

金沢大学様
2025年3月14日開催セミナー

Japan Institutional Gateway (JIG) Supported by the University of Tsukuba



「科学者の手に，学者の手に，研究の主体を戻す」

学術情報流通・研究評価の再考

山之城チルドレス智子

Taylor & Francis Group

STM Japan Chapter, Deputy Chair

F1000

Japan institutional gateway Open Access論文

- 海外からのインタビュー依頼
- 海外学生からの問い合わせ
- 国内高校生の読者



Home » Browse » COVID-19 measures and human rights guaranteed by the Japanese Constitution

RESEARCH ARTICLE

REVISED COVID-19対策と日本国憲法が保障する人権：新型インフルエンザ等対策特別措置法に着目して
[version 2; peer review: 2 approved]

REVISED COVID-19 measures and human rights guaranteed by the Japanese Constitution
[version 2; peer review: 2 approved]

旧題：COVID-19対策と日本国憲法：新型インフルエンザ等対策特別措置法に着目して

Previously titled: COVID-19 measures and the Japanese Constitution

秋山肇  Hajime Akiyama 

Abstract

Since March 2020, the Act on Special Measures for Pandemic Influenza and New Infectious Diseases Preparedness and Response has been a significant statute in dealing with COVID-19 in Japan. The Act mandates requests, instructions and orders for business suspension and shortened business hours, as well as stay-at-home requests. These measures limit freedom of movement and establishment, guarantee rights under the Japanese Constitution. This article poses the following research question: "Does the Japanese Constitution allow measures against COVID-19 such as requests, instructions and orders for business suspension and shortened business hours, and stay-at-home requests?" It also asks: "Are measures with penalties allowed by the Constitution?" given the fact that the penalties were introduced in February 2021. This paper introduces constitutional concepts that guarantee or limit individual freedom. Concepts that guarantee individual freedoms include freedom of establishment and movement. These freedoms derive from the constitutional values of freedom to choose one's occupation and choose and change one's residence (Art. 22) and the right to own or hold property (Art. 29). Concepts that limit individual freedom include the right to life (Art. 13), welfare rights and public health (Art. 25), and public welfare (Art. 13). Individual freedom that threatens right to life, welfare rights and public health, and public welfare may not be guaranteed. This paper argues that the Constitution allows the measures against COVID-19 limiting freedom of establishment and movement from the perspectives of the right to life, welfare rights, public health, and public welfare, and the government is responsible for reducing the risk to life from COVID-19. It also argues that the Constitution permits measures with penalties, while proportionality needs to be considered.

2020年3月以来、日本においては新型インフルエンザ等対策特別措置法がCOVID-19対策の中心的な役割を果たしてきた。同法に基づき、休業や営業時間短縮の要請・指示・命令、外出自粛要請が行われてきた。これらには日本国憲法が保障する営業の自由や移動の自由を制限する側面がある。そこで本稿は、「COVID-19対策としての休業や営業時間短縮の要請・指示・命令及び外出自粛要請に、憲法上の制約もしくは要請はあるか」をリサーチ・クエスチョンとして検討を行った。また、2021年2月に罰則が導入されたことを踏まえ「罰則のある措置は憲法上認められるか」との論点も補充的に扱った。本稿は、日本国憲法が保障する人権を「個人の自由を保障する概念」及び「個人の自由を制限しうる概念」に分けて検討した。個人の自由を保障する概念としては、営業の自由と移動の自由が挙げられる。これらの自由は主に居住、移動及び職業選択の自由（憲法22条）及び財産権（同29条）により保障される。また、生命権（同13条）、生存権・公衆衛生（同25条）及び公共の福祉（同13条）への脅威となる個人の自由は制限される。本稿は、生命権・公衆衛生及び公共の福祉の観点から、日本国憲法は営業の自由及び移動の自由の制限するCOVID-19対策を許容しており、政府がCOVID-19に起因する生命へのリスクを低減させる責任を負っていると主張した。さらに比例原則を検討する必要はあるものの、憲法は罰則のある措置を許容していると論じた。

Open Peer Review

Reviewer Status 

Reviewer Reports

	1	2
Version 2 (revision) 14 Sep 21	 read	 read
Version 1 23 Mar 21	 read	 read

1. Hajime Yamamoto, Keio University, Tokyo, Japan
2. Masahiro Sogabe, Kyoto University, Kyoto, Japan

Comments on this article

All Comments (0)
Add a comment

METRICS

	VIEWS	DOWNLOADS
F1000Research	5278	366
PubMed Central	9447	197

Google Scholar  

-  Picked up by 2 news outlets
-  Tweeted by 37
-  4 readers on Mendeley version 1 (1) | version 2 (3)
-  1 citation on Dimensions version 2 (1)

Powered by Altmetric | SEE MORE DETAILS

Values are totals across all versions of this article

Why Open ?

