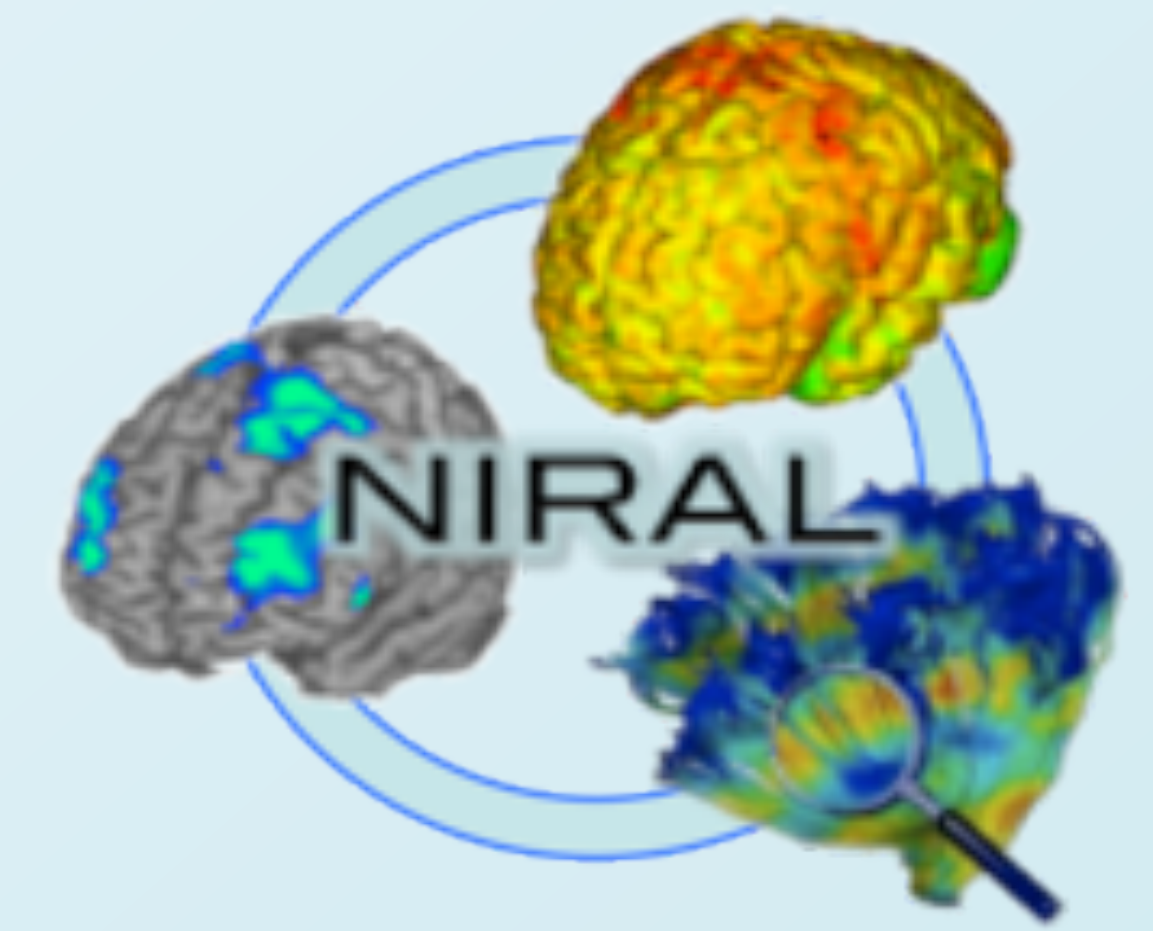




Federating Heterogeneous Datasets to Enhance Data Sharing and Experiment Reproducibility

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INTRODUCTION

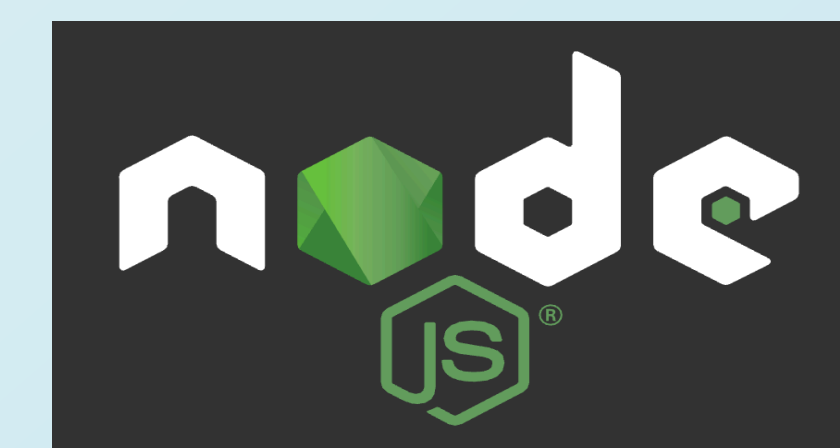
The primary motivation of this work is to improve the state of clinical research data organization in order to facilitate data sharing across institutions and collaborators and ultimately to facilitate the **reproducibility of clinical trials**.

