Method development, sharing and publication at core facilities

WACD 2022

Gabriel Gasque, PhD
Head of Outreach

protocols.io

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Agenda

- protocols.io’s mission
- protocols.io’s platform
- protocols.io and core facilities
  - Methods
  - Equipment
  - Collaborations
  - Credit
- Training resources
- Q&A

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protocols.io's mission

Make it easy to share method details before, during, and after publication.

Cancer Biology Reproducibility Project

protocols.io's mission

1. Experimental reproducibility
2. Scientific integrity and accountability
3. Data interpretability
4. Credit for method development
5. Method-based collaboration
6. Method preservation

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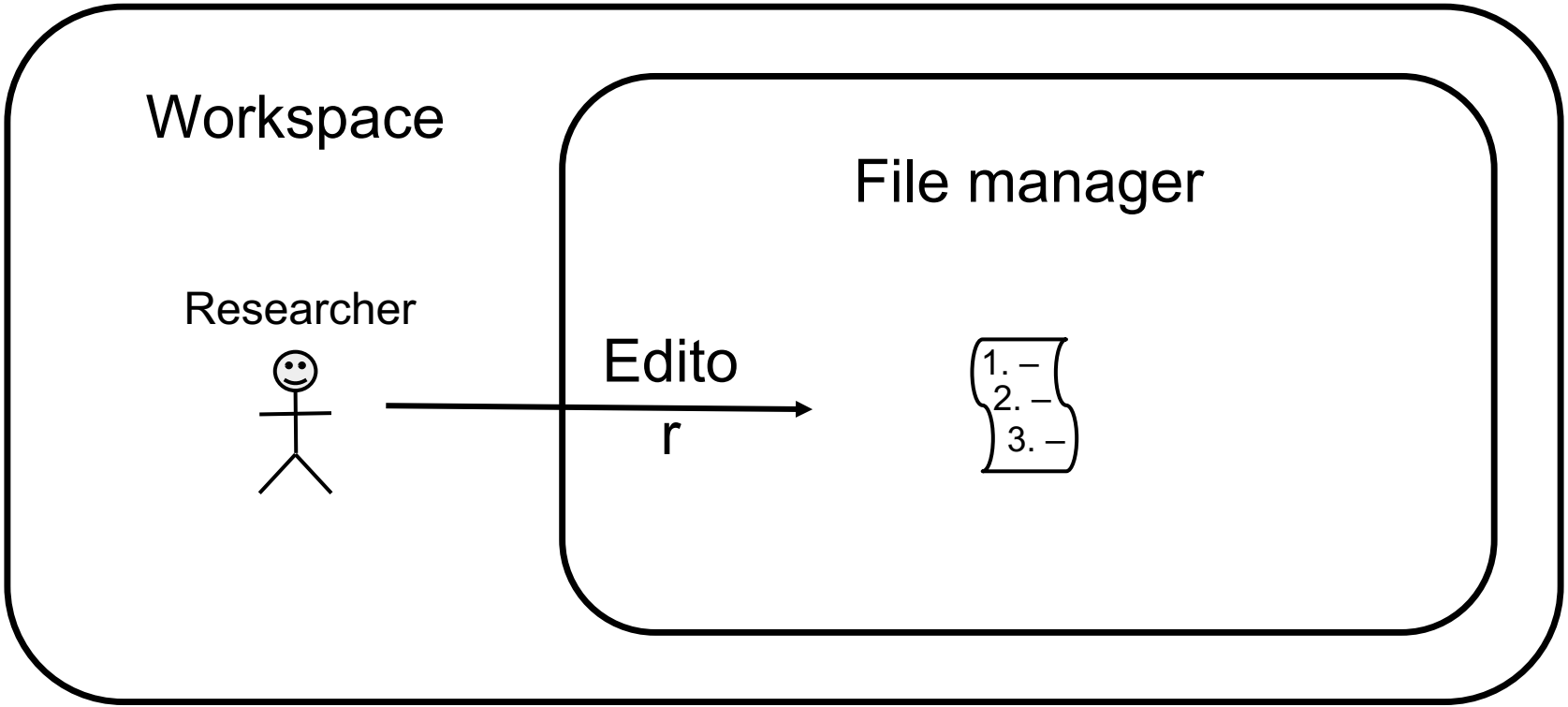
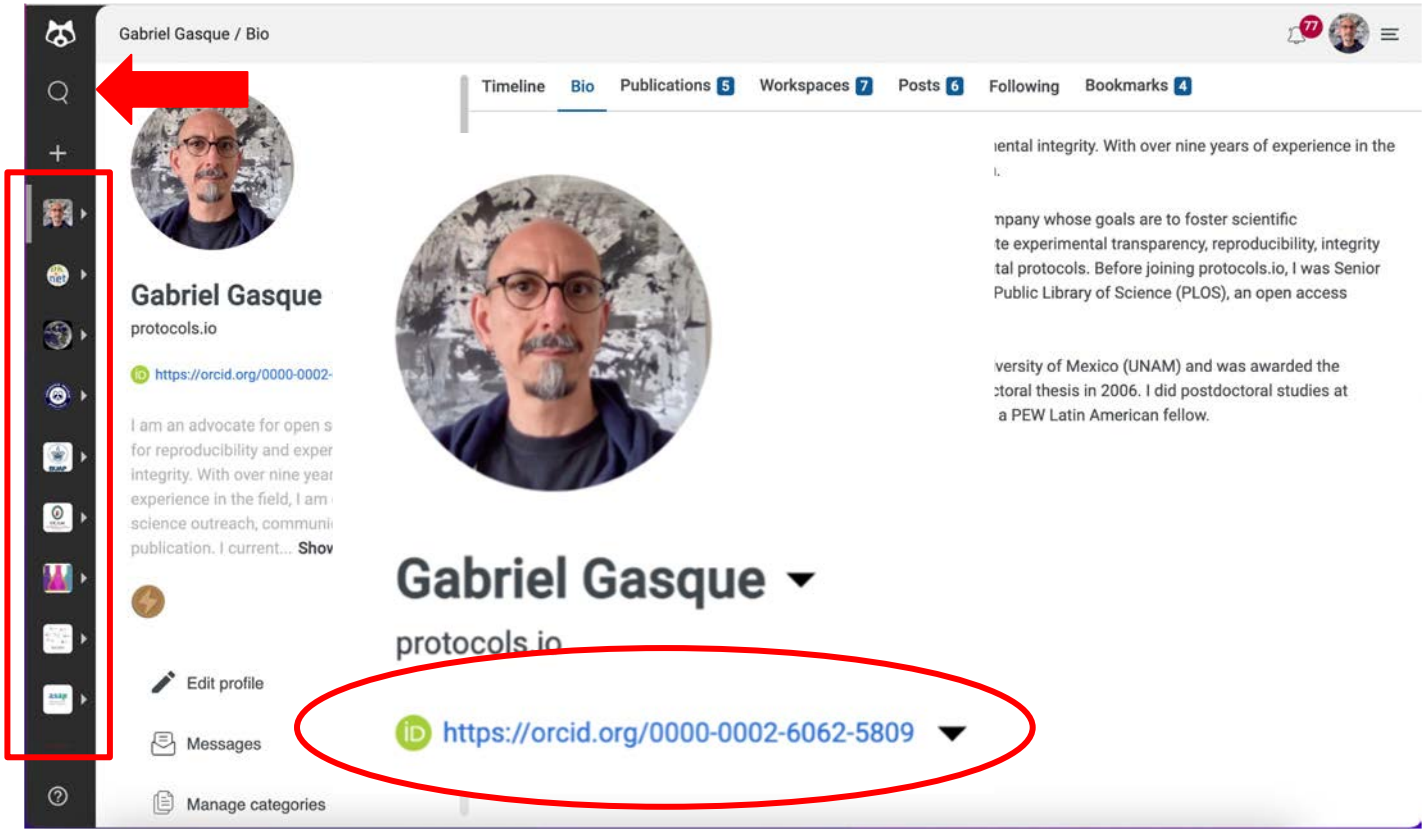
protocols.io's platform

- Collaborative development and refinement of detailed, interactive and dynamic experimental protocols.
- Archiving, organizing, exporting and copying/forking.
- Sharing and publishing.
- Protocol repository
- Collaborative workspaces