オープンアクセスとオープンサイエンス

国・機関・各研究コミュニティ・個人の研究者
それぞれの立場で実践の目標を見失わないことが重要

Benefits of open access publishing - Author Services



可視性とインパクトの向上
社会的な影響力を拡大

幅広い社会との連携
一般市民、メディア、企業、教育
機関ともつながり
研究の社会的意義を広める

研究の信頼性・再現性の向上

研究機関を超えた影響力
国内外の研究者や政策立案者
産業界に成果を届けられる。

研究資金提供機関の要件への
適合
各助成機関が求めるオープンア
クセスの要件を満たし研究費の
適正な活用につながる。

引用数とアクセス率の向上
オープンアクセスにより研究成
果がより多く読まれ引用される
可能性が高まる

Open Science

世界の潮流オープンサイエンス

UNESCOが定義するオープンサイエンス



G7科学技術相会合 共同声明採択 「オープン・サイエンス」推進

2023年5月13日 15時31分

Making scientific knowledge openly available, accessible and reusable for everyone



サイエンスを庶民のものとする知の民主化
パンデミック・気候変動・宇宙開発・戦争・AIなど
世界規模の問題に対応する

オープンサイエンスは、科学のプロセスの透明性、インクルーシブさ、民主性を高める可能性を秘めている。...国連の持続可能な開発目標を達成するための重要な促進剤であり、科学、技術、イノベーションのギャップを埋め、科学に対する人権を実現する