Many scientific findings cannot be easily replicated by other groups. This situation has drawn the attention of the scientific community.

We present **Shiny-tooth**, a web based application created to facilitate:

1. Clinical data acquisition
2. Data federation of clinical and morphological data derived from medical images.
3. Web interactive data visualization.
4. Statistical analysis in remote computing grids using heterogeneous data sources.
5. Interaction with one of the most robust software for medical image analysis 3D Slicer.

METHODS



three.js



JWT



CONCLUSIONS

The application allows gathering clinical data and morphological data in a structured but flexible manner.

Several tools and plug-ins have been published and are available in the node package manager repository.

An extension is developed for one of the most popular software for medical image processing and three-dimensional visualization.

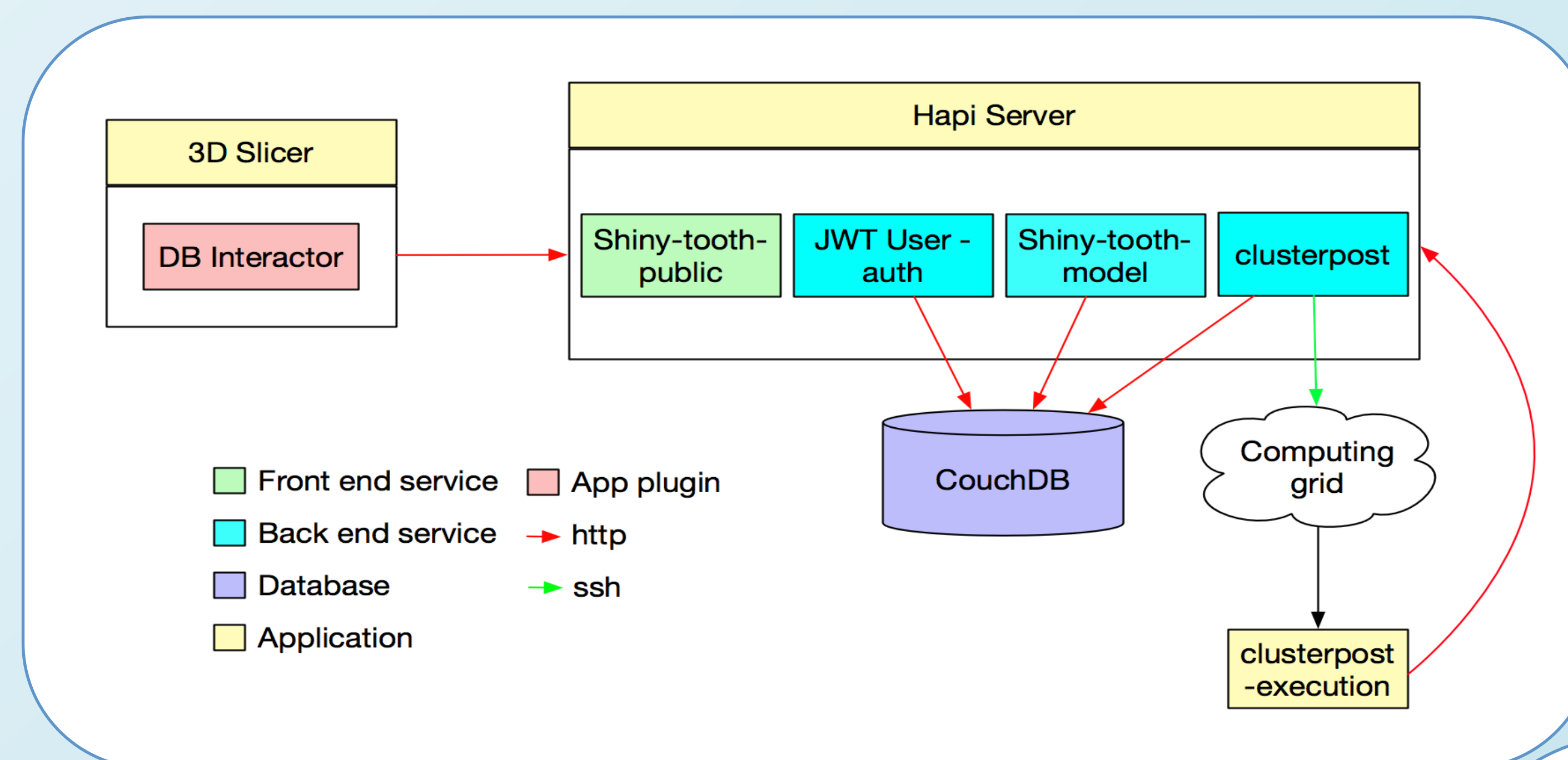
The 3D-Slicer plug-in facilitates interaction with the data stored in the system.

