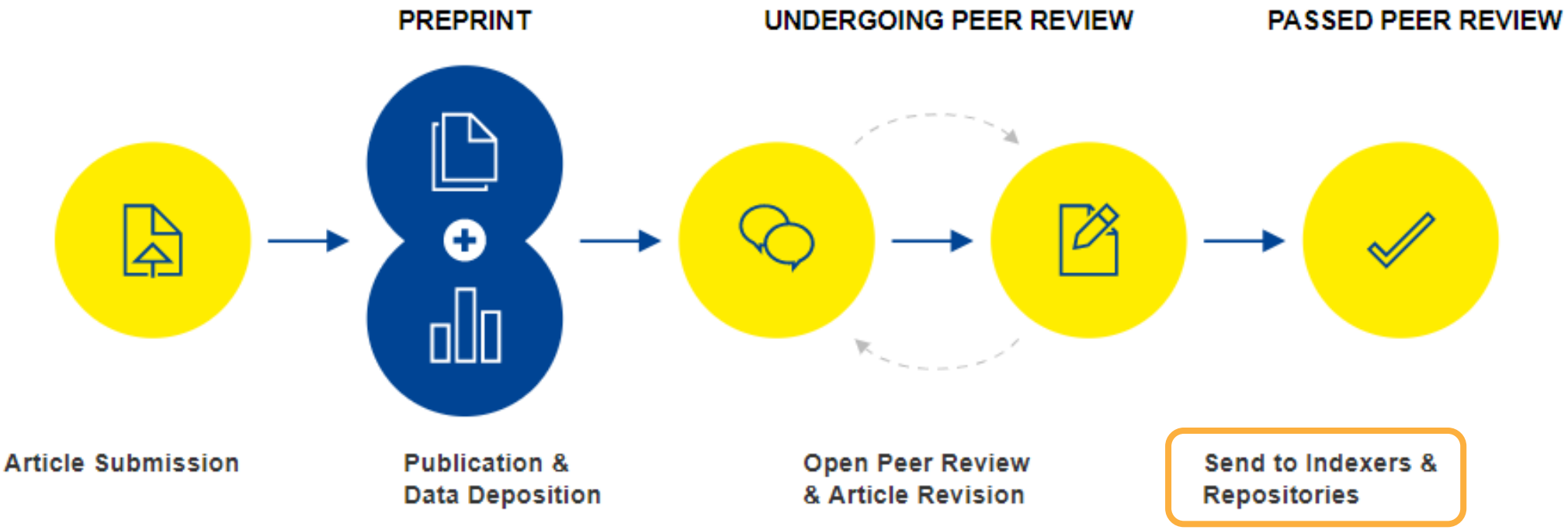
- Reviewer reports will be published alongside the article
- These are citable and have viewing metrics

Open Review Status

- Reviewers assign a status



Open Research Publishing Model

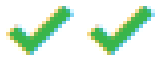


Passing Peer Review

- Authors can respond to reviewers and revise their articles based on the comments

- Revisions are made through new versions of the article that are linked together (versions are limitless)

- Authors need to achieve a certain ‘threshold’ of reviewer status to pass peer review and be indexed:



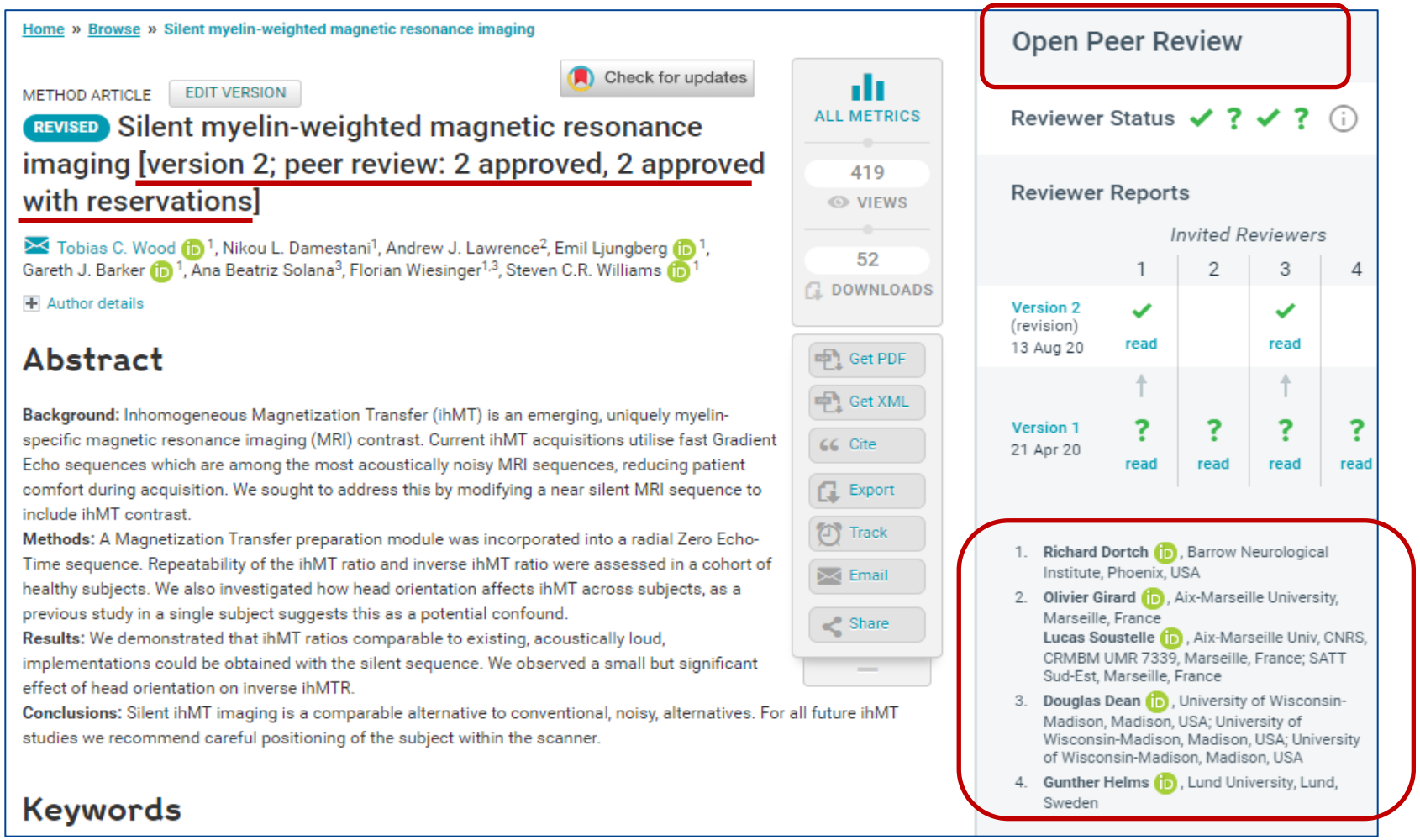
2 ‘Approved’ Status

2 ‘Approved with reservations’ and 1 ‘Approved’ Status

Preprint example

https://emeraldopenresearch.com/articles/2-57

Open peer review example 1



Home » Browse » Silent myelin-weighted magnetic resonance imaging

METHOD ARTICLE EDIT VERSION

Check for updates

REVISED **Silent myelin-weighted magnetic resonance imaging [version 2; peer review: 2 approved, 2 approved with reservations]**

Tobias C. Wood [1], Nikou L. Damestani[1], Andrew J. Lawrence[2], Emil Ljungberg [1], Gareth J. Barker [1], Ana Beatriz Solana[3], Florian Wiesinger[1,3], Steven C.R. Williams [1]

Author details

ALL METRICS
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Abstract

Background: Inhomogeneous Magnetization Transfer (ihMT) is an emerging, uniquely myelin-specific magnetic resonance imaging (MRI) contrast. Current ihMT acquisitions utilise fast Gradient Echo sequences which are among the most acoustically noisy MRI sequences, reducing patient comfort during acquisition. We sought to address this by modifying a near silent MRI sequence to include ihMT contrast.
Methods: A Magnetization Transfer preparation module was incorporated into a radial Zero Echo-Time sequence. Repeatability of the ihMT ratio and inverse ihMT ratio were assessed in a cohort of healthy subjects. We also investigated how head orientation affects ihMT across subjects, as a previous study in a single subject suggests this as a potential confound.
Results: We demonstrated that ihMT ratios comparable to existing, acoustically loud, implementations could be obtained with the silent sequence. We observed a small but significant effect of head orientation on inverse ihMTR.
Conclusions: Silent ihMT imaging is a comparable alternative to conventional, noisy, alternatives. For all future ihMT studies we recommend careful positioning of the subject within the scanner.