科学的知識を誰もがオープンに利用でき、アクセスでき、再利用できるようにする。

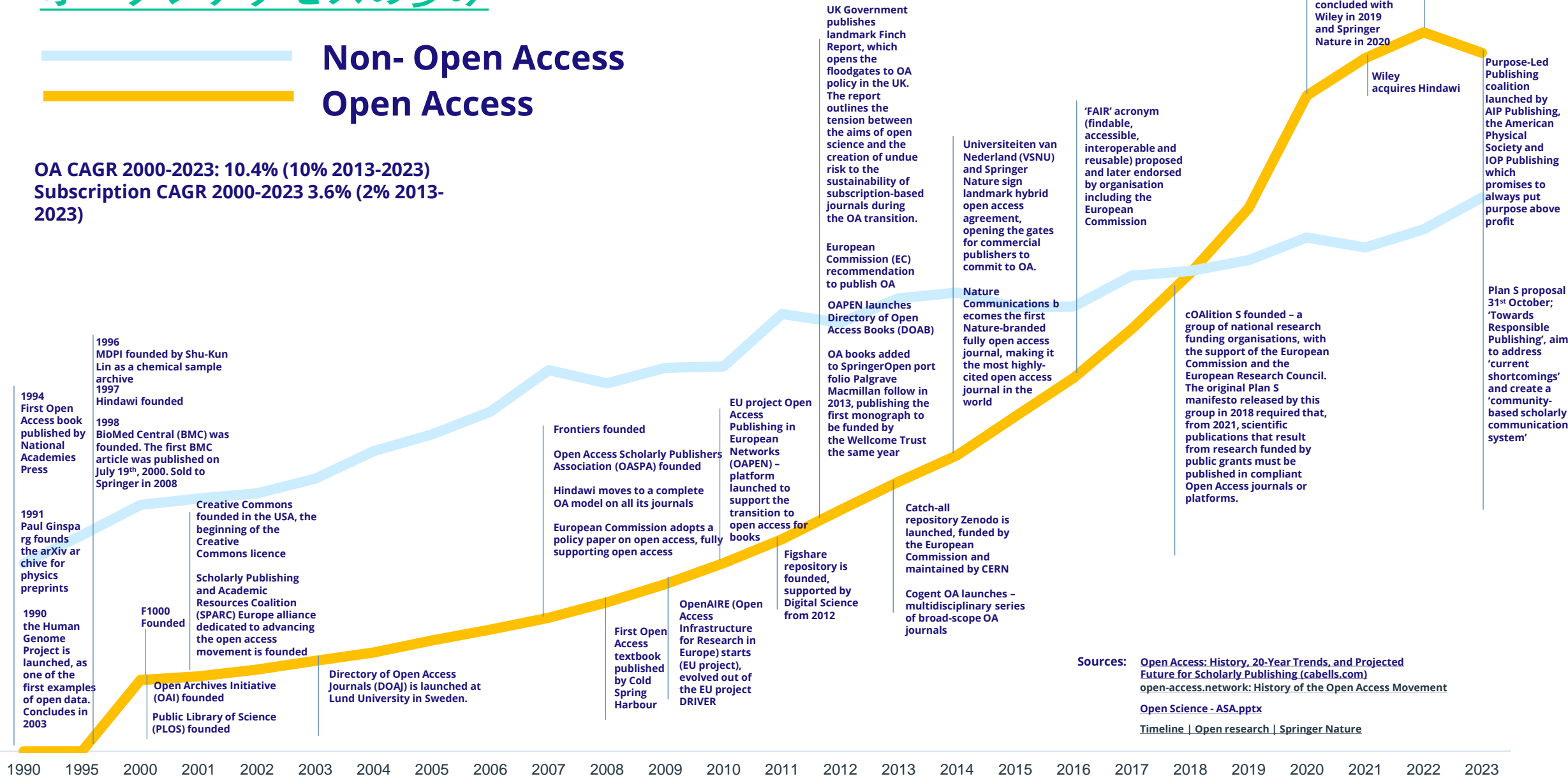
研究成果をオープンに効率よくグローバルに共有し再利用

本来の理念の理解からスタートすることが重要

オープンアクセスの歩み

Non- Open Access
Open Access

OA CAGR 2000-2023: 10.4% (10% 2013-2023)
Subscription CAGR 2000-2023 3.6% (2% 2013-2023)



1990 the Human Genome Project is launched, as one of the first examples of open data. Concludes in 2003

1991 Paul Ginsparg founds the arXiv archive for physics preprints

1994 First Open Access book published by National Academies Press

1996 MDPI founded by Shu-Kun Lin as a chemical sample archive

1997 Hindawi founded

1998 BioMed Central (BMC) was founded. The first BMC article was published on July 19th, 2000. Sold to Springer in 2008

1999 Creative Commons founded in the USA, the beginning of the Creative Commons licence

2000 F1000 Founded

2000 Open Archives Initiative (OAI) founded

2000 Public Library of Science (PLOS) founded

2001 Scholarly Publishing and Academic Resources Coalition (SPARC) Europe alliance dedicated to advancing the open access movement is founded

2003 Directory of Open Access Journals (DOAJ) is launched at Lund University in Sweden.

2007 Frontiers founded

2008 Open Access Scholarly Publishers Association (OASPA) founded

2008 Hindawi moves to a complete OA model on all its journals

2008 European Commission adopts a policy paper on open access, fully supporting open access

2009 First Open Access textbook published by Cold Spring Harbour

2009 OpenAIRE (Open Access Infrastructure for Research in Europe) starts (EU project), evolved out of the EU project DRIVER

2010 EU project Open Access Publishing in European Networks (OAPEN) - platform launched to support the transition to open access for books

2011 Figshare repository is founded, supported by Digital Science from 2012

2012 Open Access Scholarly Publishers Association (OASPA) founded

2012 European Commission (EC) recommendation to publish OA

2012 OAPEN launches Directory of Open Access Books (DOAB)

2012 OA books added to SpringerOpen portfolio Palgrave Macmillan follow in 2013, publishing the first monograph to be funded by the Wellcome Trust the same year

2013 Catch-all repository Zenodo is launched, funded by the European Commission and maintained by CERN

2013 Cogent OA launches - multidisciplinary series of broad-scope OA journals

2014 Universiteiten van Nederland (VSNU) and Springer Nature sign landmark hybrid open access agreement, opening the gates for commercial publishers to commit to OA.

2014 Nature Communications becomes the first Nature-branded fully open access journal, making it the most highly-cited open access journal in the world

2016 'FAIR' acronym (findable, accessible, interoperable and reusable) proposed and later endorsed by organisation including the European Commission

2018 cOAlition S founded - a group of national research funding organisations, with the support of the European Commission and the European Research Council. The original Plan S manifesto released by this group in 2018 required that, from 2021, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms.

