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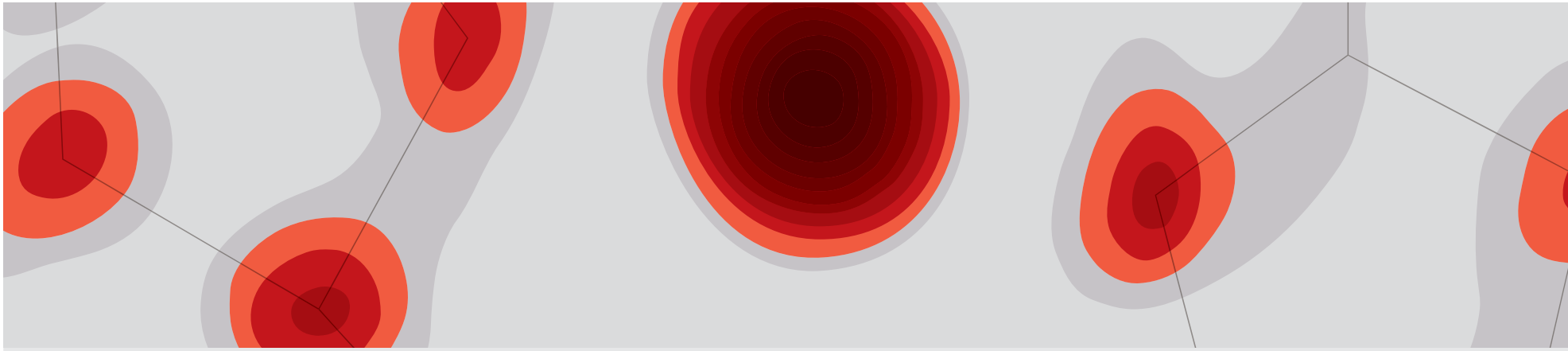


HRA Webinar: Intro to Data Sharing

Andrew L. Hufton

Managing Editor, *Scientific Data*

https://www.nature.com/sdata/

nature research

Science has always required showing your evidence

1

Backing up your claims with evidence has always been a key part of science

Roger Bacon, 1214 – 1292

Opus Majus

“ Theories supplied by reason should be verified by sensory data, aided by instruments, and corroborated by trustworthy witnesses

Opus Tertium

“ The strongest argument proves nothing so long as the conclusions are not verified by experience.

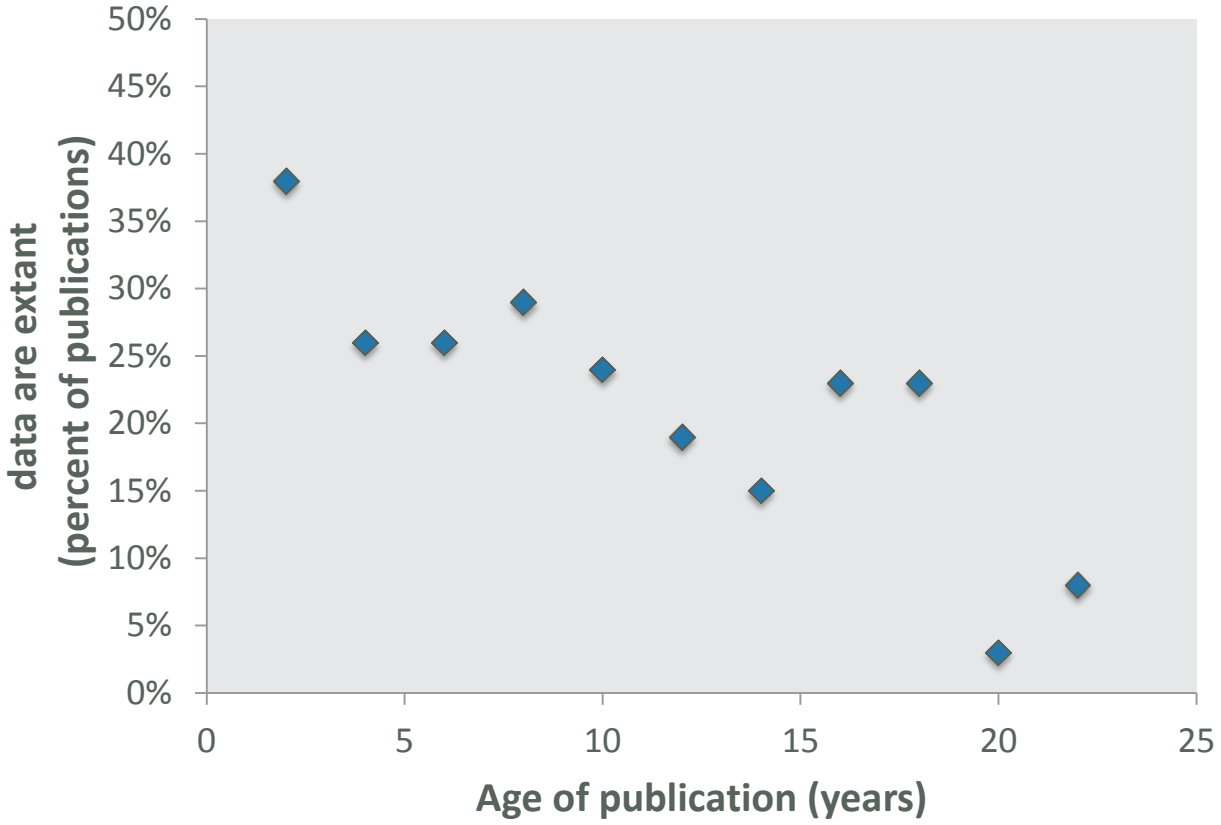
Fundamental sharing policy for *Nature* and the Nature research journals