Keywords

Open Peer Review

Reviewer Status ✔ ? ✔ ?

Reviewer Reports

	Invited Reviewers			
	1	2	3	4
Version 2 (revision) 13 Aug 20	✔ read		✔ read	
Version 1 21 Apr 20	? read	? read	? read	? read

1. **Richard Dortch**, Barrow Neurological Institute, Phoenix, USA
2. **Olivier Girard**, Aix-Marseille University, Marseille, France
   Lucas Soustelle, Aix-Marseille Univ, CNRS, CRMBM UMR 7339, Marseille, France; SATT Sud-Est, Marseille, France
3. **Douglas Dean**, University of Wisconsin-Madison, Madison, USA; University of Wisconsin-Madison, Madison, USA; University of Wisconsin-Madison, Madison, USA
4. **Gunther Helms**, Lund University, Lund, Sweden

Alongside their report, reviewers assign a status to the article:

✔ **APPROVED**
The paper is scientifically sound in its current form and only minor, if any, improvements are suggested

? **APPROVED WITH RESERVATIONS**
Key revisions are required to address specific details and make the paper fully scientifically sound

✘ **NOT APPROVED**
Fundamental flaws in the paper seriously undermine the findings and conclusions

https://wellcomeopenresearch.org/articles/5-74

Visibility & credit for reviewers:

- Co-reviewing
- ORCID ids
- DOIs for reports

Open peer review example 2

Reviewer Report

26 Views

Cite this report

Responses (1)

14 May 2020 | for Version 1

Richard Dortch, Division of Neuroimaging Research, Barrow Neurological Institute, Phoenix, AZ, USA

? APPROVED WITH RESERVATIONS

This well-written manuscript seeks to develop and evaluate a silent myelin-specific MRI sequence for applications in infants and the elderly, where loud imaging sequences can be problematic. Recent work has demonstrated that so-called inhomogeneous MT (ihMT), which arises primarily from dipolar order effects in myelin lipids, may be a more specific assay of myelin content than other MRI measures (e.g., T_2 relaxation, diffusion, conventional magnetization transfer). As a result, there is significant interest in developing clinically feasible ihMT sequences for applications in neurodegenerative diseases, development, and aging. Overall, the study was well designed (e.g., strong repeatability and ROI analyses) and the results were compelling. However, there are several minor-to-moderate flaws, particularly in the motivation (e.g., the need for silent ihMT sequences) and methods (e.g., the influence of head orientation on ihMT), that slightly reduced my enthusiasm and lead me to recommend a minor revision.

1. The case made for silent MT sequences is not particularly compelling. The authors mention that these are "among the loudest" sequences because they use fast gradient-echo readouts to obtain whole-brain data in clinically feasible scan times. However, these sequences are usually SAR-limited with fairly reasonable TRs (typically between 25-50 ms) that are acquired at lower resolutions to ensure adequate SNR. Together, this results in a sequence with reduced acoustic noise compared to most rapid, high-resolution gradient echo sequences as well as other quantitative approaches that use EPI (e.g., diffusion). (moderate)

2. Furthermore, the benefits of using a silent myelin sequence may not outweigh the drawbacks. For example, the proposed method requires very low flip angles (2 degrees), which results in a significant SNR penalty relative to standard ihMT sequences. In addition, the RUFIS readout results in a small increase in scan time. Given than SNR is already relatively low for ihMT indices, the proposed method may be suboptimal in many clinical scenarios. (moderate)

3. The study was not designed to specifically measure the effect of head orientation on ihMT. Subjects were scanned four times (across two sessions), but head orientation was not directly controlled or measured across these scans. Instead a mixed effects model was used and head orientation was inferred from the images (rather than the orientation of individual tracts being measured using DTI for example). Furthermore, the confounding influences of T_1 and B_1 were not measured. The authors attempt to overcome this by using

Responses (1)

AUTHOR RESPONSE 19 Aug 2020

Tobias C. Wood, King's College London, London, UK

We thank the reviewer for their time and insight. There were in total five reviewers, with many helpful suggestions, and hence there have been many edits to the paper. Responses to this particular review follow below.