2019 Wiley acquires Hindawi

2019 Projekt Deal - consortia agreements concluded with Wiley in 2019 and Springer Nature in 2020

2020 Coalition for Advancing Research Assessment (CoARA) established

2020 Purpose-Led Publishing coalition launched by AIP Publishing, the American Physical Society and IOP Publishing which promises to always put purpose above profit

2023 Plan S proposal 31st October; 'Towards Responsible Publishing', aims to address 'current shortcomings' and create a 'community-based scholarly communication system'

Sources: [Open Access: History, 20-Year Trends, and Projected Future for Scholarly Publishing \(cabells.com\)](#)
[open-access.network: History of the Open Access Movement](#)
[Open Science - ASA.pptx](#)
[Timeline | Open research | Springer Nature](#)

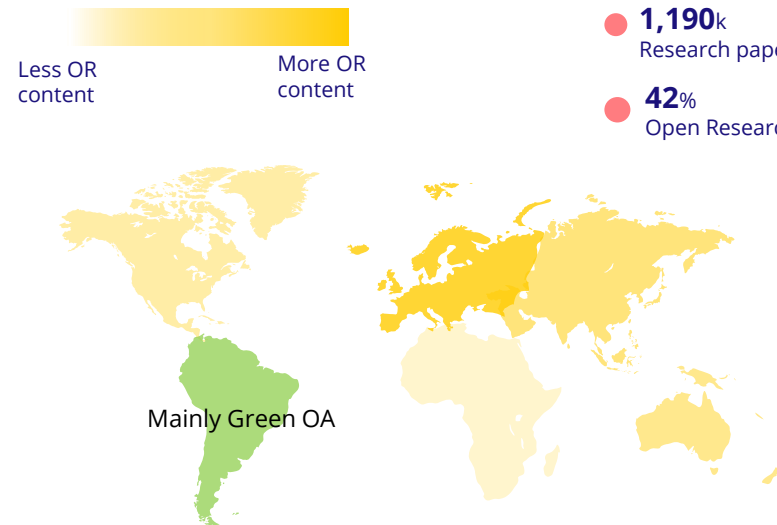
世界のオープンアクセス方針

North America

- **608k** Research paper output ('23)¹
- **32%** Open Research Content⁴

Policies

- **OSTP (USA): 2026**
Immediate OA to funded research outputs
- **NCI (USA): 2017**
Recommends immediate Gold OA to all NCI-supported Cancer Moonshot Research Projects
- **NSERC (Canada): 2015**
OA within 12 months of publication to all funded research articles
- **SSHRC (Canada): 2015**
As above
- **Bill & Melinda Gates Foundation (USA): 2021**
All funded research articles to be published under CC BY licence. **2025** Preprint mandate.



Historically seen as 'less' pro OA, recent policy and market suggests change

UK & EMENA

- **1,190k** Research paper output ('23)¹
- **42%** Open Research Content⁴

Policies

- **European Commission (EU): 2017**
OA mandated for all funded research articles by publication in a fully OA journal or via Green route with no embargo period.
- **UKRI (UK): 2022**
Gold OA OR zero embargo green deposit of all funded research articles.
- **DFG (Germany): 2006**
Non-compulsory request for funded articles to be published open access.
- **NWO (Netherlands): 2021**
Gold OA or hybrid in a journal with a transformative agreement, OR self-archiving according to Plan S
- **ANR (France): 2022**
Gold OA publication or zero embargo repository deposit for all funded research articles
- **Wellcome Trust (UK): 2021**
Articles to be made freely available on PMC and published under a CC BY licence

LATAM

- **175k** Research paper output ('23)¹
- **55%** Open Research Content⁴

Policies

- **Brazilian Government (Brazil): 2007**
Mandates public universities to publish all research outputs OA.
- **MINCYT (Argentina): 2012**
Requires deposit of funded research articles in any suitable repository, not requiring any reuse licence
- **CONICET (Argentina): 2015**
Deposit into institutional repository requested, date of deposit as publisher permits

India & SSA

- **270k** Research paper output ('23)¹
- **37%** Open Research Content⁴
- **2,900m** Population ('23)²
- **2m** Active researchers³

Policies

- **DST (India): 2014**
Mandates immediate self-archival of research articles generated from publicly funded research in suitable repositories.
- **DBT (India): 2014**
Same as above

APAC

- **1,284k** Research paper output ('23)¹
- **41%** Open Research Content⁴

Policies

- **Japanese Government (Japan): 2025**
Immediate OA to all funded research outputs - no prescription on method (yet)
- **JSPS (Japan): 2017**
Fully OA journal or green route which respects publisher embargos.
- **ARC (Australia): 2013**
Either full OA journal or self-archiving of AM in repository after publisher embargo.
- **NHMRC (Australia): 2023**
Immediate OA to funded research outputs via Gold OA or zero embargo green.
- **JST (Japan): 2022**
Final accepted peer-reviewed manuscripts and other relevant submitted versions made publicly available by deposit in an institutional repository within 12 months of publication.
- **MBIE (New Zealand): 2023**
OA within 12 months via either Gold OA in hybrid or full venue or Green repository route.