Workspace, file manager, and editor

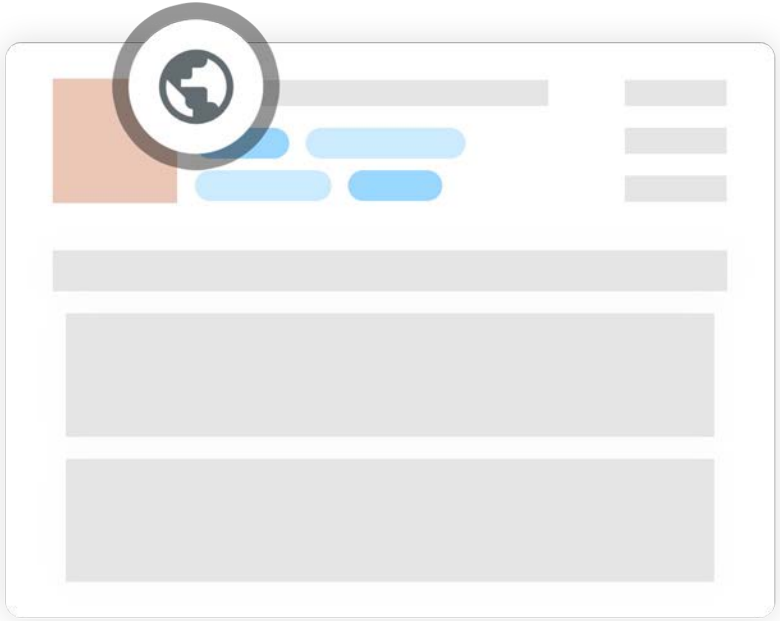


Workspace, file manager, and editor



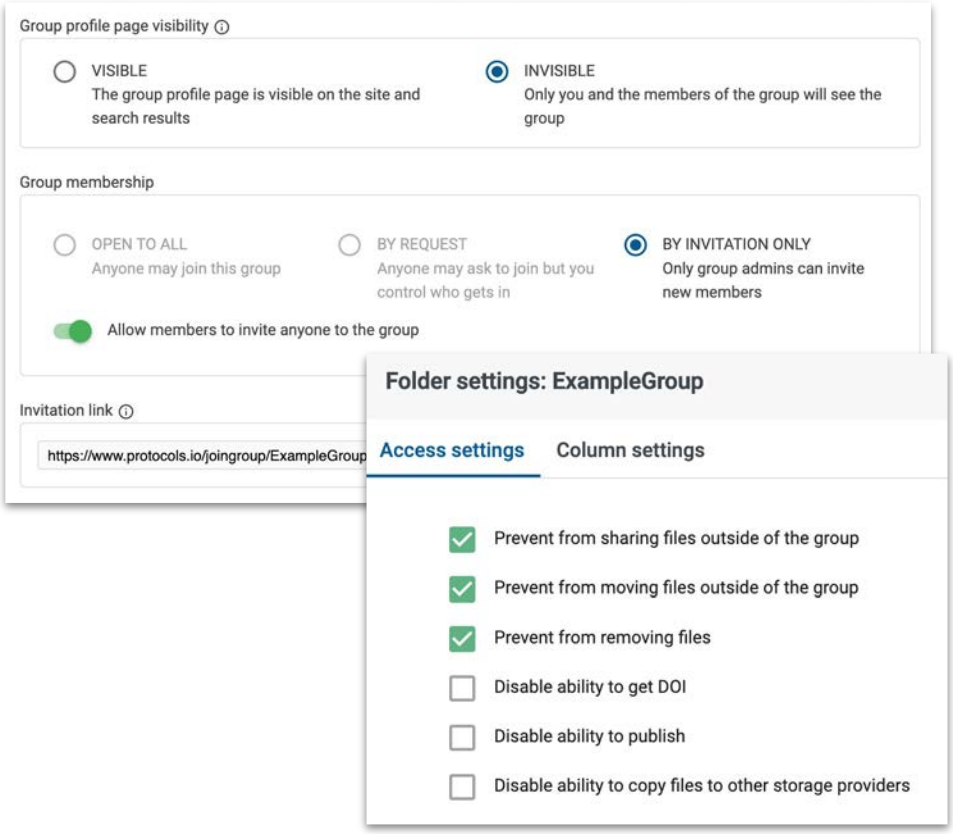
Workspaces can be public or private

Public workspaces

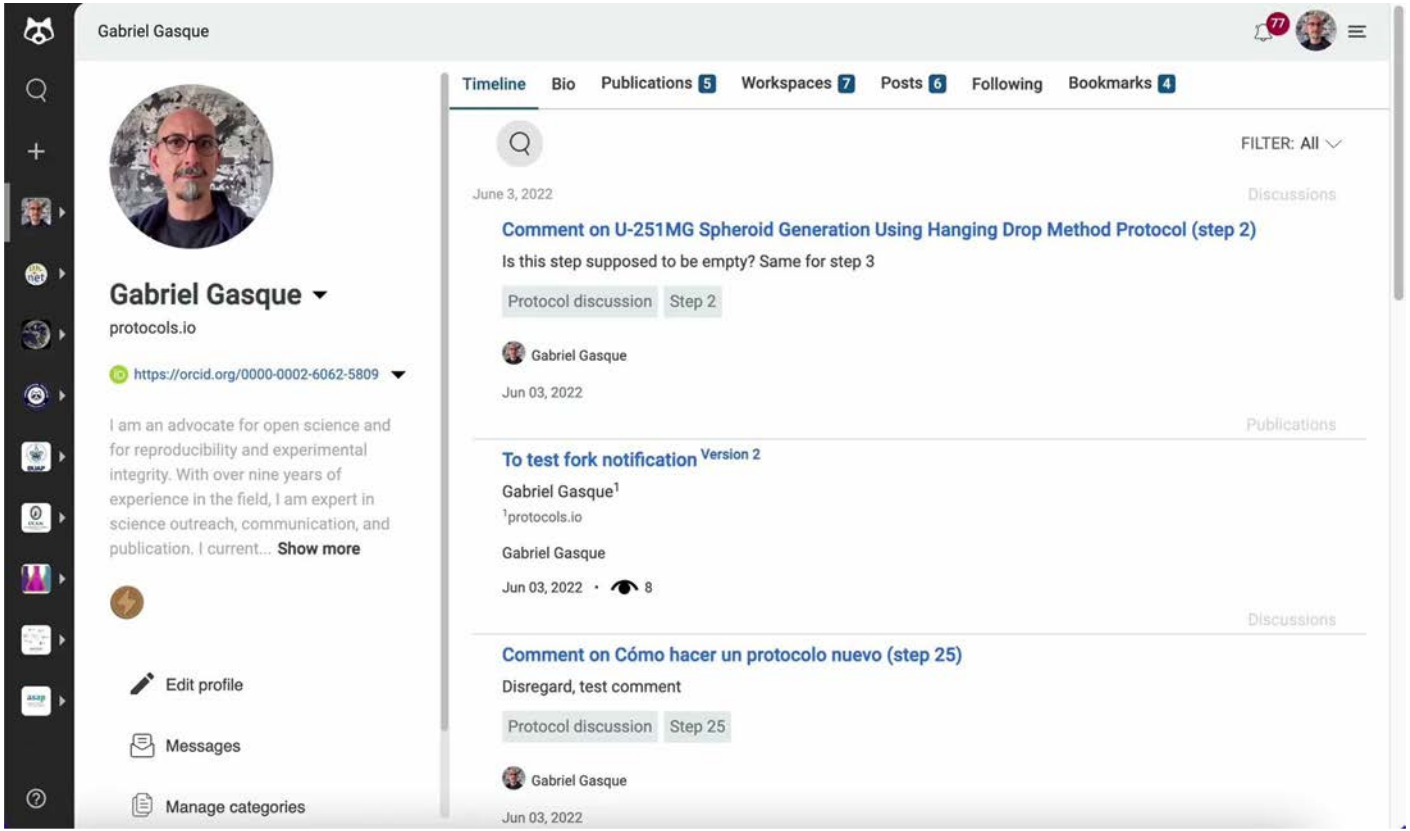


Private workspaces

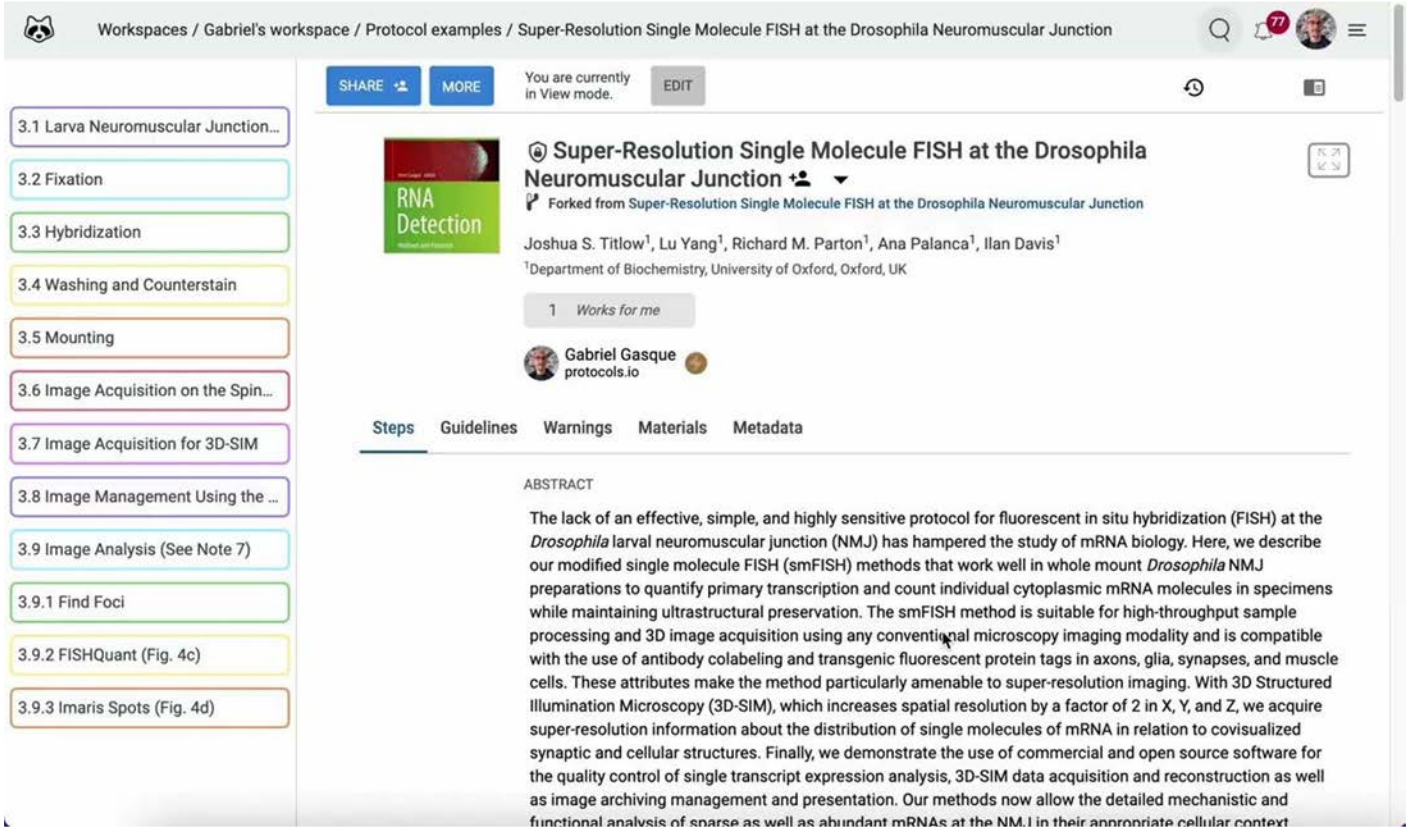
Workspace membership is customizable



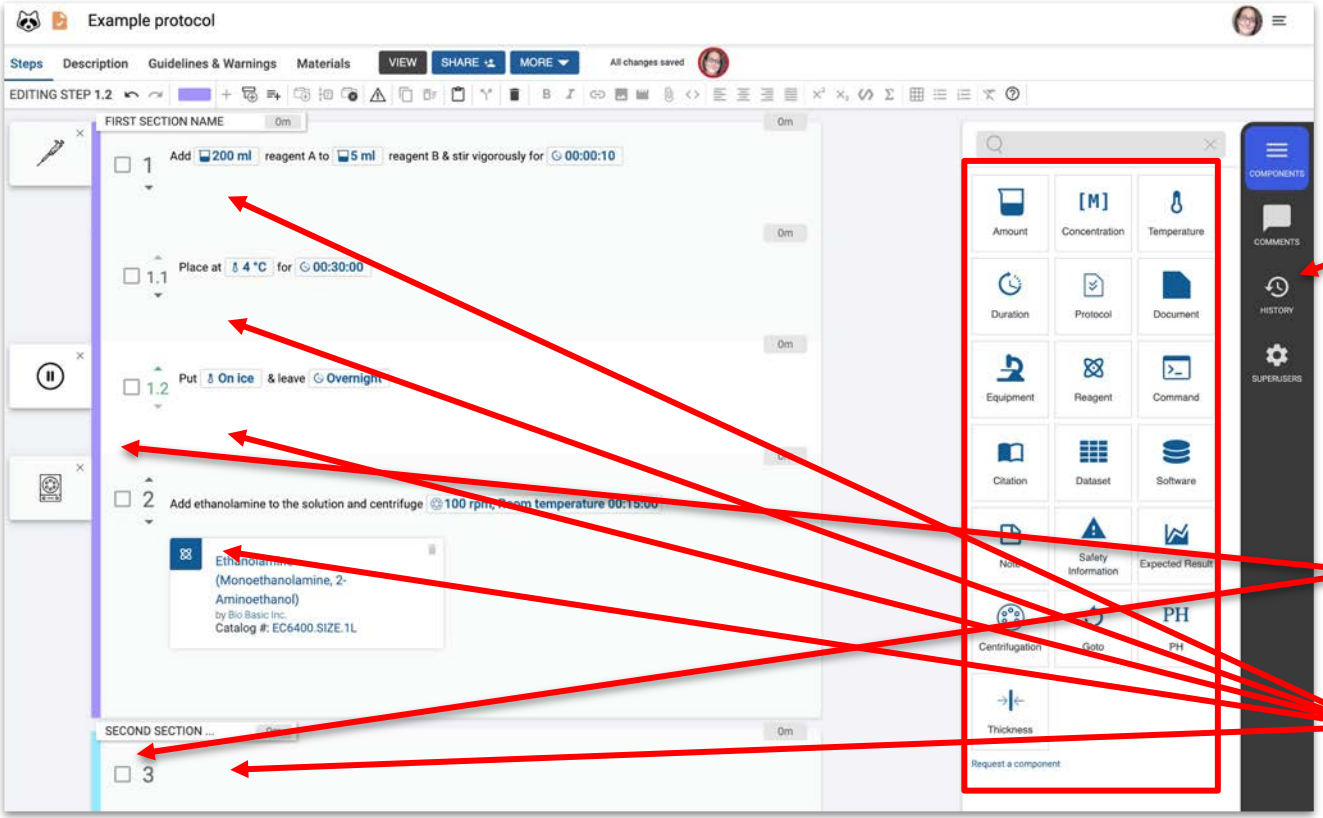
Workspace, file manager, and editor



Dynamic and interactive protocols

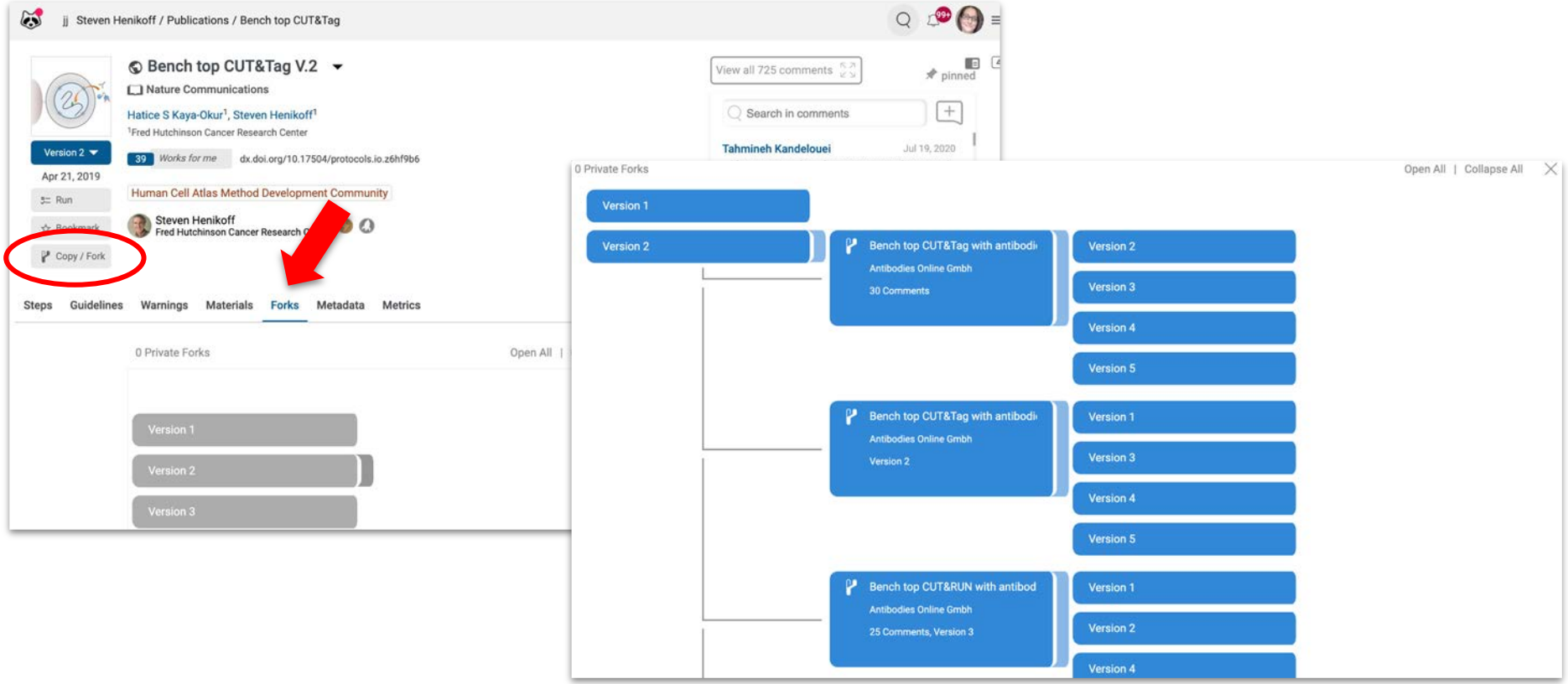


Editor

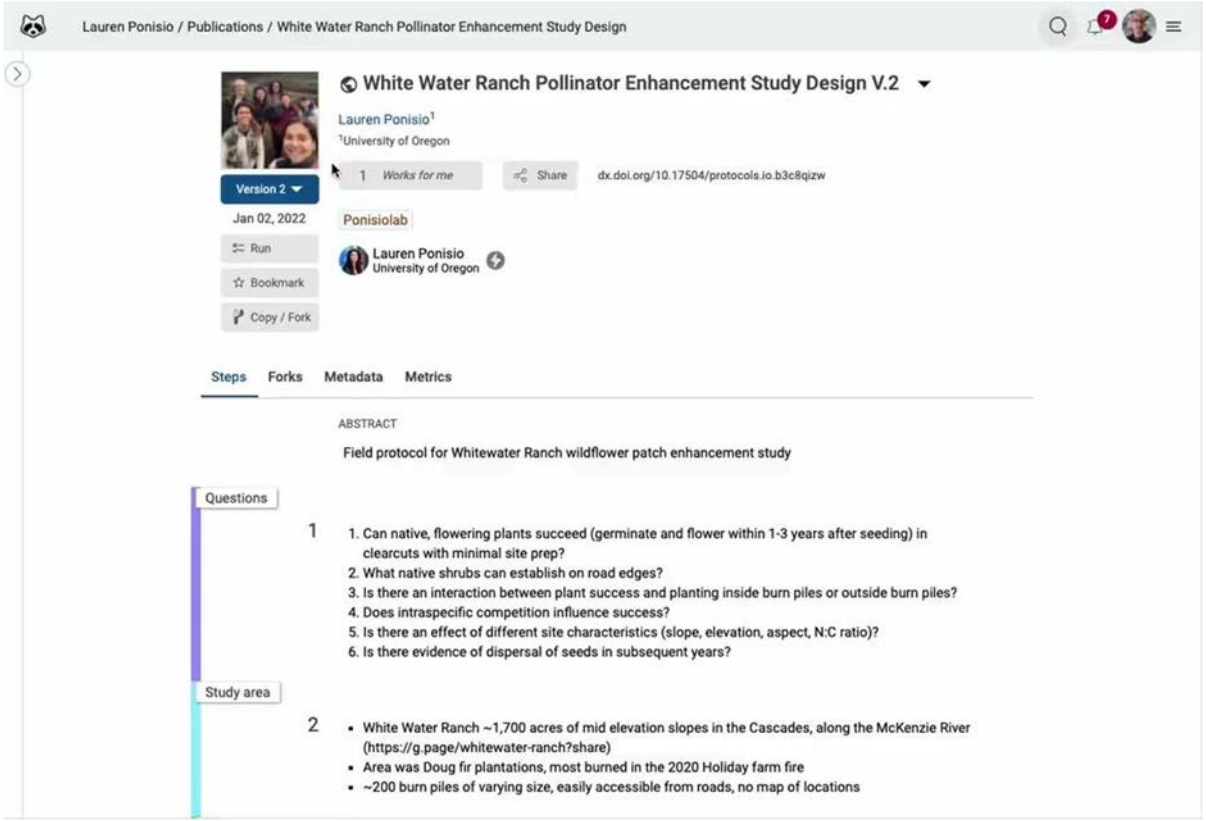


- Detailed components
- Granular editing history
- Concurrent editing
- Color coded section labels
- Step-by-step format

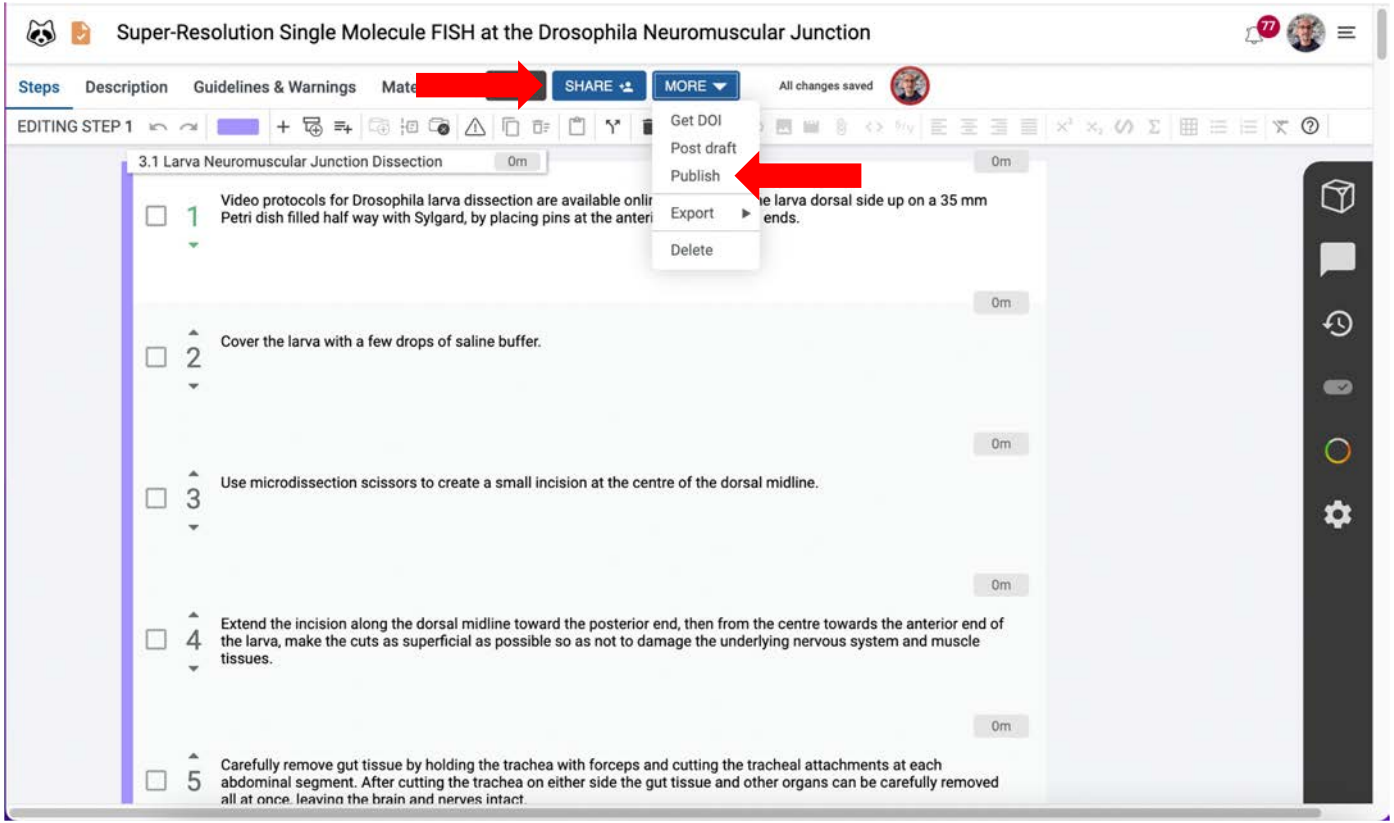
Copy and fork



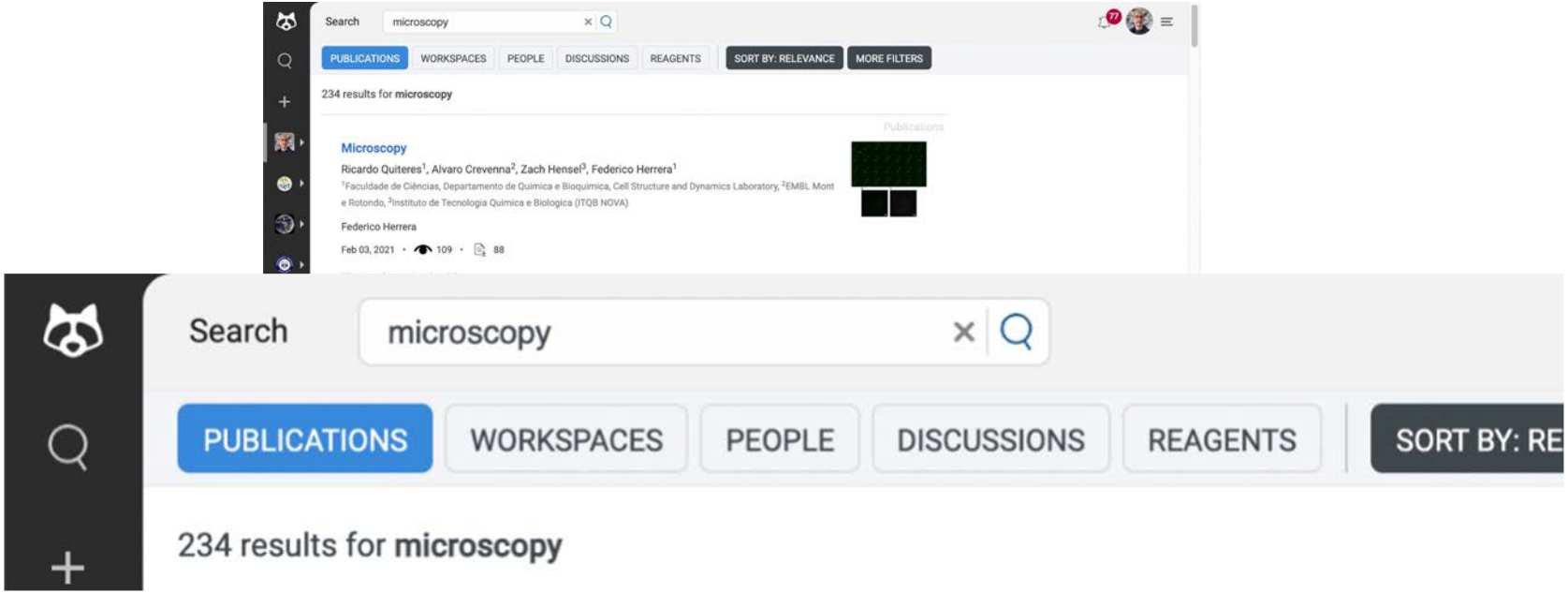
Version comparison



Share and publish