> An inherent principle of publication is that others should be able to replicate and build upon the authors' published claims. A condition of publication in a Nature journal is that **authors are required to make materials, data, code, and associated protocols promptly available** to readers without undue qualifications. Any restrictions on the availability of materials or information must be disclosed to the editors … [and] … in the submitted manuscript.

Supporting data must be made available to editors and peer-reviewers at the time of submission for the purposes of evaluating the manuscript.

See http://www.nature.com/authors/policies/availability.html

Sharing upon request has problems



Replotted from:
Vines *et al*. *Current Biology* (2014)
doi:10.1016/j.cub.2013.11.014

Raw data at *Dryad*
doi: 10.5061/dryad.q3g37

When developing a data sharing policy…

2

Think about how you can make the data useful to others…

Open data is about more than disclosure – it must be "FAIR"

- Findable
- Accessible
- Interoperable
- Re-usable

Wilkinson *et al. Sci. Data* **doi:10.1038/sdata.2016.18** (2016)
https://www.nature.com/articles/sdata201618

Think about why you are sharing data…

- Support data sharing within defined collaborations (i.e. sharing with friends)
- Help others critically evaluate and reproduce an authors' claims (i.e. sharing with critics)
- Allow others to use data in separate research projects, including overlapping or competitive research (i.e. sharing with competitors)

Publish your data

3

the data paper

SCIENTIFIC DATA

- A clear, peer reviewed description of data, to maximize usage
- Citable publications that give credit for reusable data
- Visit our journal homepage to learn more: https://www.nature.com/sdata/

Get Credit for Sharing Your Data

Publications will be indexed and citeable.

Open-access

Data Descriptors are published under a Creative Commons Attribution licence (CC BY). Each publication supported by CC0 metadata.

Focused on Data Reuse

All the information others need to reuse the data; no interpretative analysis, or hypothesis testing