~2025
Onwards

Open Science時代の研究発表の方法

学術出版の歴史的背景



【従来の購読型学術誌モデル】

読者が購読料を払い閲覧する
(図書館・各機関・個人購読者 etc)

購読料

【オープンアクセスモデル】

2000年頃よりインターネット上で誰でも論文が閲覧・再利用できるOAが推奨され始め、著者がAPC (Article Processing Charge) を負担するモデル
Creative Commons Licenseの理解も必要である

APC

【プレプリント】

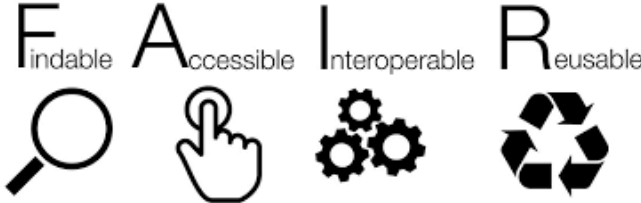
迅速な公開可能
パンデミック時に認知広がる
査読がない

【機関レポジトリでの公開】

日本に800以上ある
整備や公開アップロード
などに人材や作業が必要



2025年公的資金公募分～ 即時オープンアクセスを実現するという 日本政府の方針



確認すべき内閣府資料

[siryo3-1.pdf \(cao.go.jp\)](#)

[siryo3-2.pdf \(cao.go.jp\)](#)

研究DX - 科学技術・イノベーション - 内閣府

日本政府もFAIR原則に沿った

オープンサイエンスの拡大を推進

2025年度より新たに公募する公的研究費を受給する者（法人含む）に対し、論文及び根拠データの即時オープンアクセスを義務化。

論文及び根拠データ



論文及び根拠データの即時オープンアクセスの実現

公的資金による学術論文等のオープンアクセスの実現に向けた基本的な考え方（案）（概要）

CSTI有識者議員懇談会（10/19）資料

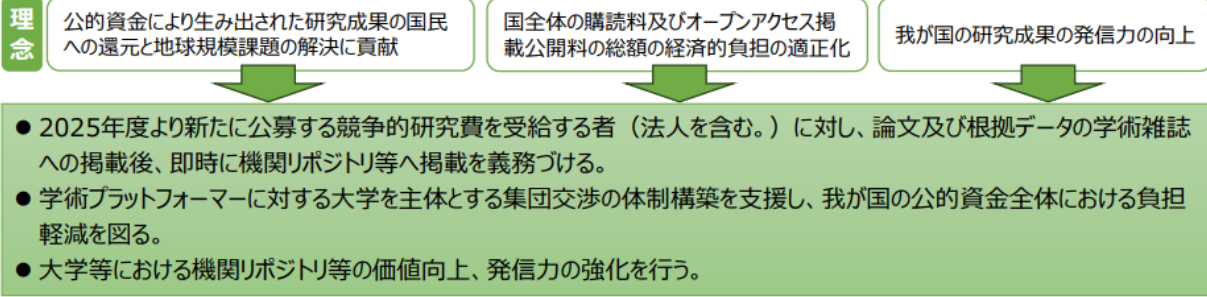
<背景・課題>

- 公的資金によって生み出された論文や研究データ等の研究成果は国民に広く還元されるべきものであるが、その流通はグローバルな学術出版社等(学術プラットフォーム)の市場支配の下に置かれている。
- 2000年代以降、電子ジャーナル※1購読料は継続的に高騰。さらに、2010年代以降、各研究者が「オープンアクセス掲載公開料※2」を負担するビジネスモデルが台頭し、この双方により大学や研究者の経済的負担が増大している。
- 我が国の競争力を高めるために、研究者が自らの研究成果を自由にかつ広く公開・共有することができ、国民が広くその知的資産にアクセスできる環境の構築（オープンアクセス化）が必要である。
- G7科学技術大臣コミュニケ(2023年5月)において、公的資金による学術出版物及び科学データへの即時オープンアクセスを支援する旨明記。