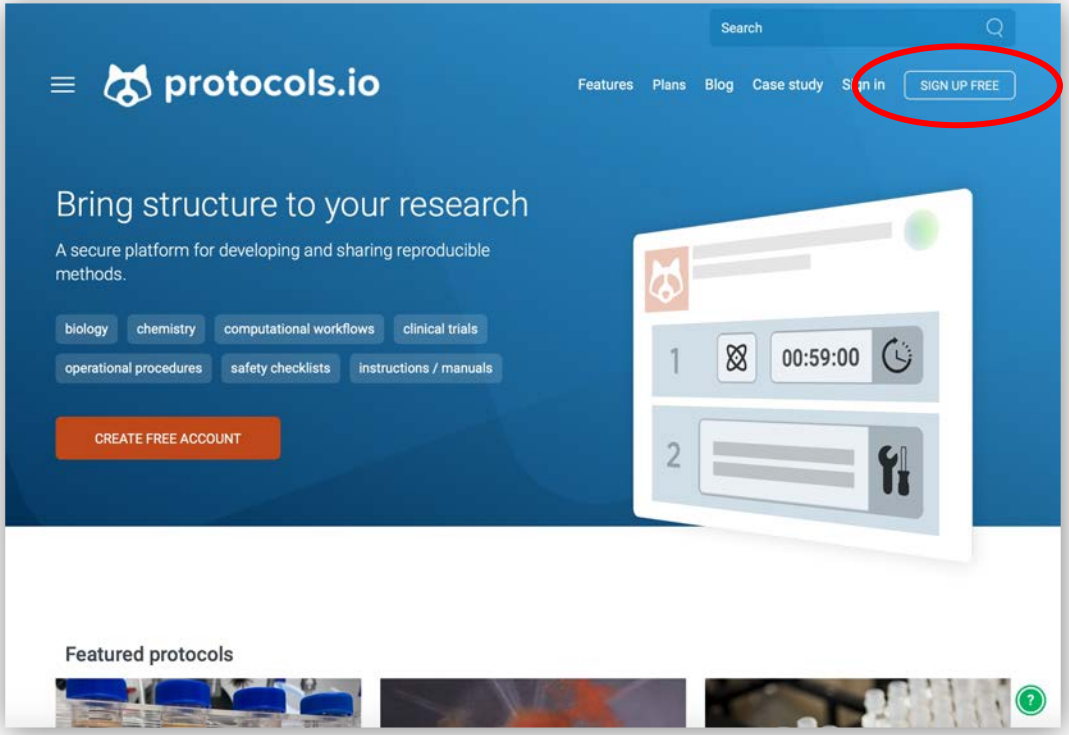


Public content is searchable



A growing community of users and protocols

- Open access repository
- All research disciplines
- Collaborative tool
- Archived & Mirrored



Some Stats

Total users:
>114,000
Total public protocols:
>12,000
Total private protocols:
>40,000

Average views/month:
>200,000

https://www.protocols.io/welcome

Organizations encouraging use of protocols.io

Journals & Publishers

Recommending protocols.io on manuscript submission

AACR American Association for Cancer Research · PLOS · GSA Genetics Society of America · eLIFE

500+ journals

Funders

Requiring or recommending protocols.io in grant guidelines/policies

HELMSLEY · Alex's Lemonade Stand · CZI · Gordon and Betty Moore Foundation · NIH · Wellcome

Institutions

Campus licenses for more reproducible research and publications.

