第42回日本分子生物学会年会学会企画
研究倫理委員会企画・研究倫理フォーラム
「研究成果発表のあるべき姿:オープンサイエンス推進の潮流」

bioRxivとは何か?

大学共同利用機関法人 情報・システム研究機構
データサイエンス共同利用基盤施設
ライフサイエンス統合データベースセンター (DBCLS)
坊農 秀雅

https://DBCLS.rois.ac.jp/~bono/

撮影可

"What is bioRxiv?"
by Hidemasa Bono from Database Center for Life Science (DBCLS)

Powered by DBCLS

Preprint（プレプリント）とは

- **arXiv**は約30年前から物理学分野で
- 生命科学で急に注目(**bioRxiv**)
- プレプリントサービスの提供に参入
  - 国際学会(**ChemRxiv**のACS他)
  - 商業出版者(**SSRN**のElsevier)
- **medRxiv**も(2019年6月～)

‘Preprint’ discussed in *Science*

29 SEPT 2017 VOL 357, ISSUE 6358

- Preprint ecosystems in Editorial (p1331)
- THE PREPRINT DILEMMA (p1344-1347)
  - Biologists are posting unreviewed papers in record numbers. Here’s a survival guide
- How biologists pioneered preprints—with paper and postage (p1348)
  - Francis Crick and James Watson experimented with preprints as well as DNA.

bioRxivとは何か?

DBCLS Database Center for Life Science

http://bonohu.jp/blog/what-is-biorxiv.html

- **バイオアーカイブ**と発音
  - 本当は、bioR**χ**iv
  - χ（カイ）二乗検定のχ

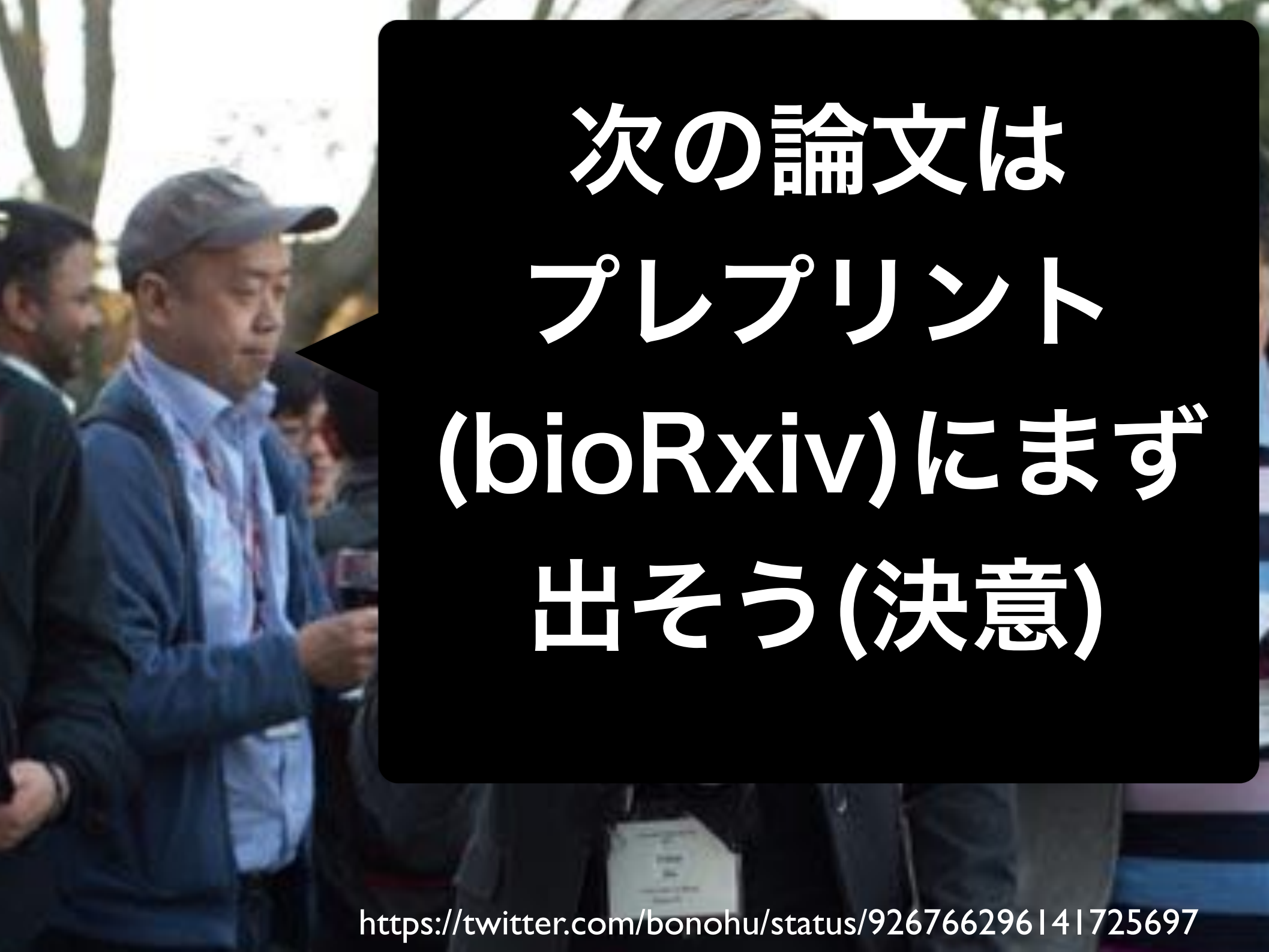
bioRχiv
THE PREPRINT SERVER FOR BIOLOGY

- **新たなる論文誌ではない**、preprint(プレプリント)
  - 査読に出す前の論文を、preprint serverと呼ばれるウェブサイトにアップロードすることで**即時公開**する仕組み
    - Digital Object Identifier (**DOI**)が付く
  - preprintは他にも出てきている
- 似た取り組み：**機関アーカイブ**