Peer-reviewed

Rigorous peer-review focused on technical data quality and reuse value

Promoting Community Data Repositories

Not a new data repository; data stored in community data repositories

Find the right repository for your data

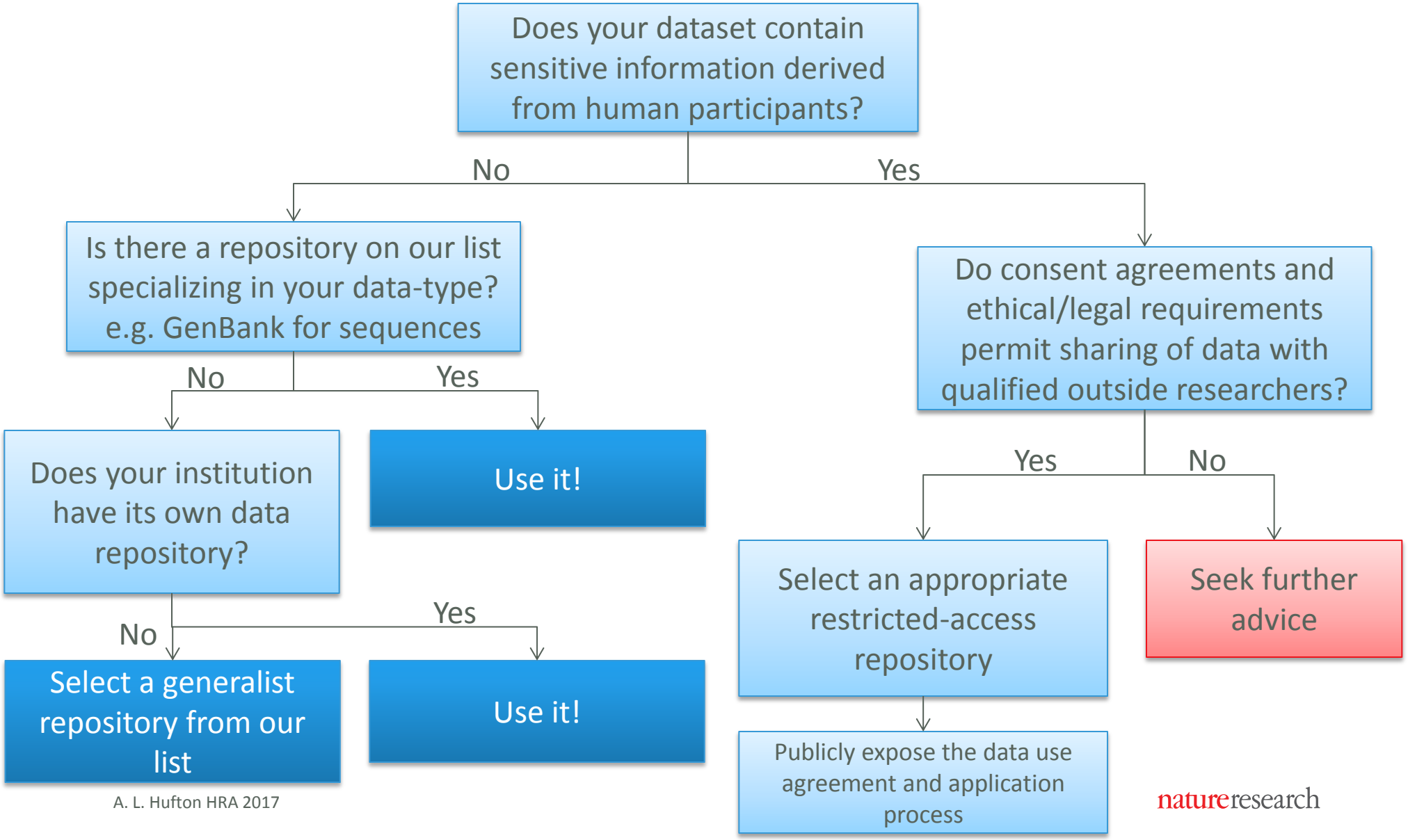
3

General features to look for in a data repository

- Quality curation
- A commitment to long-term preservation
- Features that support collaborative analysis
- Features that allow you keep data private until you are ready to publish.
- Open data licensing options (e.g. CC0 or CC BY)

An overly simple guide to picking the right data repository

https://www.nature.com/sdata/policies/repositories



A. L. Hufton HRA 2017

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Repositories that can handle sensitive human data

Always seek approval and guidance from your institutional ethical authority and/or data access committee before depositing human data to a third-party repository. In most cases, data should be carefully anonymized or pseudonymized before deposition.

Genotype-phenotype data archives

- dbGAP (http://www.ncbi.nlm.nih.gov/gap)
- EGA (http://www.ebi.ac.uk/ega/)

National disease-specific databases

- National Addiction & HIV Data Archive Program (http://www.icpsr.umich.edu/icpsrweb/NAHDAP/)
- National Database for Autism Research (http://ndar.nih.gov/)

Social science databases

Extensive experience with human-derived datasets, often can handle diverse kinds of clinical and health-related data

- UK Data Service ReShare (http://reshare.ukdataservice.ac.uk/)
- openICPSR (http://www.openicpsr.org/)

Generalist repositories

figshare

- In-browser data viewers, make tables and code easily previewable
- Media files immediately playable
- No link to a peer-reviewed publication required
- 100 GB of free storage available via *Scientific Data*, data kept private during peer-review
- Unlimited public storage available via figshare.com for researchers willing to make data immediately public

Dryad Digital Repository (http://datadryad.org/)

- $120 USD for first 20 GB, and $50 USD for each additional 10 GB
- Curation support helps authors with basic file naming & upload checking, and screens for inappropriate human data
- Only accepts data associated with a specific publication

Others: Harvard Dataverse (http://dataverse.harvard.edu/), Open Science Framework (http://osf.io/), Zenodo (http://zenodo.org/)