1. We concede that the acoustic noise from any scan will depend on the precise sequence settings. However, we note that recent ihMT work has used both an MP-RAGE style acquisition, with an imaging TR of 4.3ms and also SSFP with a TR of only 5ms. The introduction has been amended to explicitly reference these papers.

2. We agree that radial sequences are SNR constrained relative to cartesian sequences, this has now been explicitly stated in the discussion. Although the 3D radial readout does imply a time penalty relative to cartesian, we note that our overall scan time is competitive with recent cartesian ihMT papers. This has been added to the discussion.

3. We agree that it would have been preferable to acquire explicit T1 & B1 maps for comparison, but total protocol time prevented that in this study. In our opinion the ihMTRinv maps display more even contrast than the ihMTR maps, we hope that the revised figures with axial and coronal sections make this clearer.

4. We did not have a conventional cartesian ihMT implementation available when this study was conducted. However, as there are multiple such implementations in the literature, it is possible to broadly compare image quality and achieved ihMTR values. We have added a table of ihMTR values to make this comparison easier. We concede that it is not possible to compare acoustic noise levels, because it is not standard in the MR literature to record and report the acoustic noise of a sequence. In previous work (reference 22) we did directly compare noise levels between a radial ZTE and cartesian implementation of Variable Flip-Angle T1 mapping, which in our opinion would be similar to the noise levels in this work and found a 30 dB reduction in noise level.

5. Figure 1 has been updated with a reduced number of spokes to emphasise the stepped gradients. We hope this is clearer.

6. We thank you for pointing out that the frequency offset is not ideal for generating single-sided MT contrast. With hindsight, this is obvious. The discussion has been amended to reflect this.

7. Because the MT pulses are applied off-resonance they should not significantly interact with the

REVISED Amendments from Version 1

The manuscript has been updated in response to the reviewer's helpful and insightful comments. The most important changes are that the figures have been redesigned and the emphasis on the head-orientation study reduced. The MR images have been updated to use a consistent set of slices, Figures 3 & 4 have been merged into a single figure, and the average within-subject CoV has been added. Figure 1 (the number of spokes) and Figure 6 (colour scheme) have been updated for clarity. We hope that these new figures are clearer and more intuitive than the previous figures. The language used to refer to the head orientation study has been clarified to refer to results as "highly statistically significant" rather than "strong". A reviewer provided a plausible explanation for the negative values of ihMTR in CSF, namely the use of Fermi pulses in the preparation module, and this limitation has been discussed. A table with the mean ihMTR and inverse ihMTR values has been added. The discussion has been expanded to better set the context of the paper within existing literature, with better comparisons between our results and previous papers. We think the resulting paper is much improved and thank the reviewers again for their valued input.

See the authors' detailed response to the review by Douglas Dean
See the authors' detailed response to the review by Gunther Helms
See the authors' detailed response to the review by Richard Dortch
See the authors' detailed response to the review by Olivier Girard and Lucas Soustelle

Open data example

Data availability

Underlying data

Zenodo: IRM raw data (video format) and dataset (csv) supporting platelet attachment to collagen IV or fibrinogen in percentage over time (related to Figure 1), https://doi.org/10.5281/zenodo.3774819[47].

Zenodo: Raw data, temporal profiling for platelet spreading dynamics (related to Figure 3). https://doi.org/10.5281/zenodo.3774823[48].

Zenodo: Raw data for microtubule extension IRM images (videos) and raw data set (csv) (related to Figure 4), https://doi.org/10.5281/zenodo.3774827[49].

Zenodo: Raw data (IRM videos) of Nocodazole experiments (videos) and raw dataset for statistical purposes (csv) (related to Figure 4), https://doi.org/10.5281/zenodo.3774835[50].

Zenodo: Nocodazole experiment low mag images, IRM, raw data. Platelets fixed, imaged by IRM in low magnification for counting purposes. Platelets are either control or treated with nocodazole, https://doi.org/10.5281/zenodo.3774843[51].

Zenodo: Raw data to support percentage of platelets in each morphological state, 1 hour post-platelet seeding (related to Figure 8), https://doi.org/10.5281/zenodo.3774845[52].

Zenodo: Dynamics of platelet spreading over time with/without treatments with manganese and thrombin (related to Figure 8). Raw images of platelets treated with and without Manganese and thrombin (tif, jpegs) and raw data set (csv), https://doi.org/10.5281/zenodo.3774849[53].