口頭発表はもちろん、

ポスター発表もbioRxiv

→これは自分もやらねば…



https://twitter.com/bonohu/status/926766296141725697

@bonohu

次の論文はプレプリントサーバー(BioRxiv)にまず出そう(決意)

20:01 - 2017年11月4日

1件のリツイート　**17**件のいいね

年明けて2018年2月

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bioRxiv
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Meta-analysis of hypoxic transcriptomes from public databases

Hidemasa Bono

doi: https://doi.org/10.1101/267310

Posted February 23, 2018.

This article is a preprint and has not been peer-reviewed [what does this mean?].

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Abstract

Hypoxia is an insufficient level of oxygen supply in the cell, and hypoxia-inducible factor is a central regulator of oxygen homeostasis. In order to elucidate functional insights in hypoxic response in data-driven way, we attempted meta-analysis of hypoxic transcriptome for public expression data which have been archived as microarray and RNA-seq data in public databases, NCBI Gene Expression Omnibus (GEO) and EBI ArrayExpress. While various hypoxic conditions (oxygen concentration and duration of hypoxia) and cell lines are taken in the stored data, we manually curated possible pairs of transcriptome before and after hypoxic stress from microarray and RNA-seq data. As a result, we got 37 pairs in human and 53 pairs

Subject Area

Bioinformatics

Subject Areas

All Articles

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Biochemistry

Bioengineering

Bioinformatics

プレプリントに出すきっかけ：共同研究published

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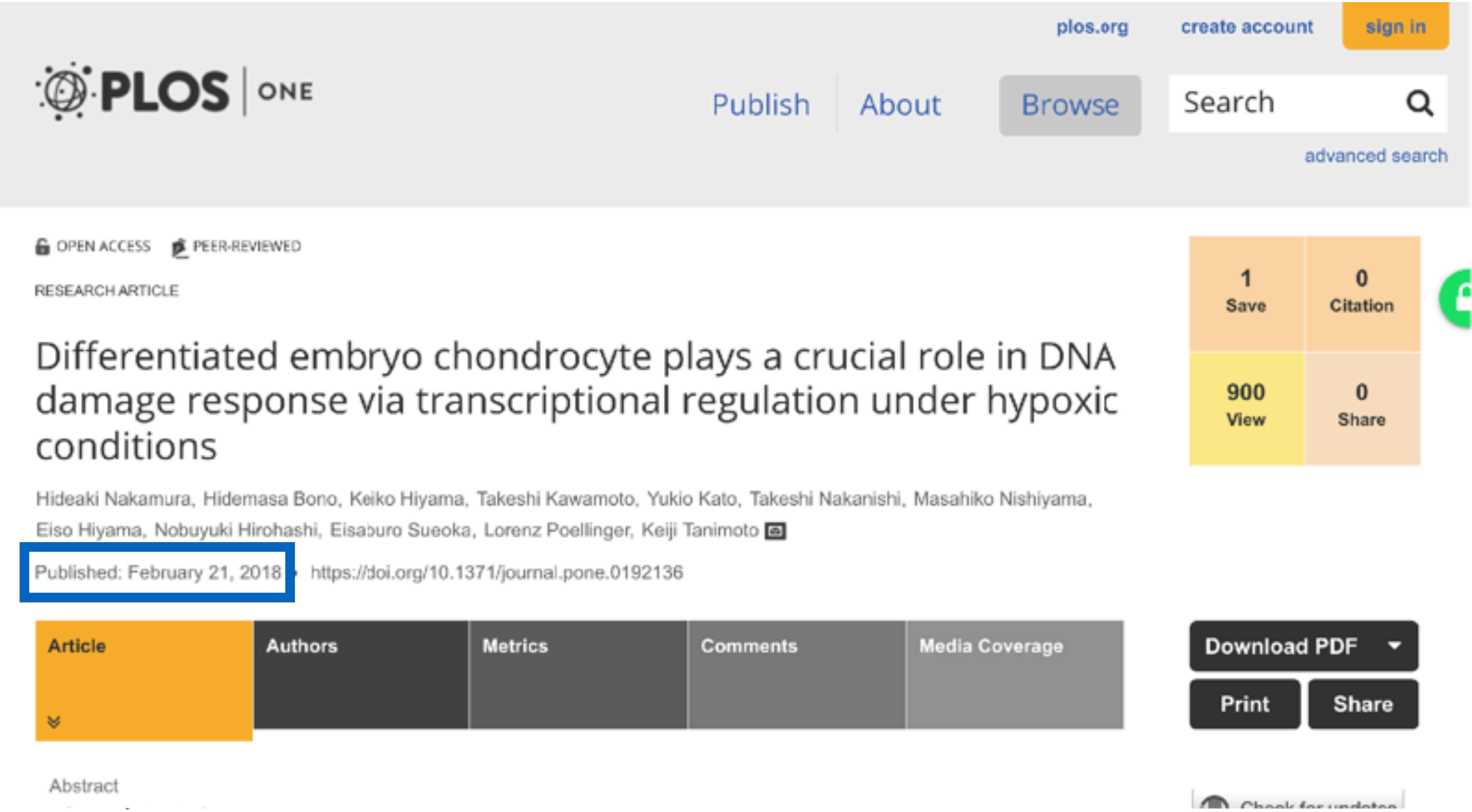