※1 電子ジャーナル：電子化された学術雑誌。パソコン端末等で論文をダウンロードし閲覧
※2 論文1本平均30万円～ネイチャー誌は約150万円

<公的資金による学術論文等のオープンアクセスの実現に向けた基本的な考え方（案）のポイント>

総合科学技術・イノベーション会議有識者議員懇談会





筑波大学内の反響



- OA出版のため国内・海外の高校生もJIG論文を読み、著者の下で学ぶ準備をしている。
- 日本語論文でもタイトル・抄録が英語もあるため、海外でも読まれ、インタビュー依頼や思わぬ反響があった。
- 日本語で論文を書いている研究者から「どうやって大学に貢献をすれば？」と相談あり。
日本語論文であってもJIGで査読通過後Scopusにindexされる（大きなメリット）
- 査読完了後、査読者から共同研究の話があった。



オープンサイエンス出版 世界の動向に対応しつつ 日本の新OA方針にも対応する

2025年~ 即時オープンアクセスを実現するという日本政府の方針
<https://www8.cao.go.jp/cstp/gaiyo/yusikisha/20230525.html>



Gateway Areas	
	University of Tsukuba
	Kanazawa University
	Kyoto University

2025年より金沢大学様が参加



University of Tsukuba



Kyoto University



Nagoya Institute of Technology



Saitama University



Tokai University



Tsukuba University of Technology



University of Fukui



University of Toyama



Utsunomiya University



Japan Science and Technology Agency



JSPS (Japan Society for the Promotion of Science)



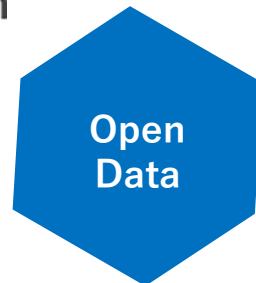
F1000のご紹介

2020年よりTaylor & Francis 傘下 オープンサイエンス出版

パンデミック、気候変動など世界規模の問題に取り組む
ユネスコのオープンサイエンスの理念と一致した出版モデル



UNESCO OPEN SCIENCE





世界中で採用されている
オープンサイエンス出版プラットフォーム
時代のニーズにあわせて出版モデルを進化させていくのが特徴



パートナープラットフォーム（資金提供団体・学会など）

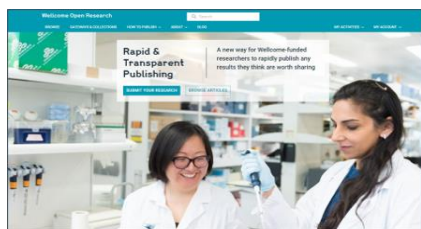
※投稿資格が限定されることが多い

自社プラットフォーム

F1000Research



Wellcome Open Research

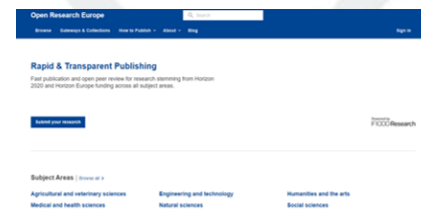


Nuclear S&T OR



European Commission

Open Research Europe



Gates Open Research



ウエルカム・米国原子力学会・欧州委員会・ビル&メリンダゲイツ財団



日本でオープンサイエンスを 実装できる出版Gateway



GATEWAY HOMEPAGE ABOUT THIS GATEWAY **BROWSE** HOW TO PUBLISH/掲載の仕方 ABOUT/その他の情報 **↑ SUBMIT**

Home » Gateways » Japan Institutional Gateway

Articles

FILTERS 1-20 of 78 ARTICLES

RESEARCH ARTICLE metrics ✓✓

REVISED A Study about Perceptions of Kimono among College Students and Kimono Enthusiasts: Is It Difficult to Move in a Kimono?

[version 3; peer review: 2 approved]

Kozue Miyashiro, Kazuya Sasaki, Tomoharu Ishikawa, Hiroshi Mori

PEER REVIEWERS Ellen McKinney, Lasni Buddhibhashika Jayasooriya

FUNDER the University Regional Collaboration Activity Support Project of Tochigi Prefecture in the Reiwa 4th Fiscal Year

LATEST VERSION PUBLISHED 20 Sep 2024

RESEARCH ARTICLE metrics ×?