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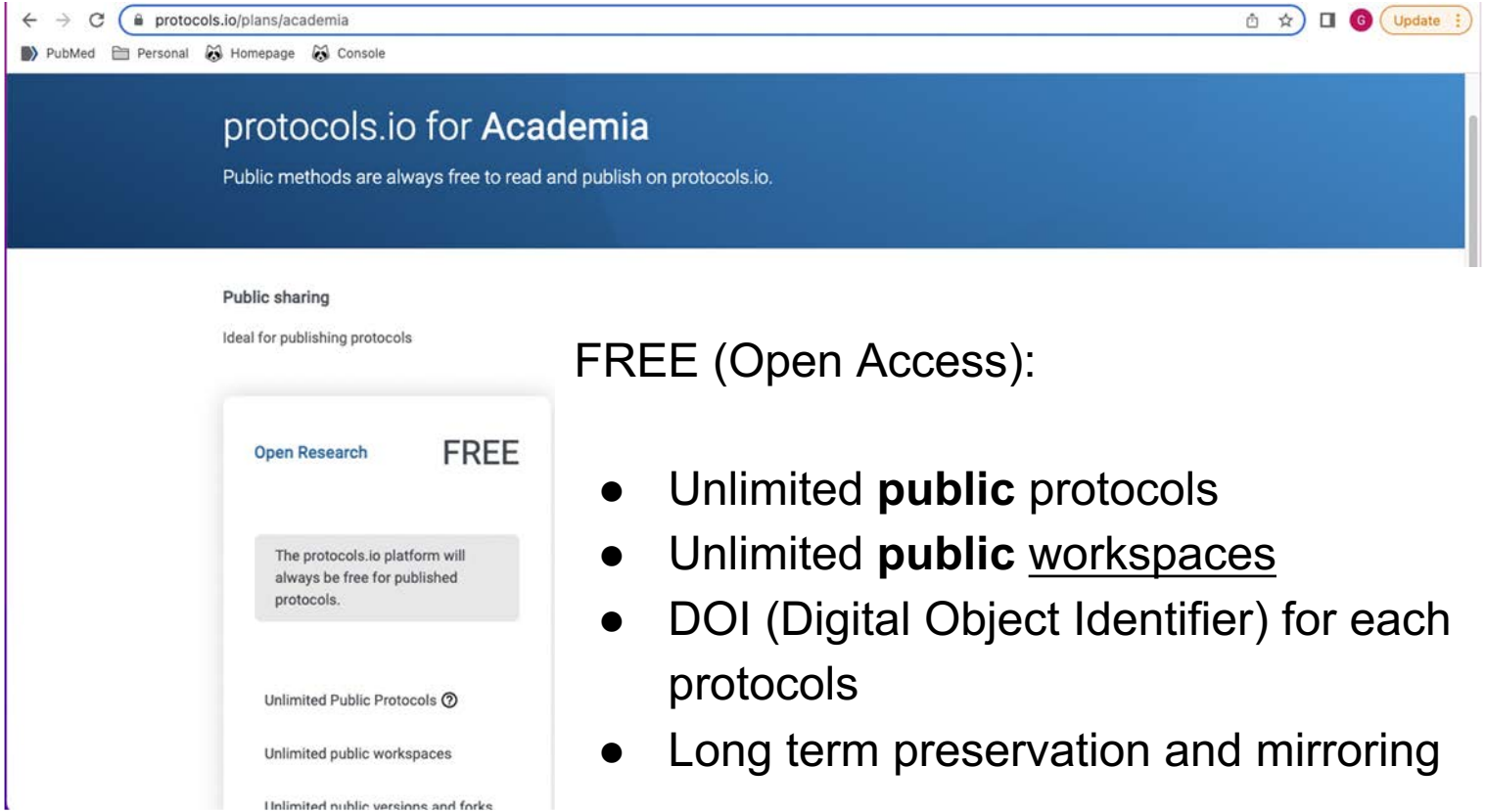
+ more

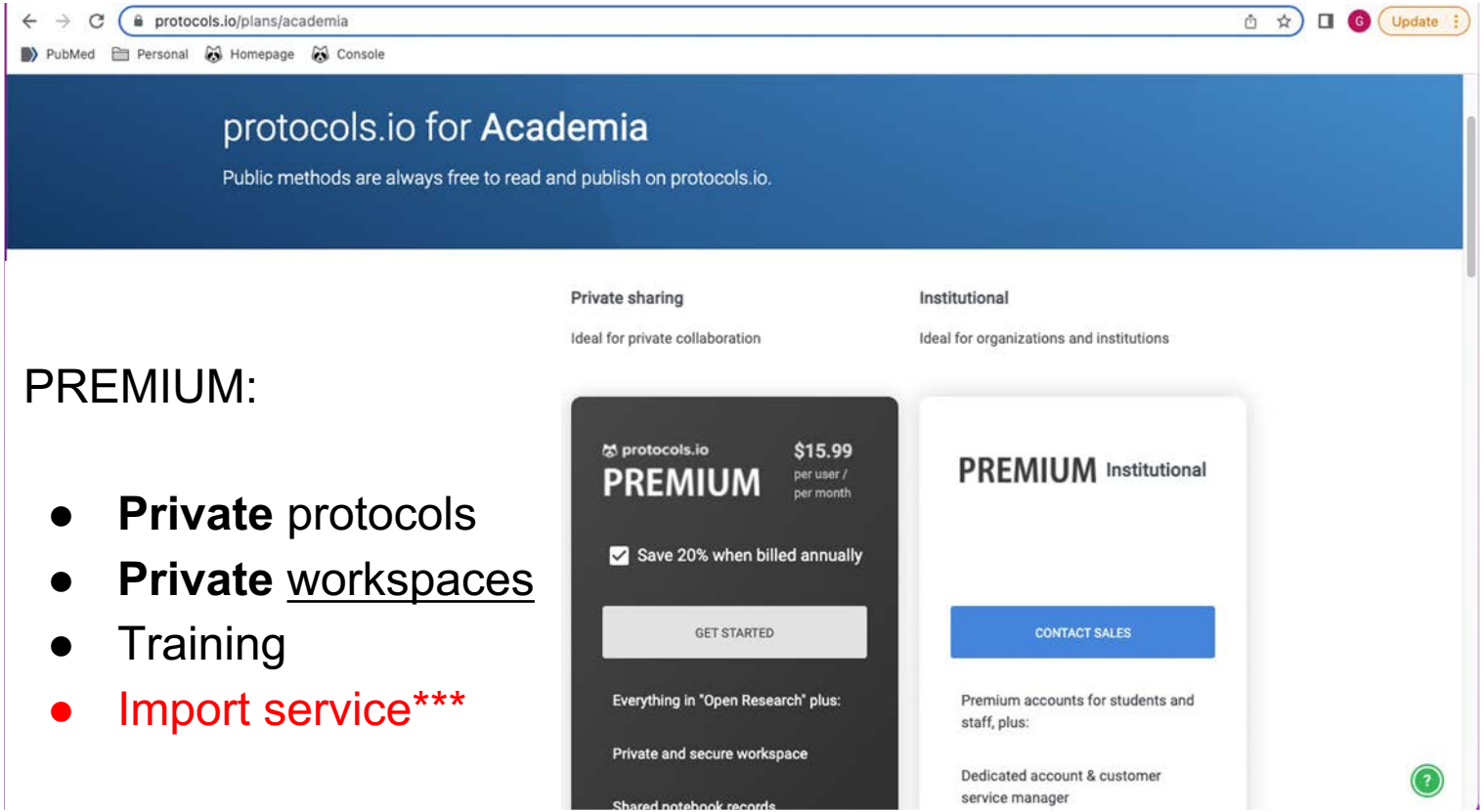
protocols.io's business model



FREE (Open Access):

- Unlimited **public** protocols
- Unlimited **public** workspaces
- DOI (Digital Object Identifier) for each protocols
- Long term preservation and mirroring