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RESEARCH ARTICLE

Differentiated embryo chondrocyte plays a crucial role in DNA damage response via transcriptional regulation under hypoxic conditions

Hideaki Nakamura, Hidemasa Bono, Keiko Hiyama, Takeshi Kawamoto, Yukio Kato, Takeshi Nakanishi, Masahiko Nishiyama, Eiso Hiyama, Nobuyuki Hirohashi, Eisaburo Sueoka, Lorenz Poellinger, Keiji Tanimoto

Published: February 21, 2018 https://doi.org/10.1371/journal.pone.0192136

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メタ解析手法の論文をプレプリントへ

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Abstract

Hypoxia is an insufficient level of oxygen supply in the cell, and hypoxia-inducible factor is a central regulator of oxygen homeostasis. In order to elucidate functional insights in hypoxic response in data-driven way, we attempted meta-analysis of hypoxic transcriptome for public expression data which have been archived as microarray and RNA-seq data in public databases, NCBI Gene Expression Omnibus (GEO) and EBI ArrayExpress. While various hypoxic conditions (oxygen concentration and duration of hypoxia) and cell lines are taken in the stored data, we manually curated possible pairs of transcriptome before and after hypoxic stress from microarray and RNA-seq data. As a result, we got 37 pairs in human and 53 pairs

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2月23日富士山の日に

公共データベース中の低酸素刺激による遺伝子発現データのメタ解析

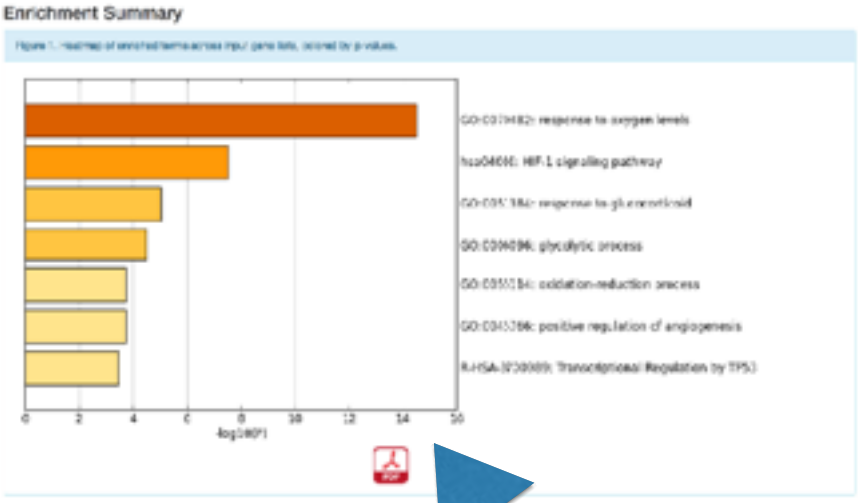
Meta-analysis of hypoxic stress

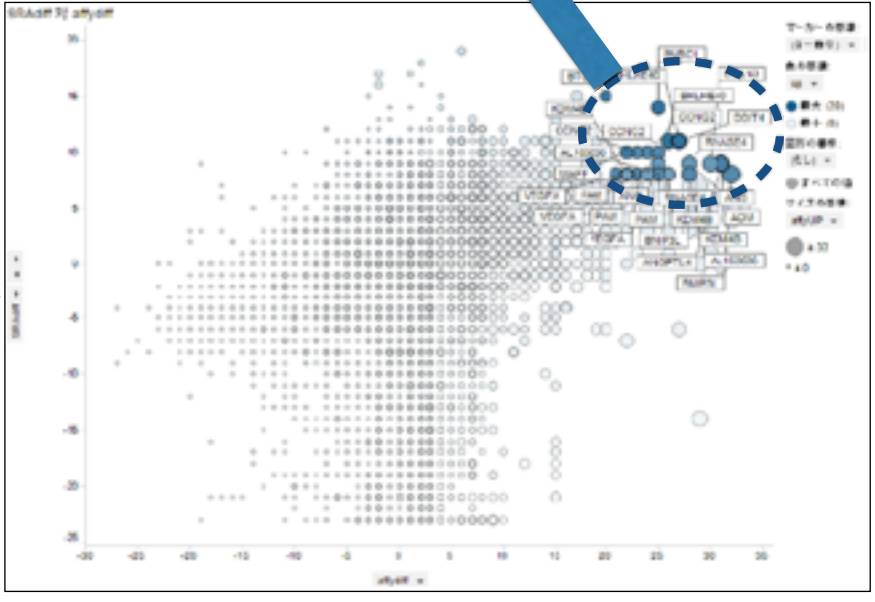
Manual data curation

Expression quantification

up/down/ unchanged Classification

Data visualization & evaluation





Bono H. ***BioRxiv*** https://doi.org/10.1101/267310

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Meta-analysis of hypoxic transcriptomes from public databases

421 views | 1 citations

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4

Manually annotated possible pairs of transcriptomes before and after hypoxic stress from public expression data. The data process details are described in BioRxiv (https://doi.org/10.1101/267310).