Data reuse is powerful

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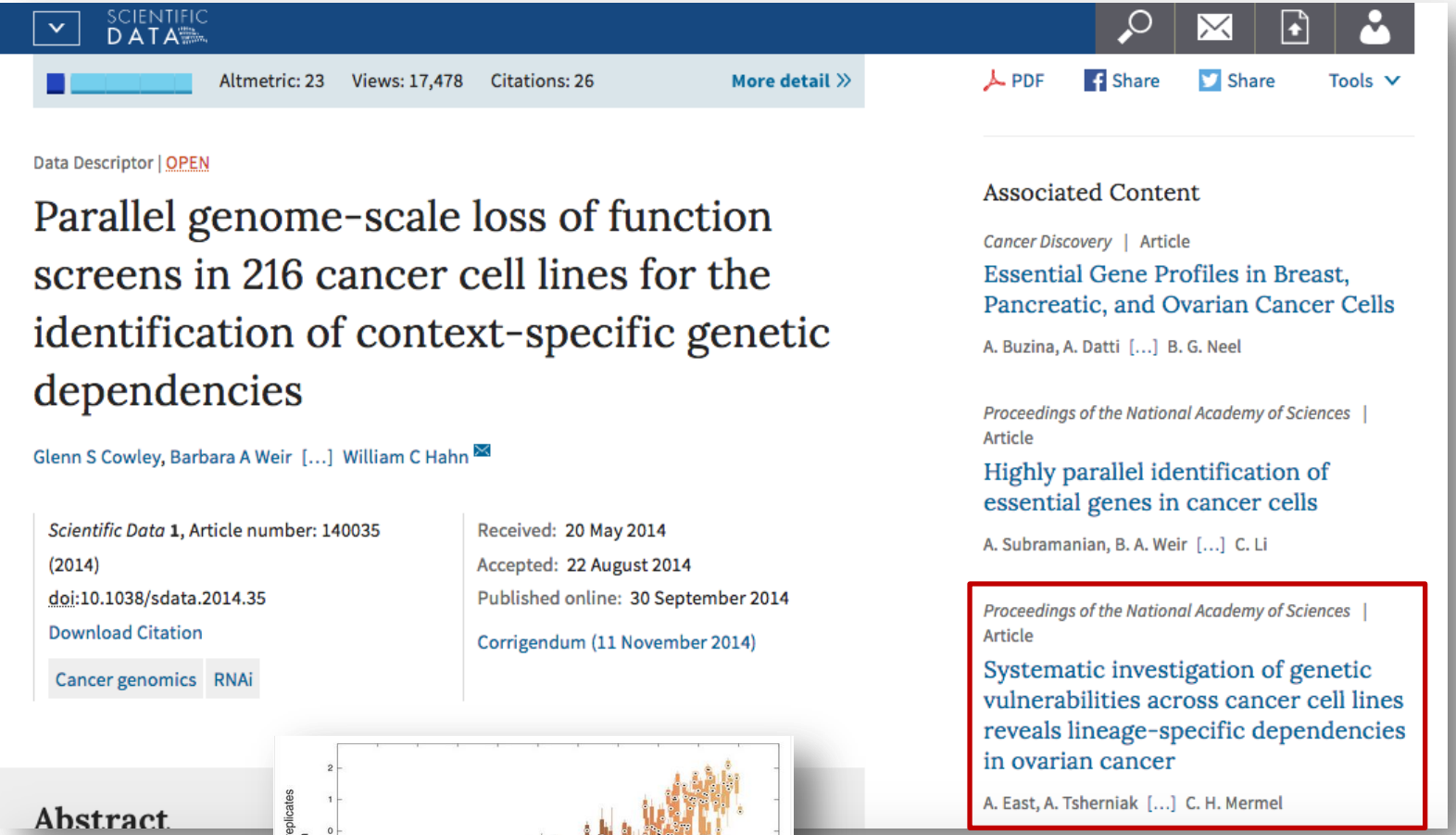

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PDF Share Share Tools

Data Descriptor | OPEN

Parallel genome-scale loss of function screens in 216 cancer cell lines for the identification of context-specific genetic dependencies

Glenn S Cowley, Barbara A Weir […] William C Hahn

Scientific Data **1**, Article number: 140035 (2014)
doi:10.1038/sdata.2014.35
Download Citation

Cancer genomics RNAi

Received: 20 May 2014
Accepted: 22 August 2014
Published online: 30 September 2014

Corrigendum (11 November 2014)

Abstract

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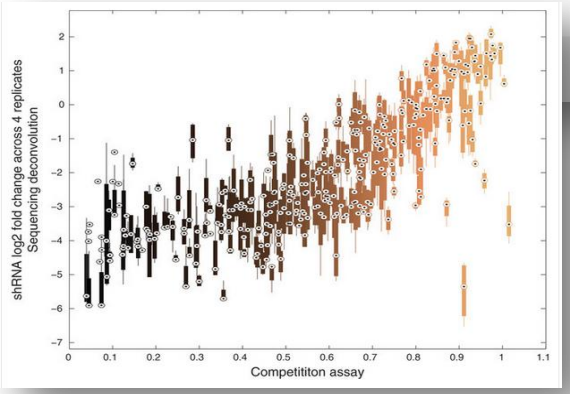

- **Screen results and in-depth analysis published in 2011 at *PNAS***
- **Full screen data published at *Scientific Data* in 2014**
- Data at **figshare**
- Data Descriptor cited 94 times according to Google Scholar!

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Get the most from your data

Preserve it
Encourage reuse
Get credit

Encourage others to do the same

SCIENTIFIC DATA

Thanks!

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