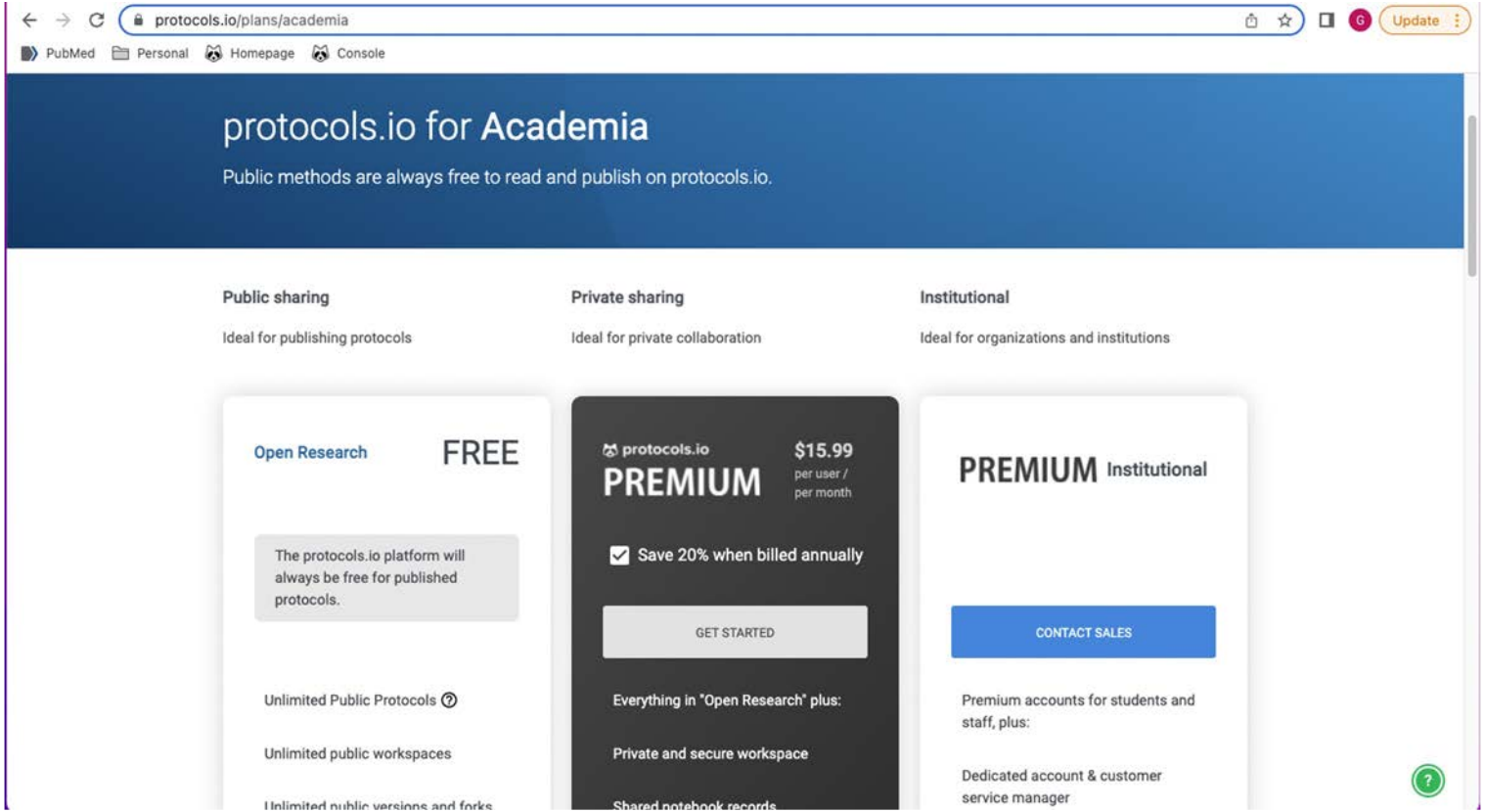
protocols.io's business model



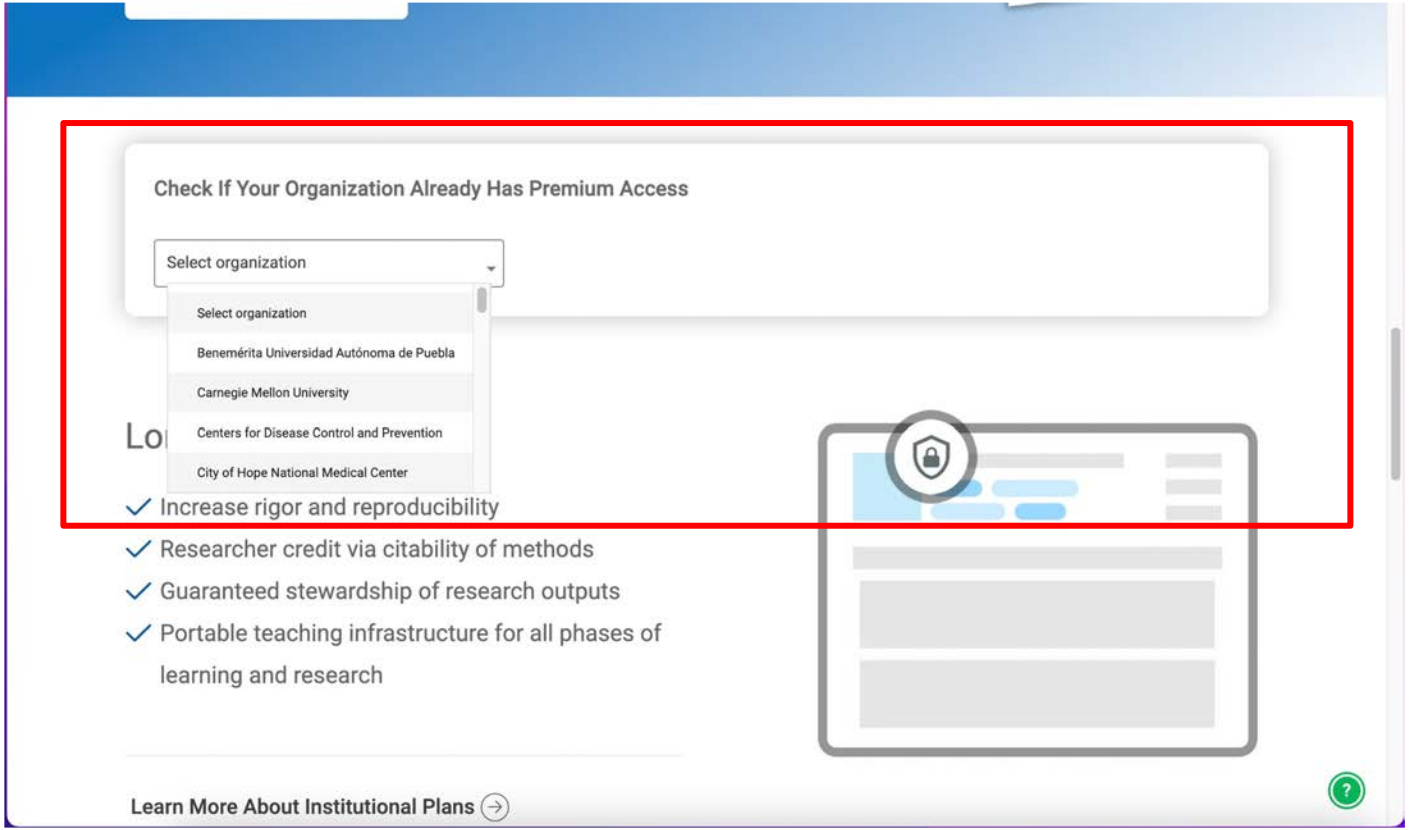
PREMIUM:

- **Private** protocols
- **Private** workspaces
- Training
- Import service***

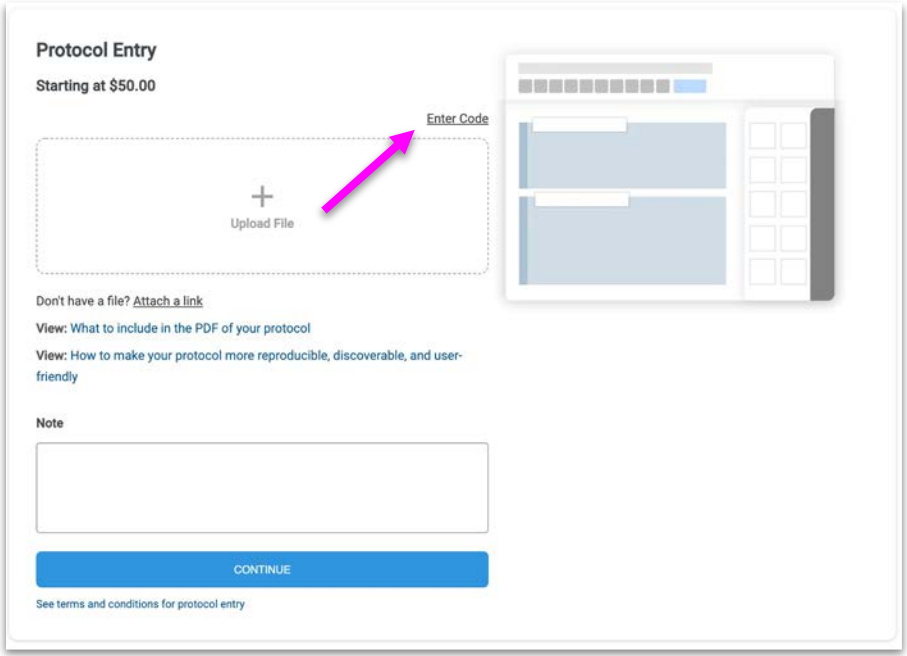
protocols.io/plans/academia



protocols.io/institutions



Protocol Import Service



1. **Send us your protocol.**
2. **We import and format your protocol.**
1. **You review the digitized protocol.**
1. **Publish at any time.**

https://www.protocols.io/we-enter-protocols

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Case study: New England Biolabs

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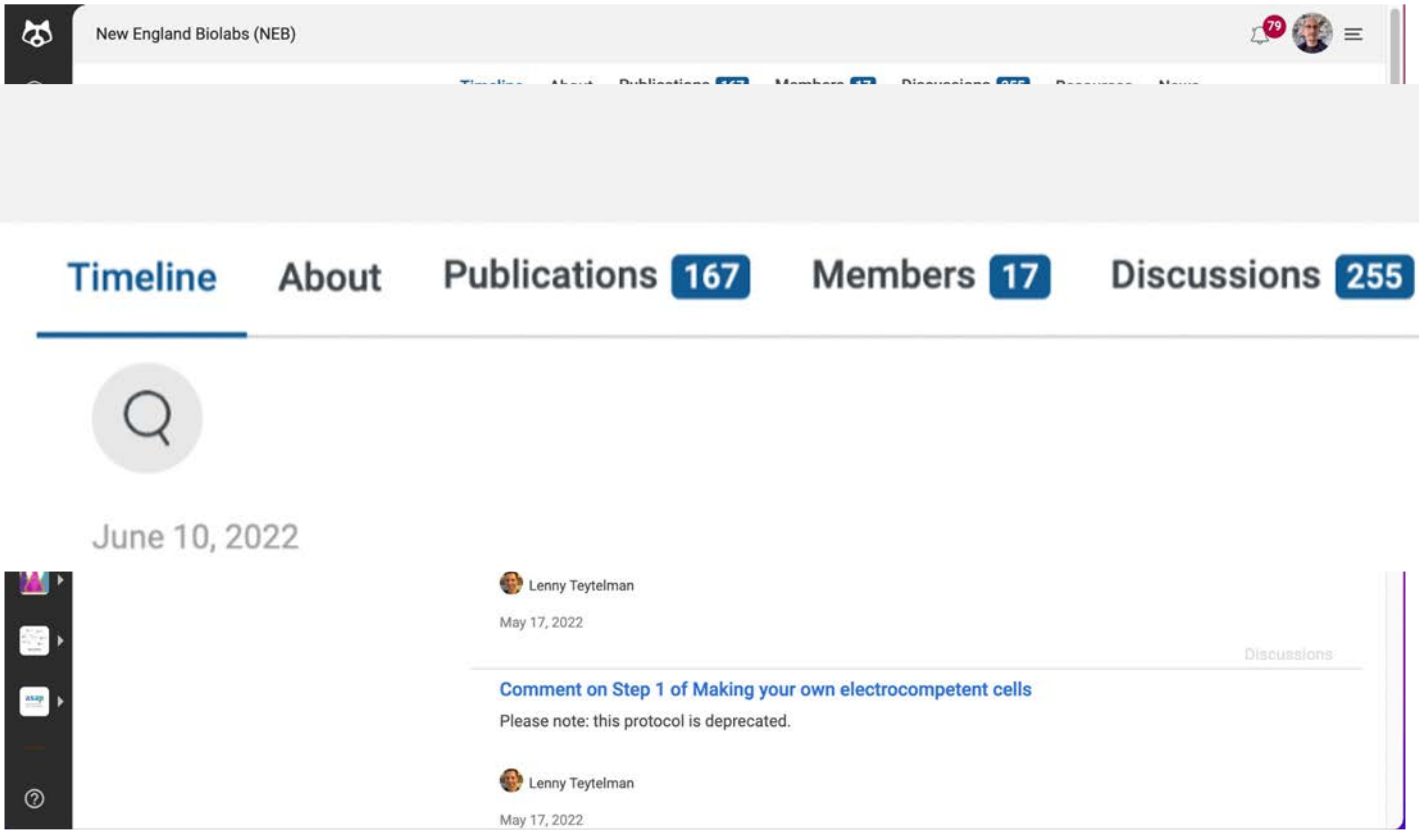
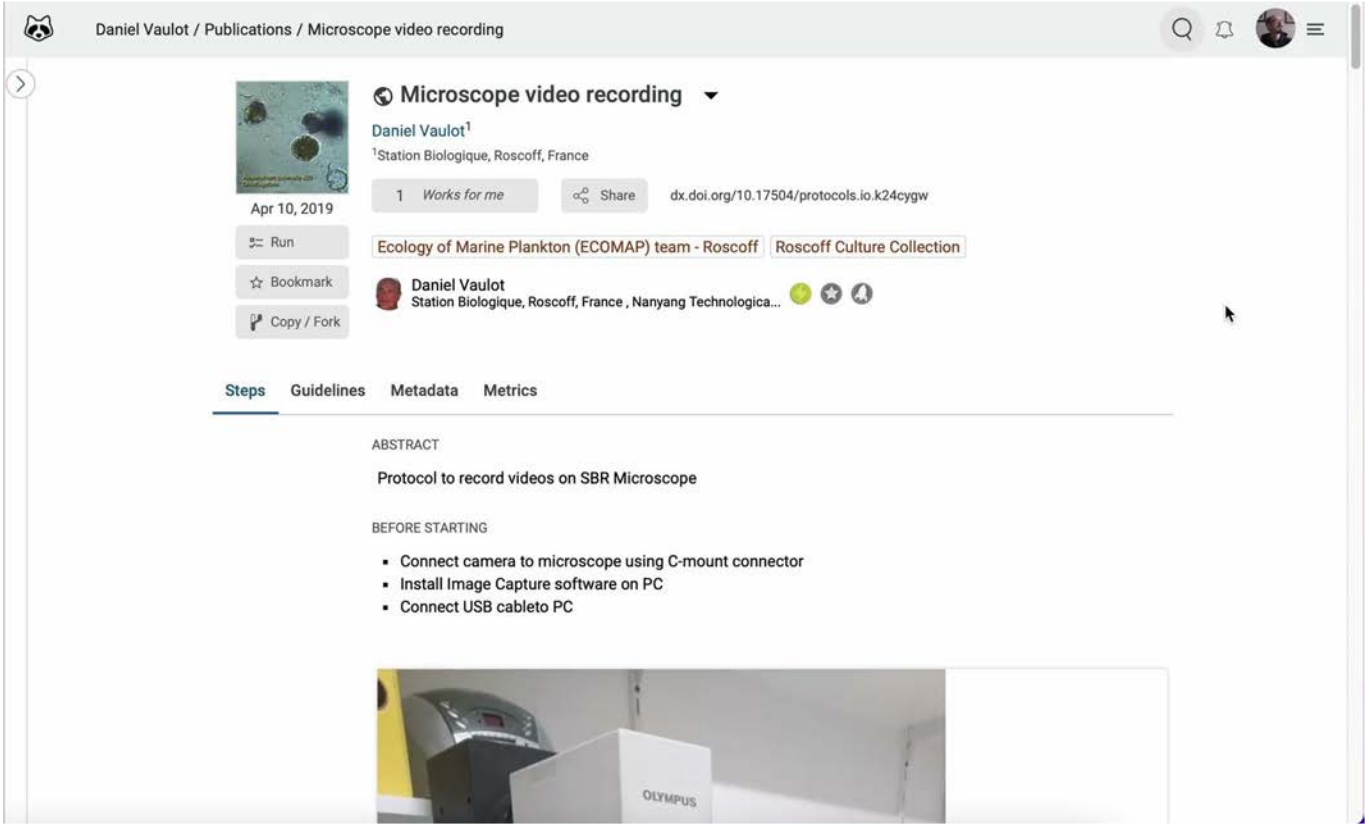
Case study: New England Biolabs