AUTHORS

Hidemasa Bono

CATEGORIES

- Gene Expression (incl. Microarray and other genome-wide approaches)

KEYWORD(S)

human mouse genechip RNA-seq Hypoxia meta-analysis

CITE THIS COLLECTION DataCite

Bono, Hidemasa (2018): Meta-analysis of hypoxic transcriptomes from public databases. figshare. Collection.

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Mouse microarray log ratio data before and after hypoxic stress
Hidemasa Bono 23/01/2018

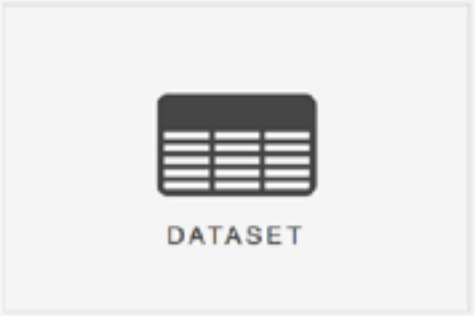
Mouse list of counts after hypoxic stress (up/down/unchanged)
Hidemasa Bono 23/01/2018

Human RNA-seq ratio data before and after hypoxic stress
Hidemasa Bono 23/01/2018

Human list of counts after hypoxic stress by RNA-seq (up/down/unch...
Hidemasa Bono 23/01/2018

Human microarray log ratio data before and after hypoxic stress
Hidemasa Bono 23/01/2018

Human list of counts after hypoxic stress (up/down/unchanged)
Hidemasa Bono 23/01/2018



Mouse list of microarray datasets before and after hypoxic stress
Hidemasa Bono 23/01/2018

Human list of microarray datasets before and after hypoxic stress
Hidemasa Bono 23/01/2018

Human list of RNA-seq datasets before and after hypoxic stress
Hidemasa Bono 23/01/2018

https://doi.org/10.6084/m9.figshare.c.3983880

id	UP	DOWN	UNCHANGED
1007_s_at	7	0	30
1053_at	2	10	25
117_at	5	0	32
121_at	2	1	34
1255_g_at	1	0	36
1294_at	2	0	35
1316_at	1	0	36
1320_at	2	0	35
1405_i_at	10	1	26
1431_at	3	0	34
1438_at	6	3	28
1487_at	0	0	37
1494_f_at	1	0	36
1552256_a_at	9	0	28
1552257_a_at	0	10	27
1552258_at	1	1	35
1552261_at	0	2	35
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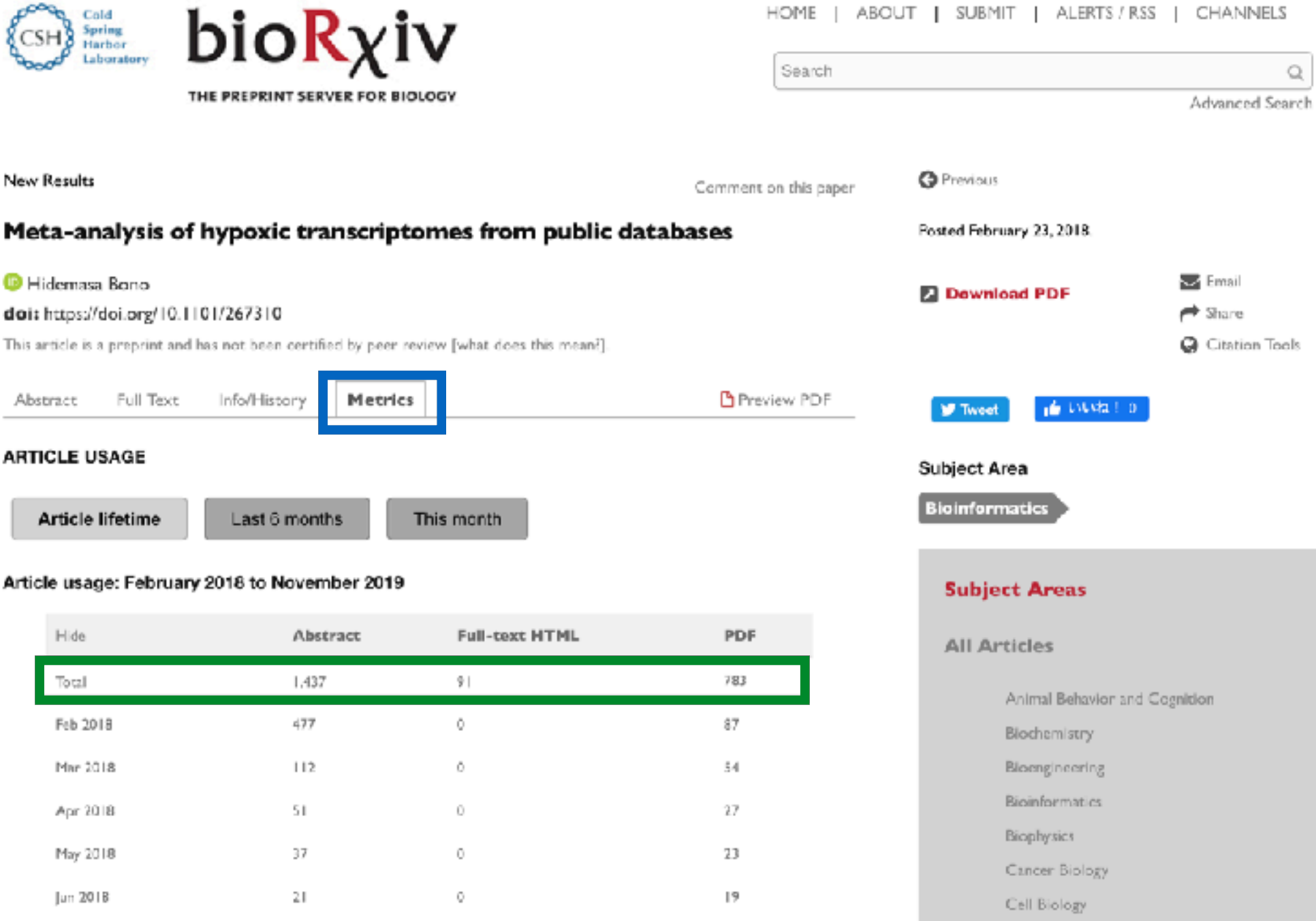
1552264_a_at	3	4	30
1552266_at	1	1	35
1552268_at	2	4	31