REVISED Social distancing between personal belongings during the COVID-19 pandemic

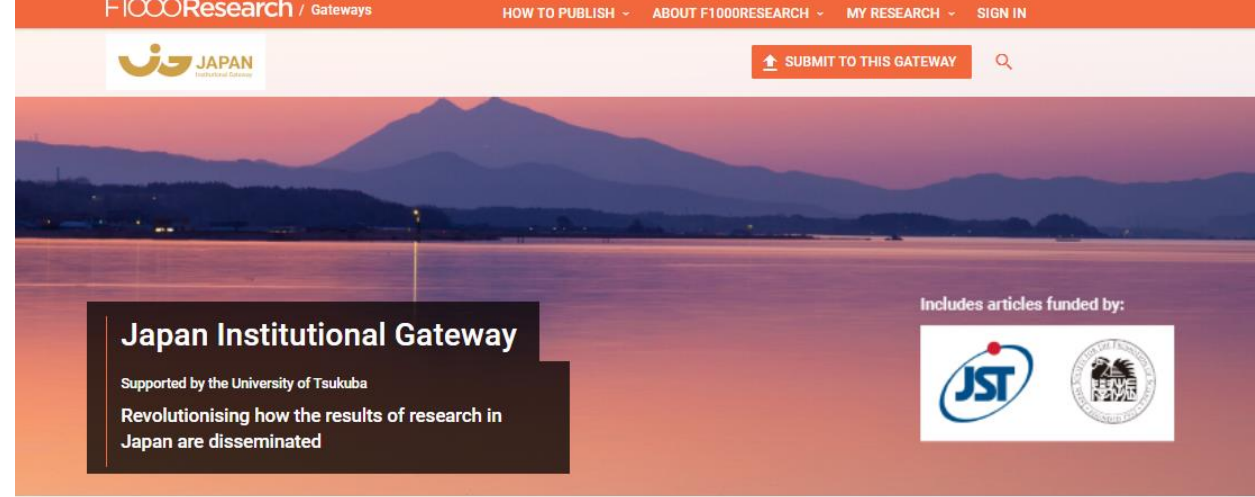
[version 2; peer review: 1 approved with reservations, 1 not approved]

Wen Guo, Ayumi Ikeda, Kaito Takashima, Yoshitaka Masuda, Kohei Ueda, Atsunori Ariga, Kyoshiro Sasaki, Yuki Yamada

Search this Gateway

Gateway Areas

-  University of Tsukuba
-  Kyoto University
-  Nagoya Institute of Technology
-  Saitama University
-  Tokai University
-  Tsukuba University of Technology
-  University of Fukui
-  University of Toyama
-  Utsunomiya University



筑波大学のサポート
金沢大学、京都大学、東海大学、宇都宮大学、筑波技術大学、
富山大学、埼玉大学、福井大学、名古屋工業大学が参加
Affiliate (協賛) 機関合計9機関、JST、JSPS Area開設

- 筑波大学により導入されJIGに発展
- ✓ 二か国語対応研究成果Open Access出版サービス
(人文社会科学は英・日で発信)
オープンデータ・オープンコードに対応
- ✓ プレプリントサーバーの迅速性・柔軟な発信機能 + 公開査読機能
- ✓ 査読通過後はScopus、PubMedなどに収録
- **OA出版費用 (APC) が抑えられている**

分野に縛られず、どの分野でも出版可能

JIG

下記のようなニーズに対応

- ・既存のジャーナルにはおさまらない萌芽的・学際的領域の論文を出版したい
- ・オープンな査読を受けて論文の質を高めたい
- ・日本語論文でも国際的に成果を発信したい

またこれまで日本語でしか出版したことがないが英語論文の執筆にチャレンジしたいという研究者も是非、投稿にチャレンジください。

オープンサイエンス出版

Open Data, Open Access,
Open Peer Reviewを実現している

投稿→出版前チェックの後に
直ちに公開



Article submission

論文投稿

投稿前にガイドラインに
沿って論文基礎データを
Openにする



Publication & data
deposition (FAIR)

DOI issued

Indexed: Google Scholar;
accessible & citeable

出版 (公開)

公開後にオープンピアレビュー
査読者・査読プロセスの見える化



Invited open peer review
& user commenting

透明性のある公開査読

著者が改訂



Article revision

論文改訂
REVISE

査読通過とは
2名の査読者→✓
1名の査読者→✓+2名の査読者→?



査読通過後
索引される



Open
Peer Review

新しい文化 公開査読はオープンディスカッション







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. Damestani¹, Andrew J. Lawrence², Emil Ljungberg ¹, Gareth J. Barker ¹, Ana Beatriz Solana³, Florian Wiesinger^{1,3}, Steven C.R. Williams ¹

Author details

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

ALL METRICS

419

VIEWS

52

DOWNLOADS

Get PDF

Get XML

Cite

Export

Track







Email

Share

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

Visibility & credit for reviewers:


- Co-reviewing
- ORCID ids
- DOIs for reports

公開査読はオープンディスカッション 実際の公開査読出版画面



Reviewer Report

14 May 2020 | for Version 1

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

26 Views

 Cite this report

 Responses (1)

? 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 that 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 T_1 & B_1 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

オープンデータ 正しいデータのオープン方法



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.