Case study: New England Biolabs

Protocols for equipment



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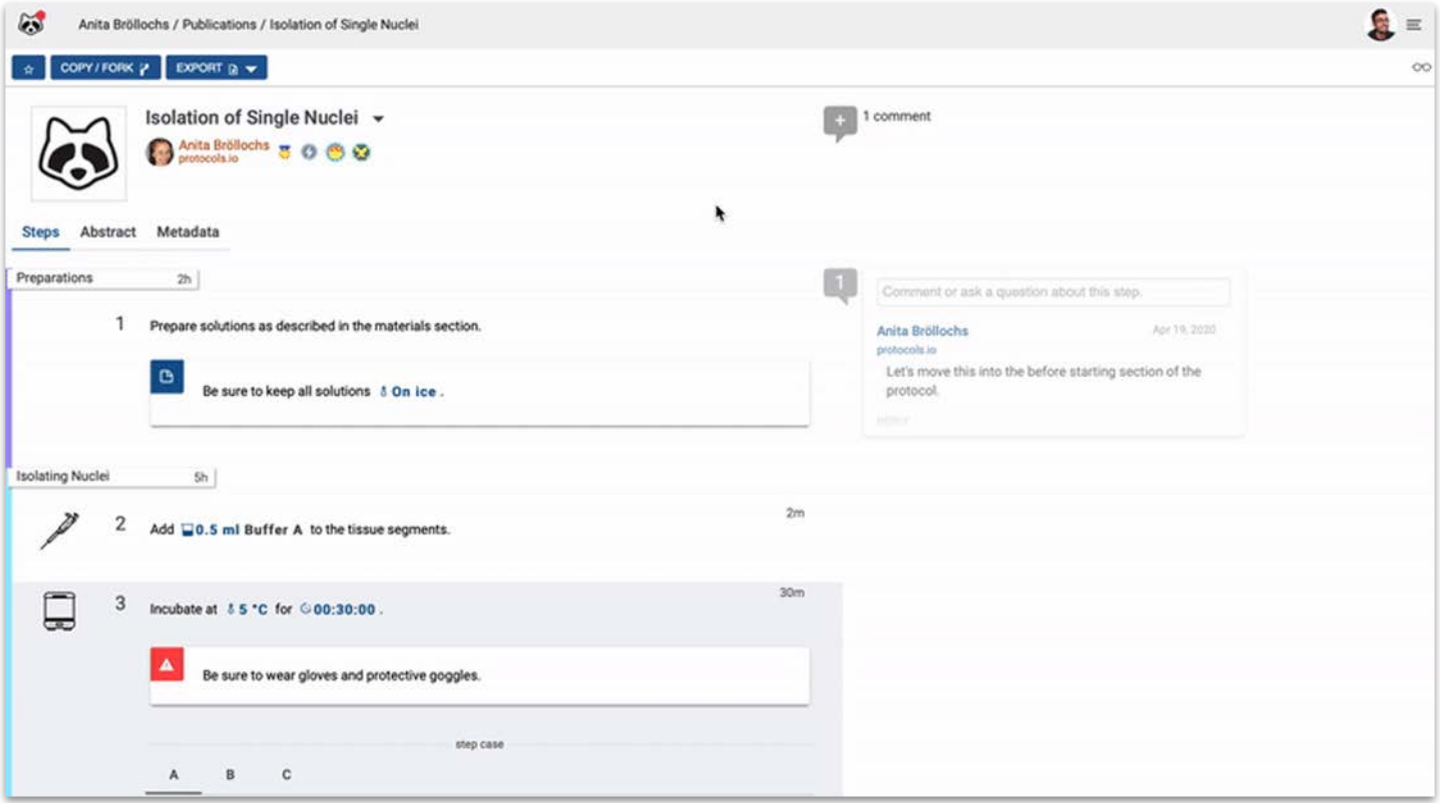
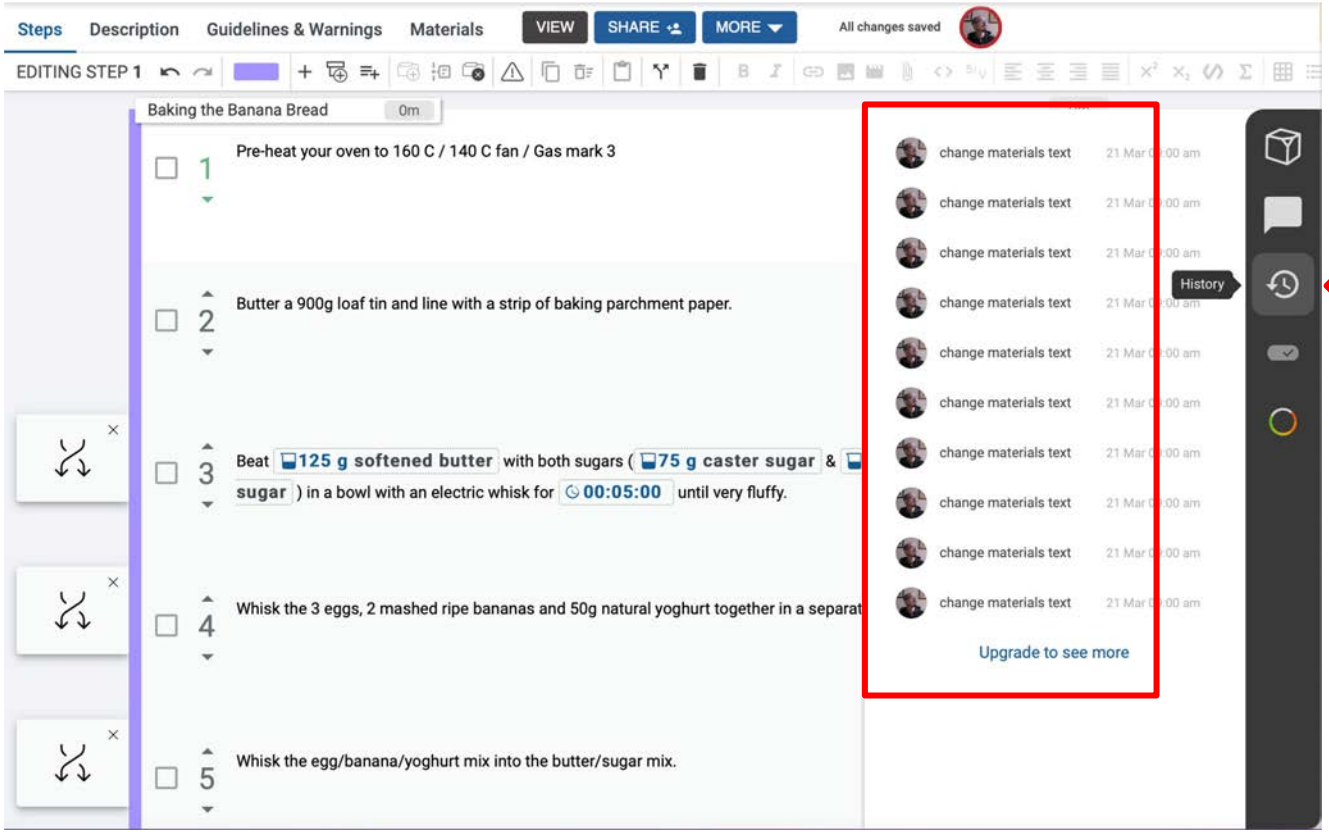
Workspaces for collaborations



Workspaces for collaborations



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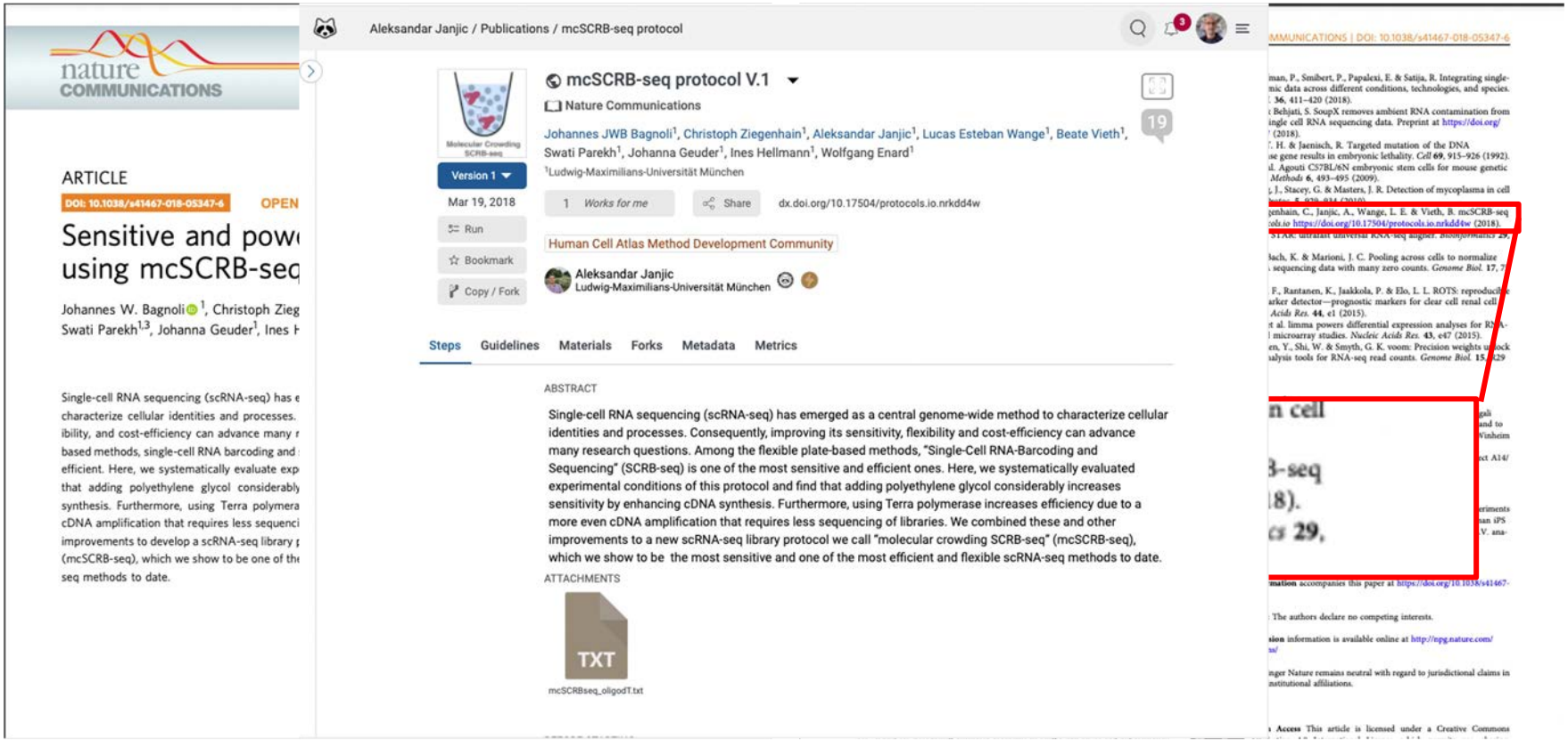
Published protocols are citable



nature COMMUNICATIONS

ARTICLE

DOI: 10.1038/s41467-018-05347-6 OPEN

Sensitive and pow
using mcSCRB-seq

Johannes W. Bagnoli[1], Christoph Zieg
Swati Parekh[1,3], Johanna Geuder[1], Ines H

Single-cell RNA sequencing (scRNA-seq) has e
characterize cellular identities and processes.
ibility, and cost-efficiency can advance many r
based methods, single-cell RNA barcoding and
efficient. Here, we systematically evaluate exp
that adding polyethylene glycol considerably
synthesis. Furthermore, using Terra polymera
cDNA amplification that requires less sequenci
improvements to develop a scRNA-seq library
(mcSCRB-seq), which we show to be one of the
seq methods to date.

Aleksandar Janjic / Publications / mcSCRB-seq protocol

Molecular Crowding SCRB-seq

Version 1

Mar 19, 2018

Run

Bookmark

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mcSCRB-seq protocol V.1

Nature Communications

Johannes JWB Bagnoli[1], Christoph Ziegenhain[1], Aleksandar Janjic[1], Lucas Esteban Wange[1], Beate Vieth[1], Swati Parekh[1], Johanna Geuder[1], Ines Hellmann[1], Wolfgang Enard[1]

[1]Ludwig-Maximilians-Universität München

1 Works for me

Share

dx.doi.org/10.17504/protocols.io.nrkdd4w

19

Human Cell Atlas Method Development Community

Aleksandar Janjic
Ludwig-Maximilians-Universität München

Steps Guidelines Materials Forks Metadata Metrics

ABSTRACT

Single-cell RNA sequencing (scRNA-seq) has emerged as a central genome-wide method to characterize cellular identities and processes. Consequently, improving its sensitivity, flexibility and cost-efficiency can advance many research questions. Among the flexible plate-based methods, "Single-Cell RNA-Barcoding and Sequencing" (SCRB-seq) is one of the most sensitive and efficient ones. Here, we systematically evaluated experimental conditions of this protocol and find that adding polyethylene glycol considerably increases sensitivity by enhancing cDNA synthesis. Furthermore, using Terra polymerase increases efficiency due to a more even cDNA amplification that requires less sequencing of libraries. We combined these and other improvements to a new scRNA-seq library protocol we call "molecular crowding SCRB-seq" (mcSCRB-seq), which we show to be the most sensitive and one of the most efficient and flexible scRNA-seq methods to date.