https://doi.org/10.6084/m9.figshare.5812695.v1

Metrics



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Total	1,437	91	783
Feb 2018	477	0	87
Mar 2018	112	0	54
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May 2018	37	0	23
Jun 2018	21	0	19

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Jul 2018	33	0	38
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Sep 2018	62	0	26
Oct 2018	73	0	39
Nov 2018	50	0	25
Dec 2018	43	0	39
Jan 2019	44	0	40
Feb 2019	50	0	42
Mar 2019	44	0	56
Apr 2019	25	3	23
May 2019	20	3	29
Jun 2019	46	37	26
Jul 2019	38	10	41
Aug 2019	33	19	25
Sep 2019	32	6	35
Oct 2019	44	9	34
Nov 2019	23	4	19

Cell Biology
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Epidemiology*
Evolutionary Biology
Genetics
Genomics
Immunology
Microbiology
Molecular Biology
Neuroscience
Paleontology
Pathology
Pharmacology and Toxicology
Physiology
Plant Biology
Scientific Communication and Education
Synthetic Biology
Systems Biology
Zoology

* The Clinical Trials and Epidemiology subject categories are now closed to new submissions following the completion of bioRxiv's clinical research pilot project and launch of the dedicated health sciences server medRxiv (submit.medrxiv.org). New papers that report results of clinical trials must now be submitted to medRxiv. Most new Epidemiology papers also should be submitted to medRxiv, but if a paper contains no health-related information, authors may choose to submit it to another bioRxiv subject category (e.g., Genetics or Microbiology).

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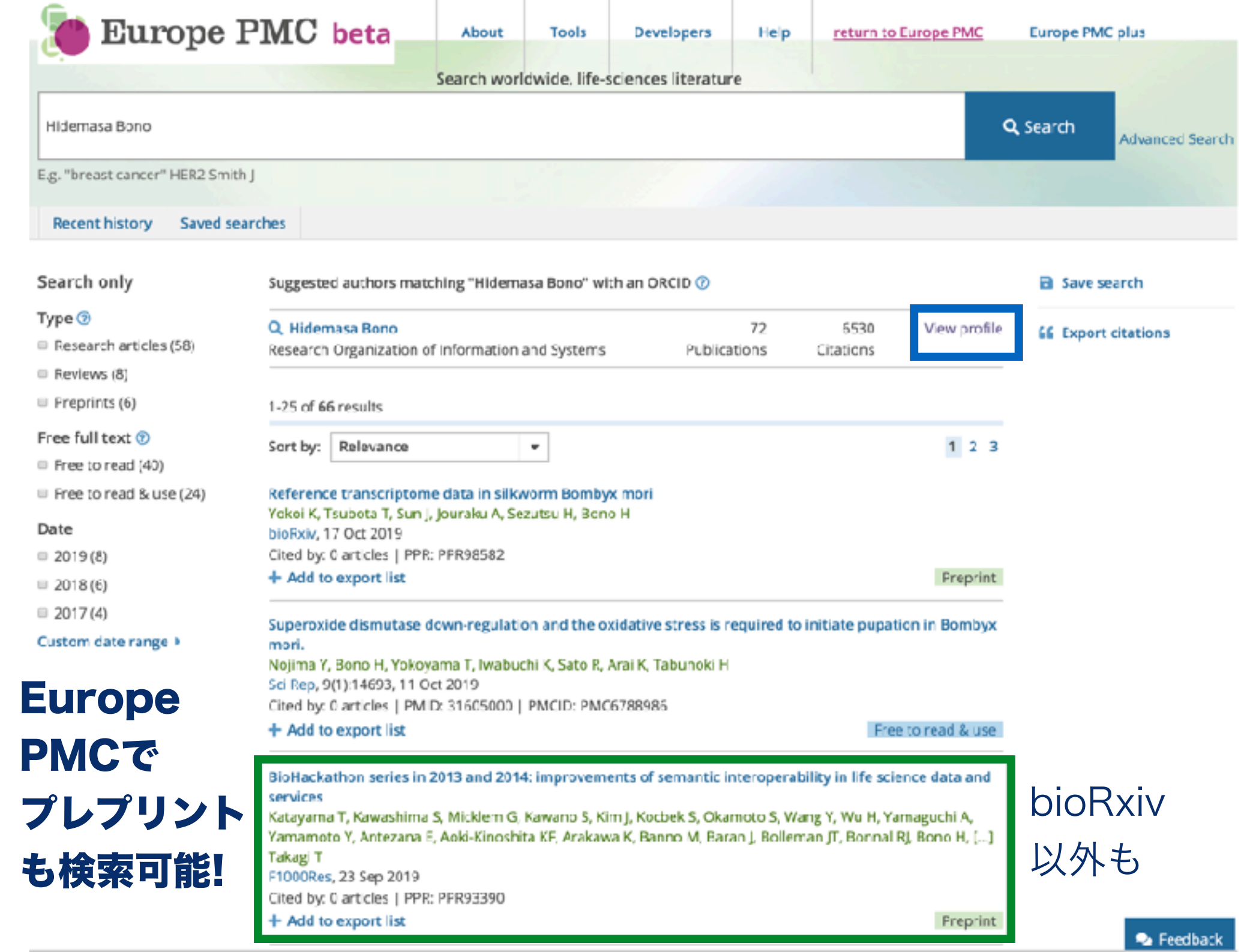
doi: https://doi.org/10.1101/700864