Zenodo: Un-cropped and unedited images/movies for all (DIC, movies, cryo-ET, SEM images). https://doi.org/10.5281/zenodo.3773437[54].

Extended data

Figshare: Differential dynamics of early stages of platelet adhesion and spreading on collagen IV- and fibrinogen-coated surfaces, https://doi.org/10.6084/m9.figshare.c.4944738[24].

This project contains the following extended data:

- **Figure S1. Platelet integrated activity.** Integrated activity of platelets: the mean absolute value |ΔIRM| at every time point. X-axis: Time in seconds. Y-axis: Platelet mean activity. Red dotted lines separate the phases: background, prior to platelet attachment, filopodial spreading phase, lamellipodial spreading phase, and the fully spread phase.
- **Figure S2. Interactions with the surface for collagen IV and fibrinogen.** The number of pixels interacting with the surface over time for the surfaces collagen IV and fibrinogen. Time in seconds.
- **Figure S3. Quantification and image analysis of platelet spreading, based on IRM live imaging for fibrinogen.** (A) Platelet spreading viewed by IRM, and the corresponding focal activity map, $\Delta IRM_t = IRM_t - IRM_{t+1}$. Positive values (yellow) imply local attachment; negative values (blue) imply local detachment (bottom right). One filopodia initially attaching and detaching (black arrow). Scale bar 2 μm (B) Integrated tapping activity of platelets: the mean absolute value |ΔIRM| at every time point. X-axis: Time in seconds. Y-axis: Platelet mean activity. Red dotted lines separate the phases: background, prior to platelet attachment, filopodial spreading phase, lamellipodial spreading phase, and the fully spread phase. (C) Total number of pixels interacting with the surface over time. Time in seconds. (D) Accumulated attachment and detachment over time shown by activity map, yellow means more attachment events, blue means fewer attachment event. Right images, correspond IRM images. Scale bar 2 um.
- **Movie S1**. Shows the accumulated number of transitions from interaction to not interacting with the surface at every pixel over time.
- **Movie S2**. Shows an overlay of the highly active regions on top of the IRM images over time on collagen IV.
- **Movie S3**. Shows an overlay of the highly active regions on top of the IRM images over time on fibrinogen.

Software availability

IRM spreading dynamics source code available from: https://github.com/assafZaritskyLab/IRM-Spreading-Dynamics

Archived source code as at time of publication: https://doi.org/10.5281/zenodo.3770506[21]

License: GNU General Public License v3.0

https://f1000research.com/articles/9-449

ORE: Supporting ECR’s

The benefits

Open Research Publishing for ECRs

Open publishing maximizes the reach and impact of research

- Preprints enable rapid sharing of work for grant proposals/job applications
- Citation advantage of linking publications to research data*
- Open peer review enables constructive dialogue with other experts in the field
- Open research benefits society and its citizens

*https://doi.org/10.1371/journal.pone.0230416

Open Research Publishing for ECRs

Publication is based upon the research itself, not perceived “impact”

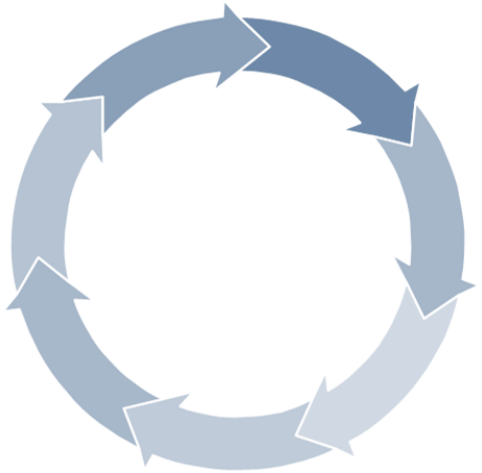
- Articles are published based on the article level content
- Authors are in control of the publication from start to finish
- Publication of all research findings, not just the positive ones

ORE and working alongside ECRs

Creating sustainability of ORE from an ECR perspective.

- Creating an ECR advisory board to focus on issues that matter most to ECRs
- Open research training and advocacy (e.g., FAIR data)
- Engage with policy makers, funders, publishers, and institutions
- Advise and demonstrate how open research can benefit career progression

Demand for rapid access



Drive to open & collaborative research

Drive towards open data, software and materials

Demand to accelerate impact

Thank you! ☺

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