ATTACHMENTS

TXT

mcSCRBseq_oligodT.txt

MMUNICATIONS | DOI: 10.1038/s41467-018-05347-6

n cell

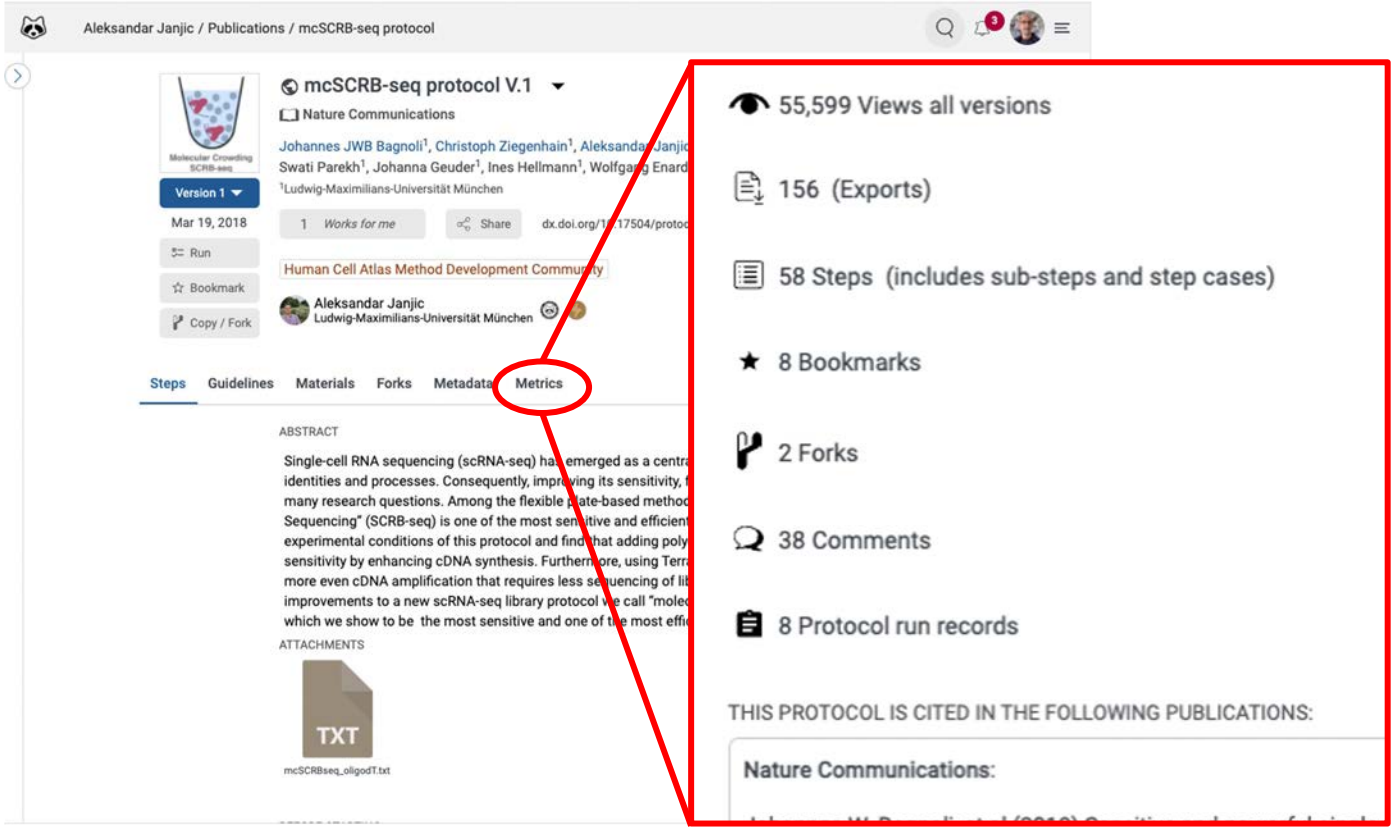
3-seq

18).

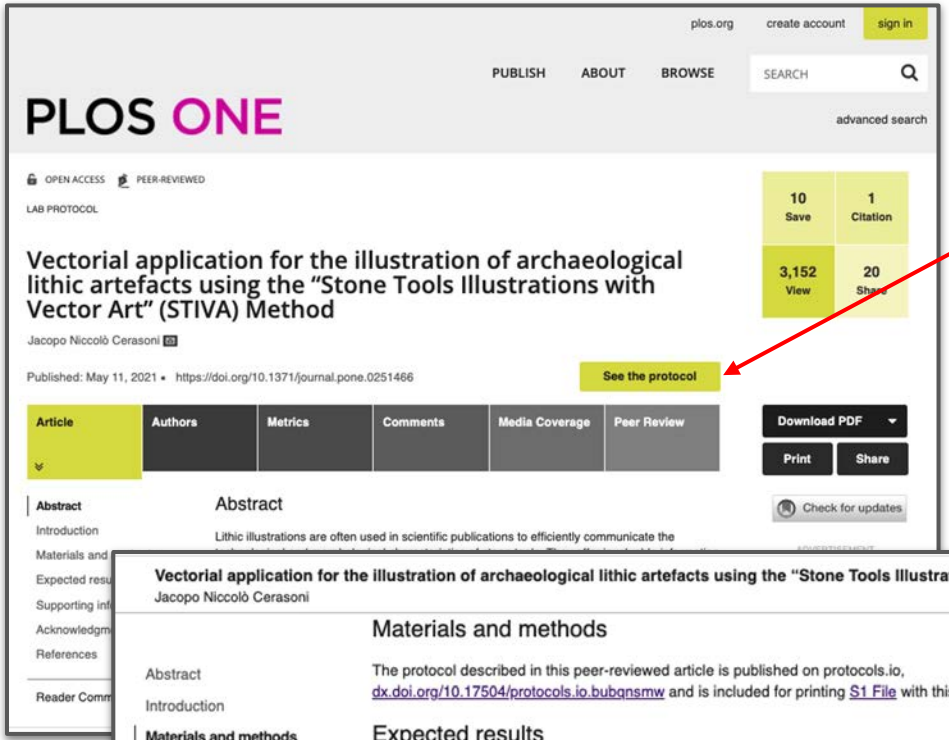
29,

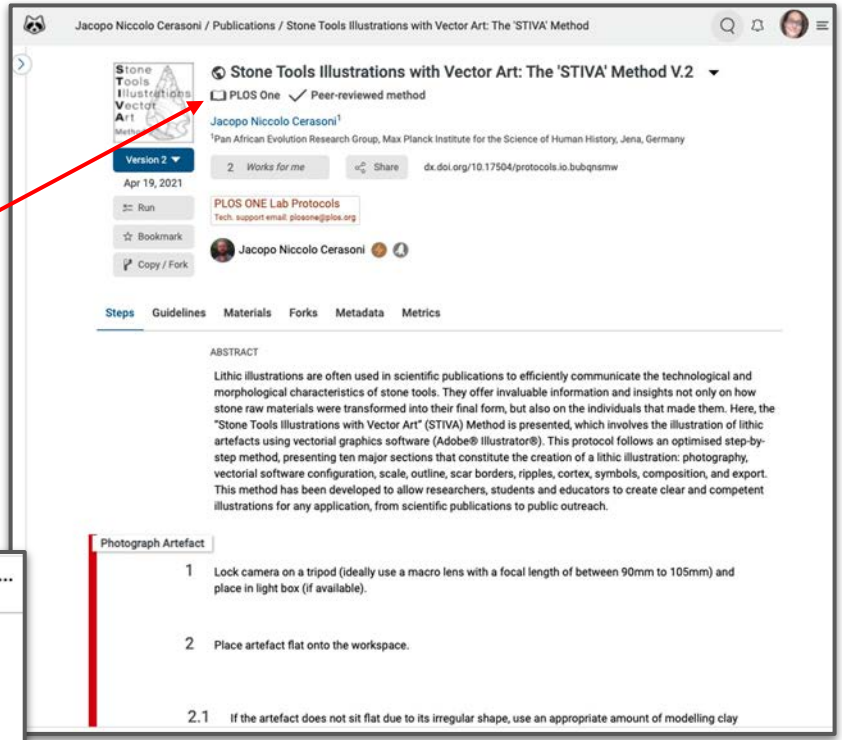
The authors declare no competing interests.

protocols.io's metrics



Lab Protocols in PLOS ONE





Summary of benefits

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Training resources

- protocols.io/webinars
- protocols.io/tutorials
- protocols.io/help/demo

Q/A

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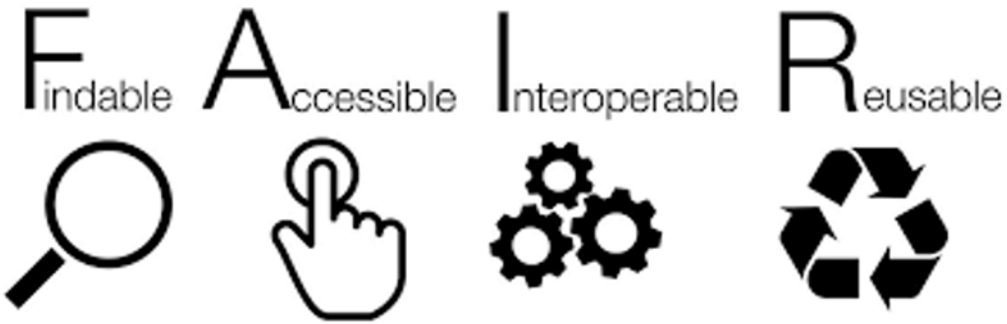
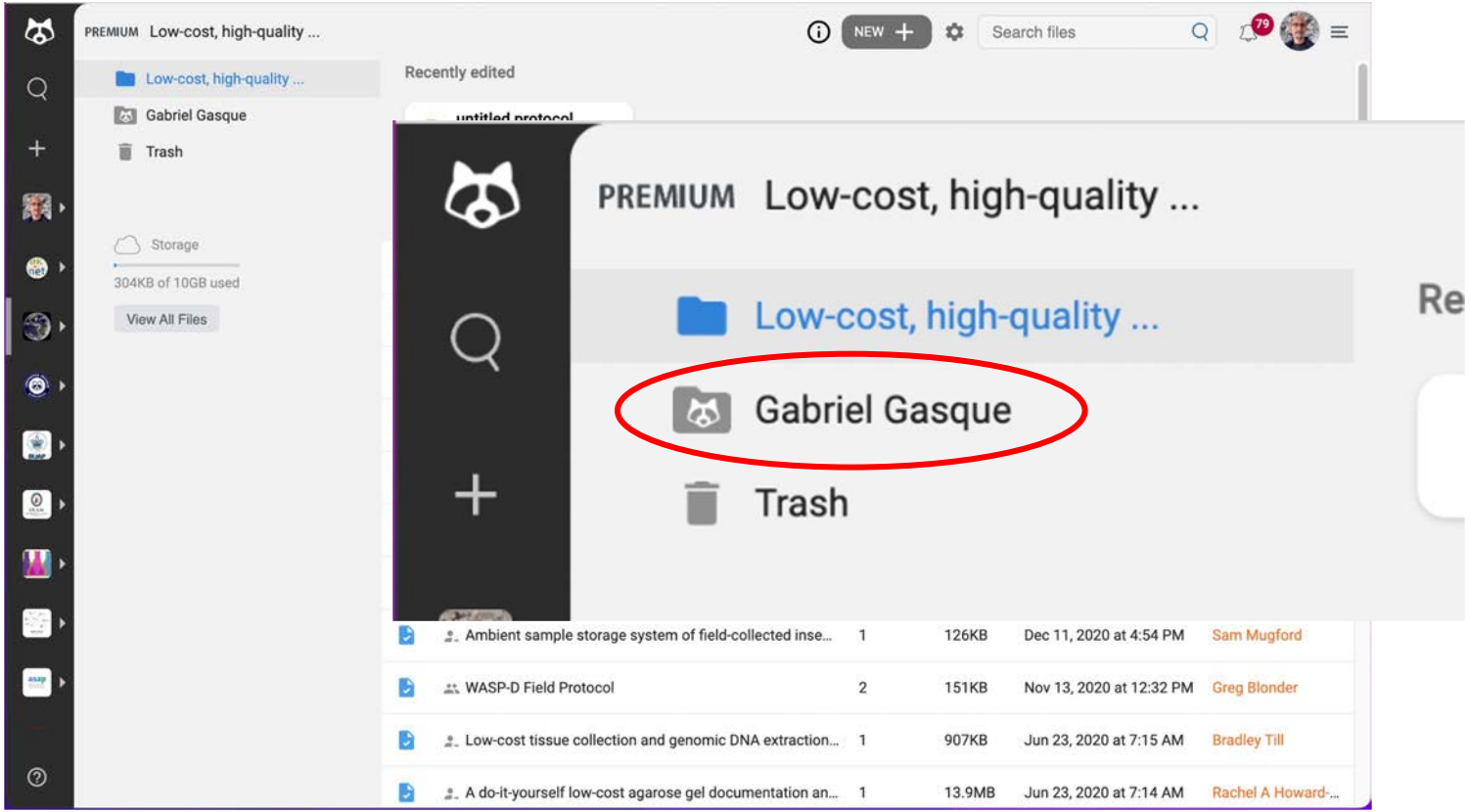
gabriel@protocols.io