Posted July 18, 2019.

Subject Area

Genomics

Other example (FANTO6)



Europe PMCでプレプリントも検索可能!

bioRxiv以外も

ORCIDに登録すると
自動生成

Hidemasa Bono

Research Organization of Information and Systems

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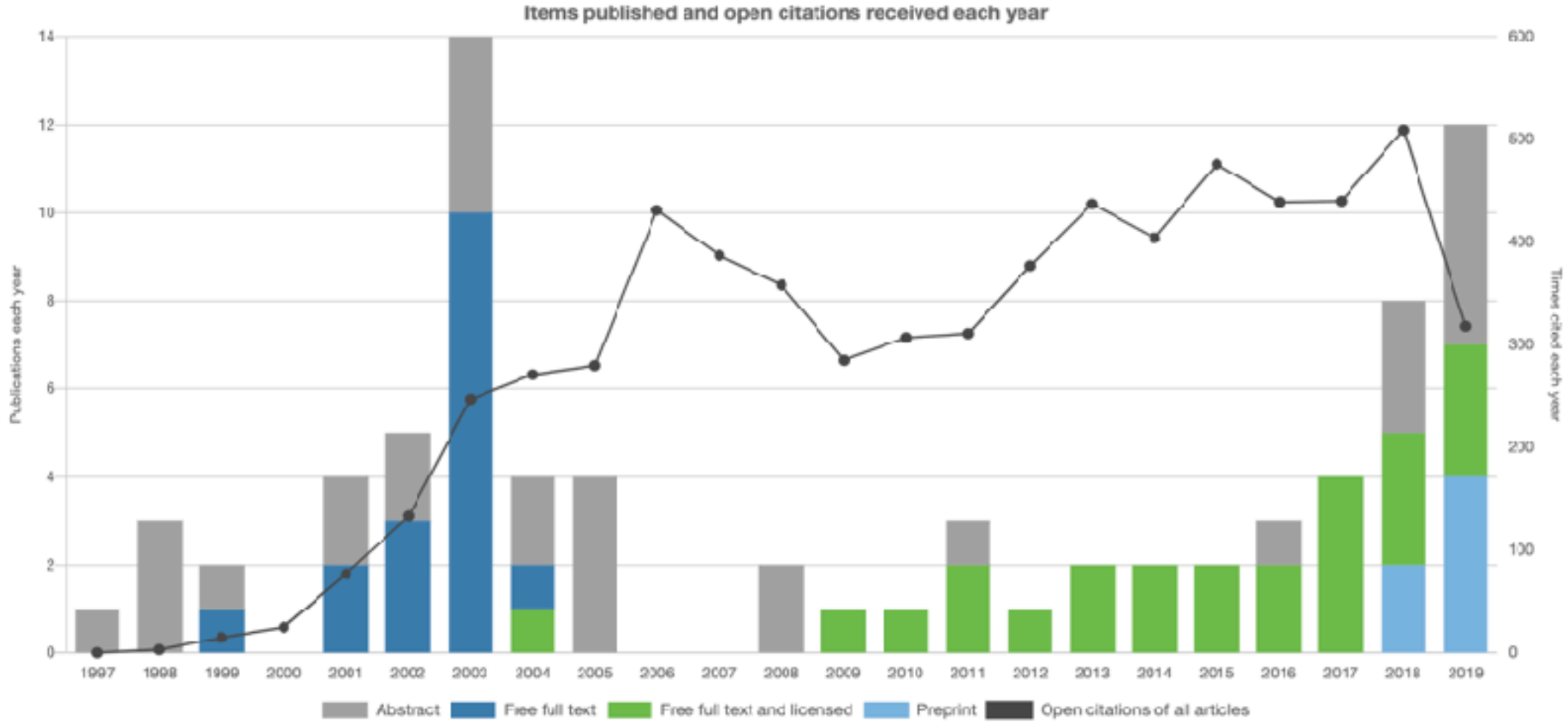