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

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 $|\Delta\text{IRM}|$ 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, $\Delta\text{IRM}_t = \text{IRM}_t - \text{IRM}_{t-1}$. Positive values (yellow) imply local attachment; negative values (blue) imply local detachment (bottom right). One filopodia initially attaching and detaching (black arrow). Scale bar $2\ \mu\text{m}$ (B) Integrated tapping activity of platelets: the mean absolute value $|\Delta\text{IRM}|$ 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 $2\ \mu\text{m}$.
- **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.

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/) (CC-BY 4.0).

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

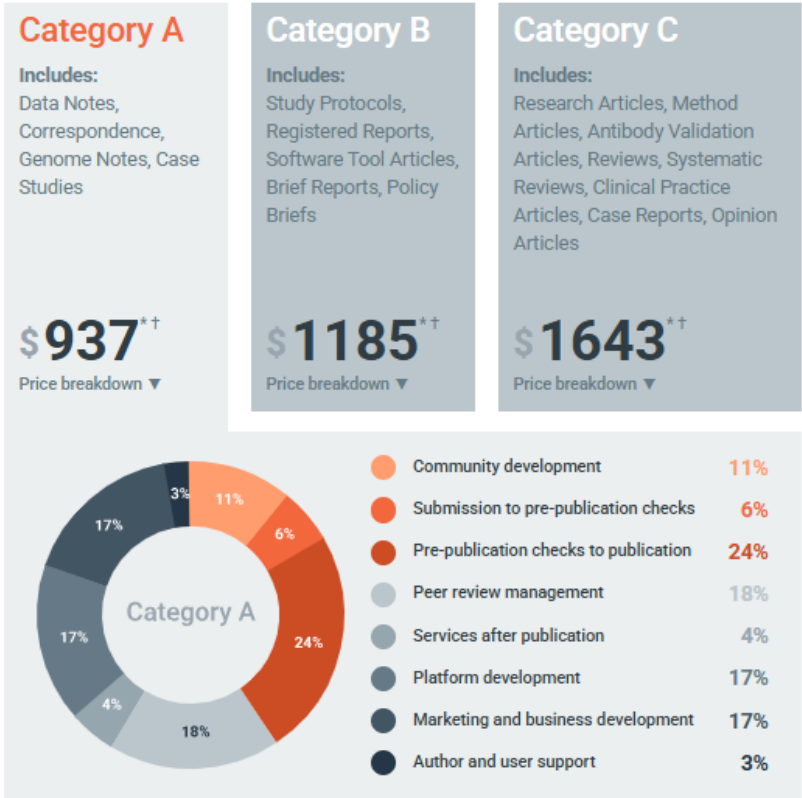


Article Processing Charge – APC



Article Processing Charges

F1000Research charges an article processing charge (APC) for all articles. APCs in F1000Research are based on [article type](#). This is in recognition of the varying editorial time and effort involved in publishing different article types. APCs are payable upon acceptance of the article, regardless of the peer review outcome.



コストの透明性を重視

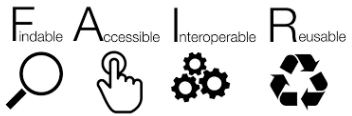


日本の即時オープンアクセス方針とJIG



文部科学省と定期的に意見交換を行い新OA方針に沿うように調整

【Japan Institutional Gateway(JIG) = 即時オープンアクセス方針の相互性】



- ✓ 基礎データ：機関レポジトリにて指定のCCBYライセンスでデータ公開することを推奨(Open Data)
- ✓ 論文；JIGで出版(Open Access + Open Peer review)
- ✓ CiNiiで検索可能とするための自動転送について要検討・調整

※基礎データについて、現在CC0 Public Domain DedicationもしくはCC-BY 4.0 Creative Commons Attribution Onlyのライセンスを使用していれば日本の機関レポジトリで公開されたデータをOpen Dataの要件を満たしているとしJIG投稿の受付を行っています。

Maximize the impact of your research by making it open.
Thank you.

Tomoko Yamanojo-Childress
山之城チルドレス 智子
Tomoko.yamanojo@informa.com