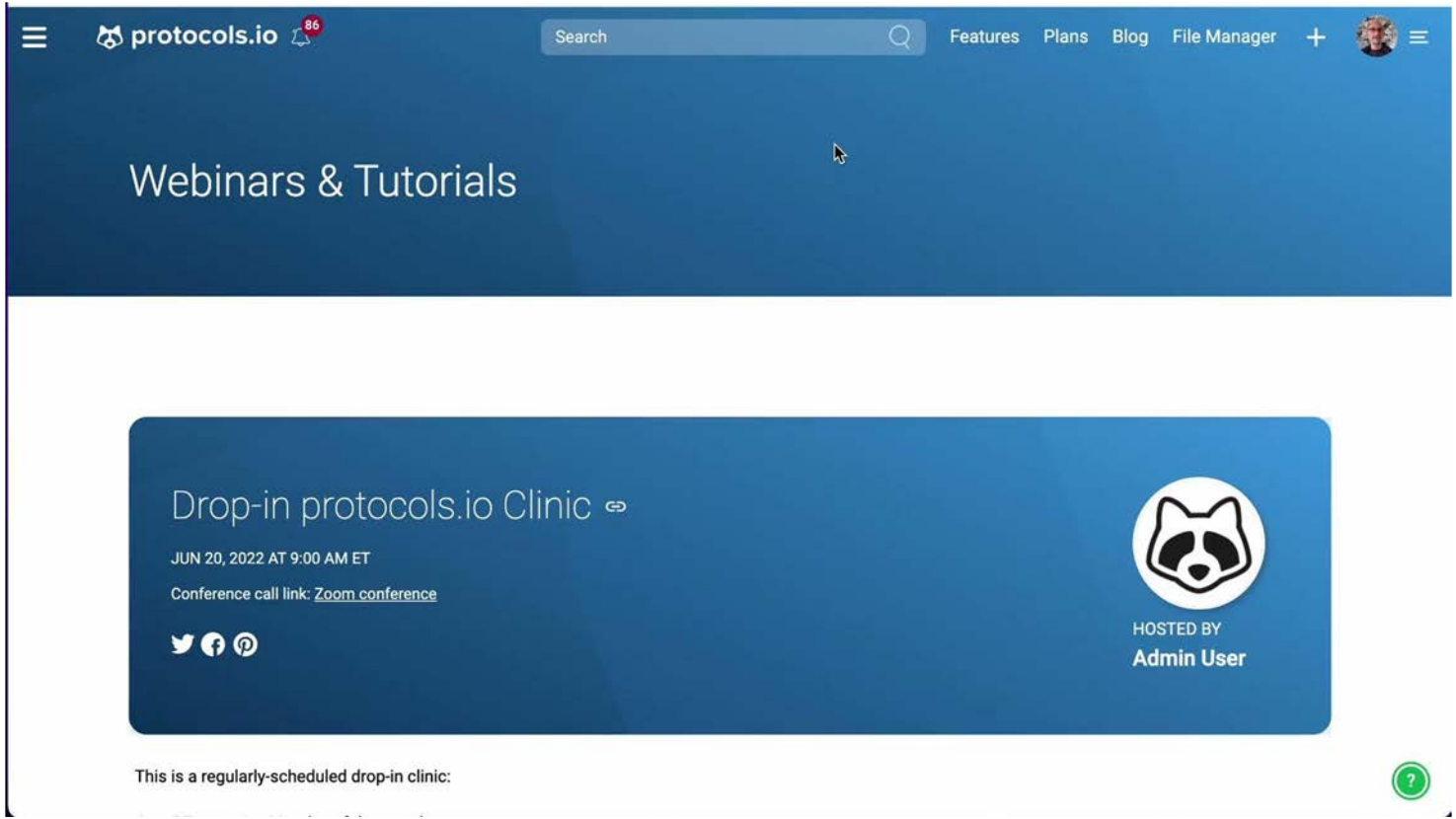
FAIR principles



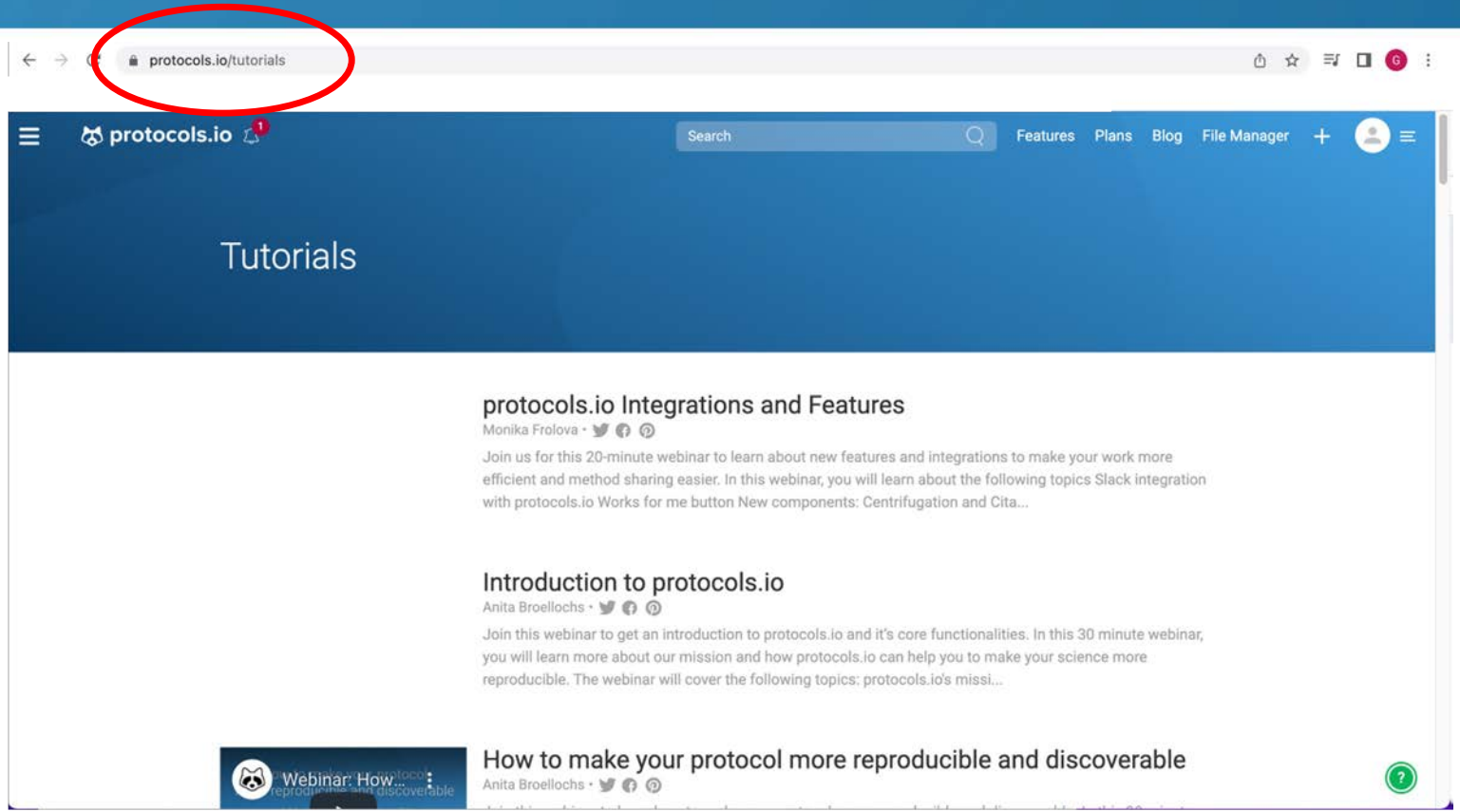
Every workspace has a private folder



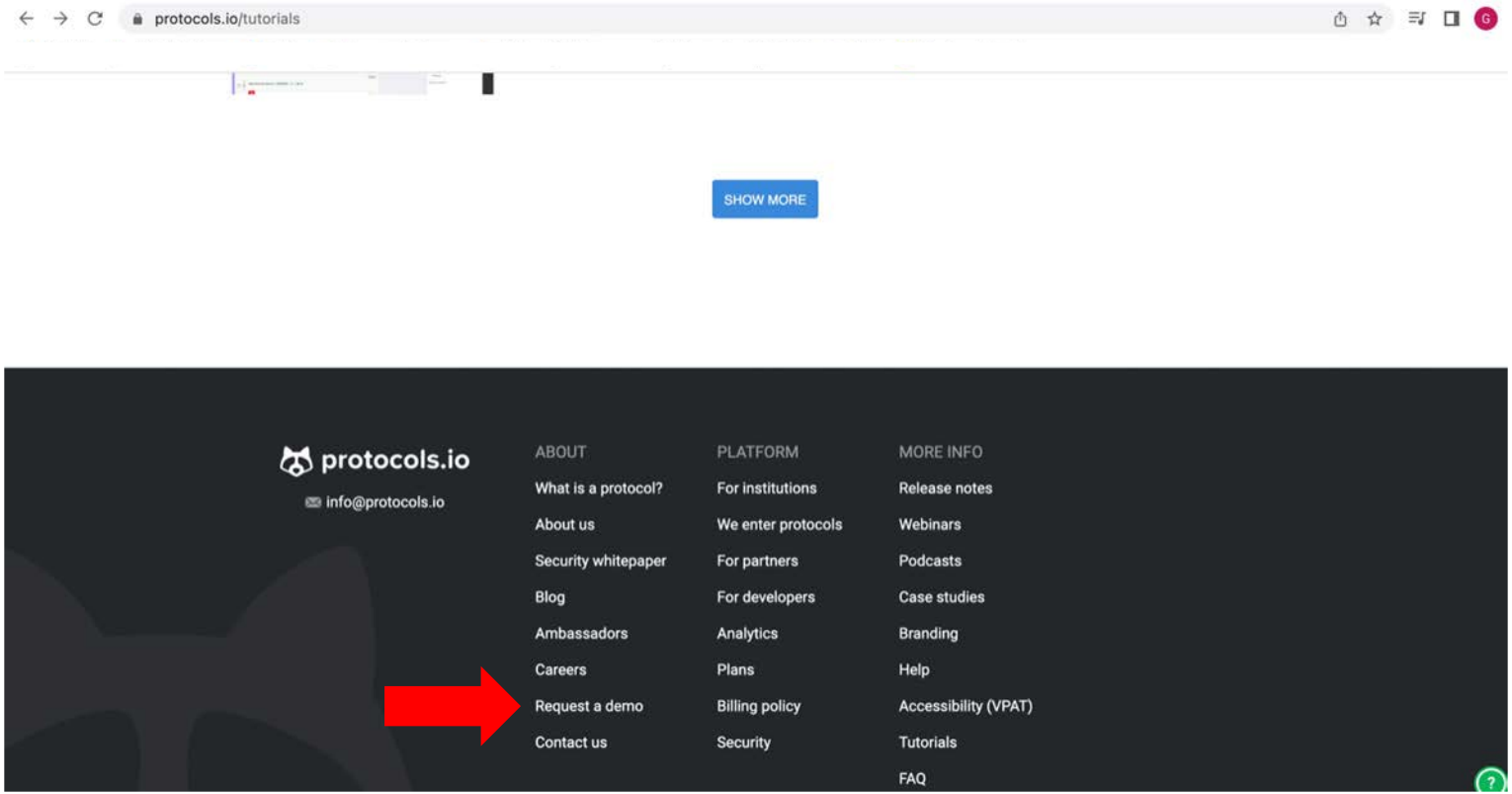
protocols.io/webinars



protocols.io/tutorials



1-2-1 demos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Accessibility (VPAT)
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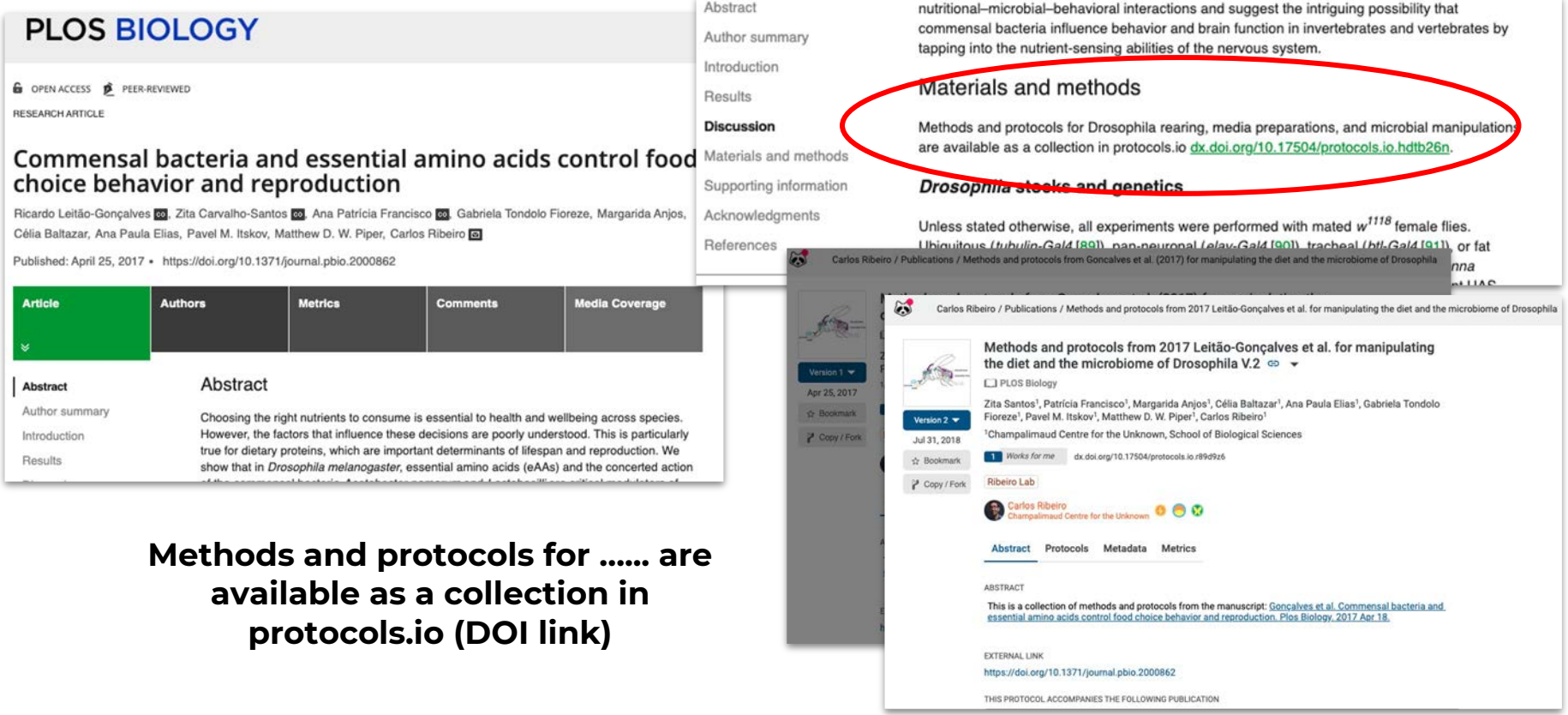
FAQ

The protocols.io link can be Materials & Methods



Methods and protocols for …… are available as a collection in protocols.io (DOI link)