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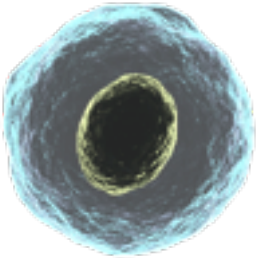

- **すぐに公開**できる
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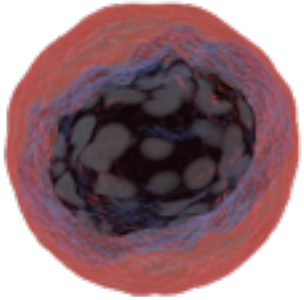
- **DOI**で引用可能
  - 研究費申請のリファレンス
- 現状**APC無料**
- **査読誌への投稿可**
  - 生命科学系はほぼ可に
- EuroPMCから**検索可能**



- 一度公開すると論文が出せないかもという恐怖
  - 実はそうでなくなっている
    現実の認識不足
- 査読論文に出すスタイルを変えたくない
- 査読論文しか評価されない現実

クオリティコントロール

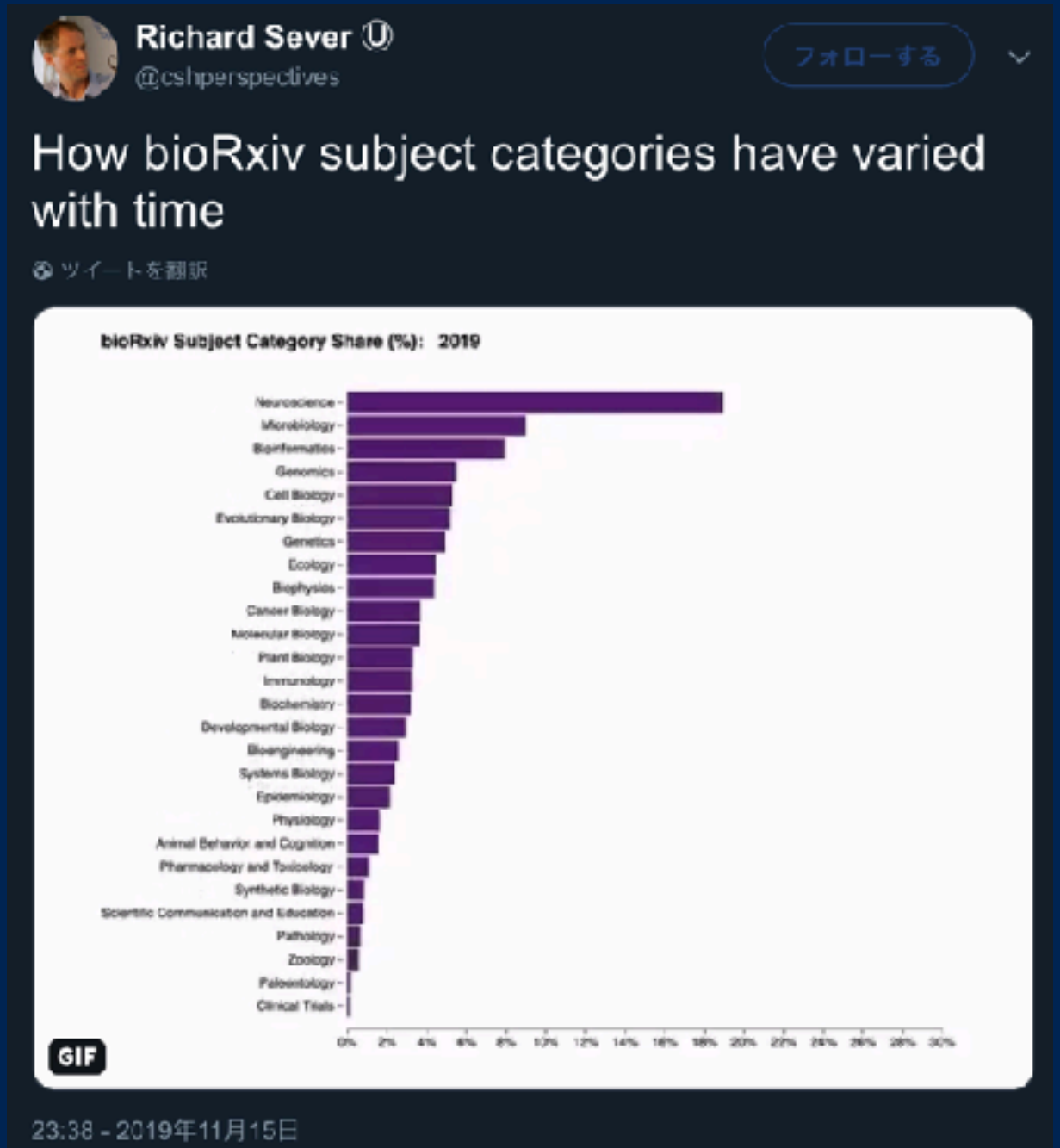
生命科学研究において

- **査読論文だけ**、を続けられるか？
  - 金銭的な問題
  - 査読のコスト
- プレプリントと査読論文の**併用**に移行できるか？
  - **評価軸の改定**が必須
- TwitterなどのSMSでもっと議論が盛り上がれば、**プレプリントだけ**でもコミュニケーションはできるのでは？
  - 匿名性の問題

でも、
バイオインフォだけ
なんでしょ？

2019年、神経科学がトップ、2位は微生物学

https://twitter.com/cshperspectives/status/1195350481461284866



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カレントアウェアネス・ポータルは、図書館界、図書館情報学に関する最新の情報をお知らせする、国立国会図書館の

ホーム

コールド・スプリング・ハーバー研究所、bioRxivに投稿されたプレプリントに並べて査読内容を掲載する試行プロジェクト“Transparent Review in Preprints（TRiP）”を開始

Posted 2019年10月4日

2019年9月30日、生命医学分野のプレプリントサーバbioRxivを運営するコールド・スプリング・ハーバー研究所（CSHL）は、投稿されたプレプリントに並べて査読内容を掲載する試行プロジェクトとして、“Transparent Review in Preprints（TRiP）”を開始することを発表しました。

https://current.ndl.go.jp/node/39192

χ（カイ）より始めよ

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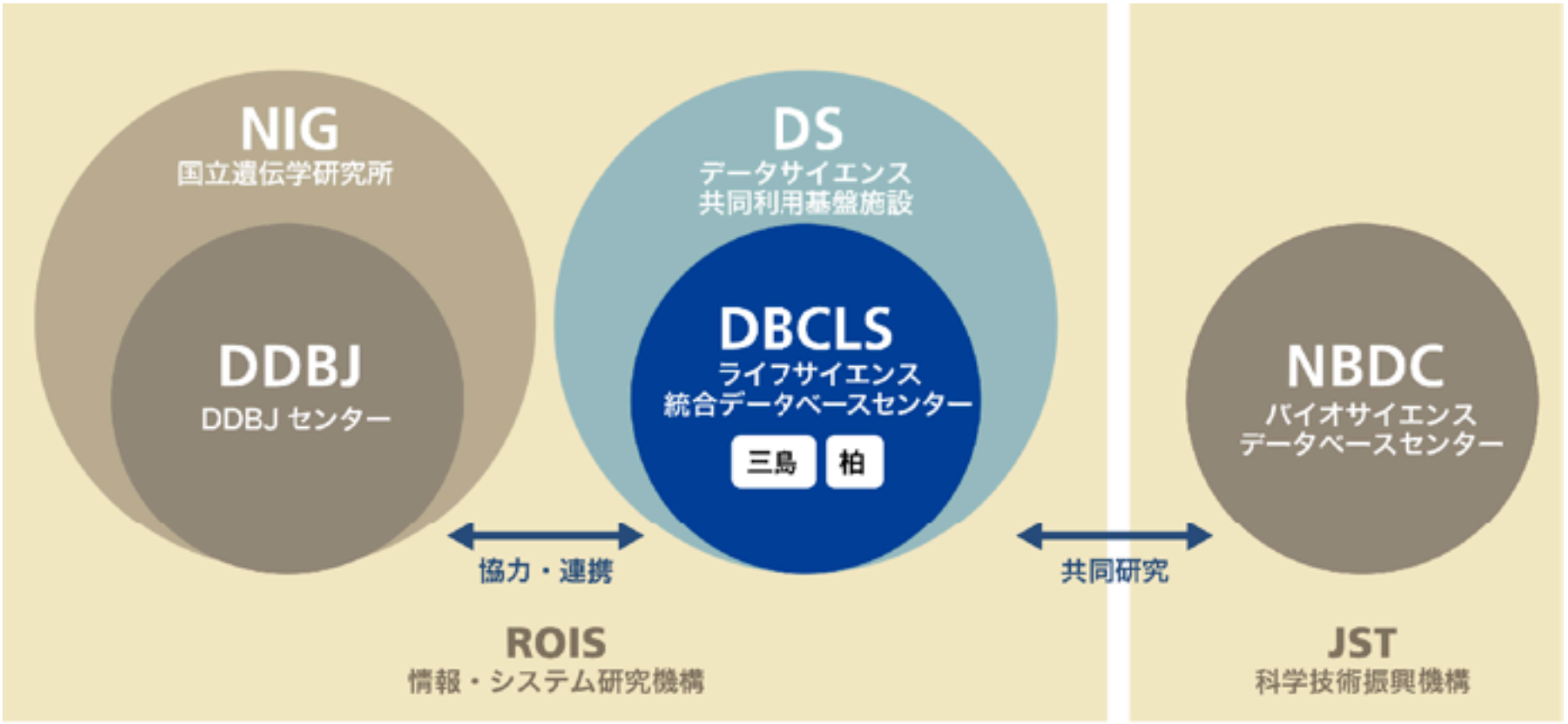
DBCLS
Database Center for Life Science

- 共同研究者
  - 関西医科大学 広田喜一
  - FANTOM6 consortium
- ライフサイエンス統合データベースセンター(DBCLS)



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