With the tools presented here, we seek to provide new possibilities to record previous studies, facilitate data-sharing, and improve experiment reproducibility.

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RESULTS



Submit

Please read each question and respond accordingly. For each of the questions below circle only one response.

Id Anonymization Id (required)

Date Wed Jul 20 2016 12:24:54 GMT-0400 (EDT)

Would you say your health in general is excellent, very good, good, fair or poor?

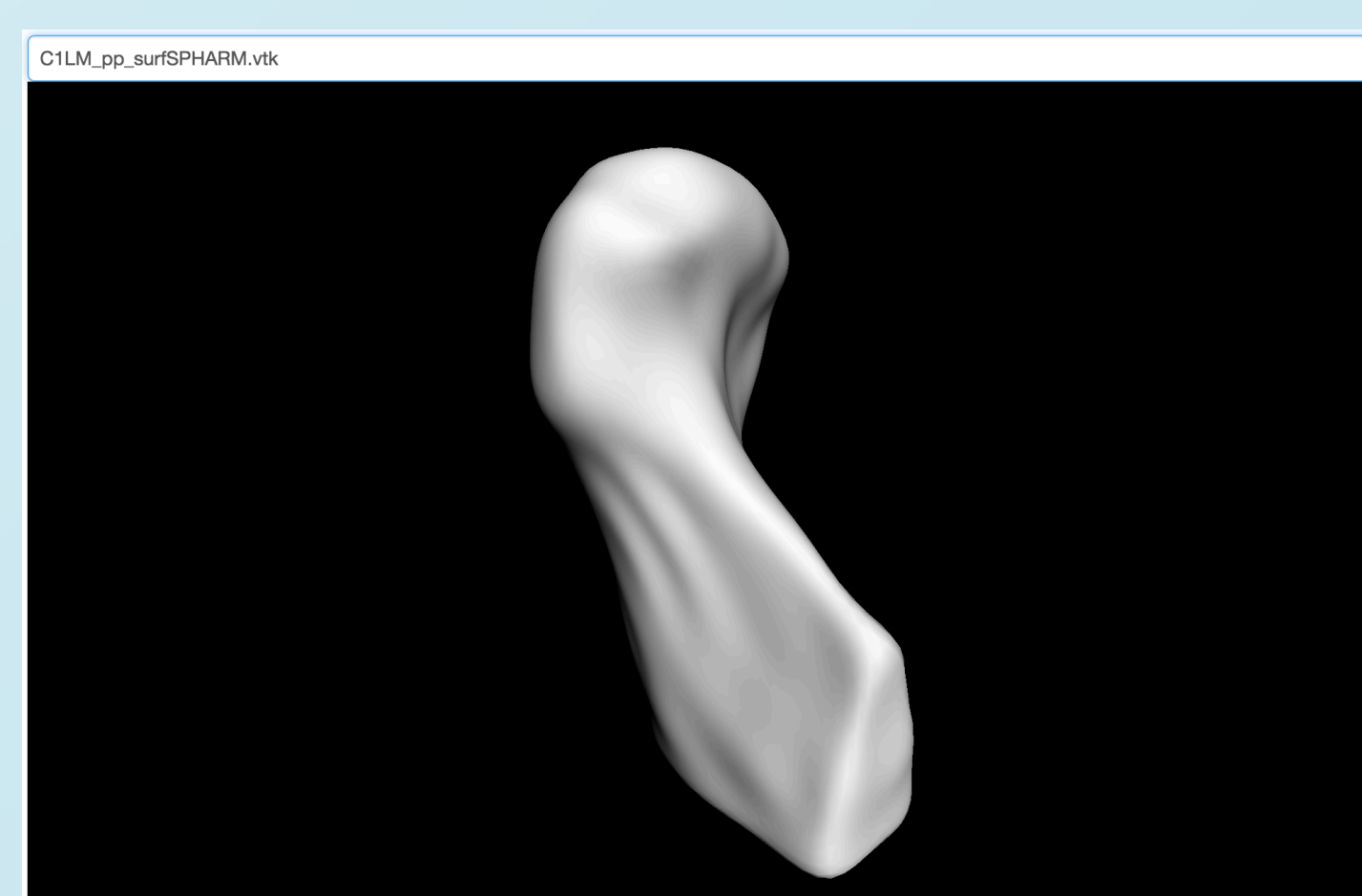
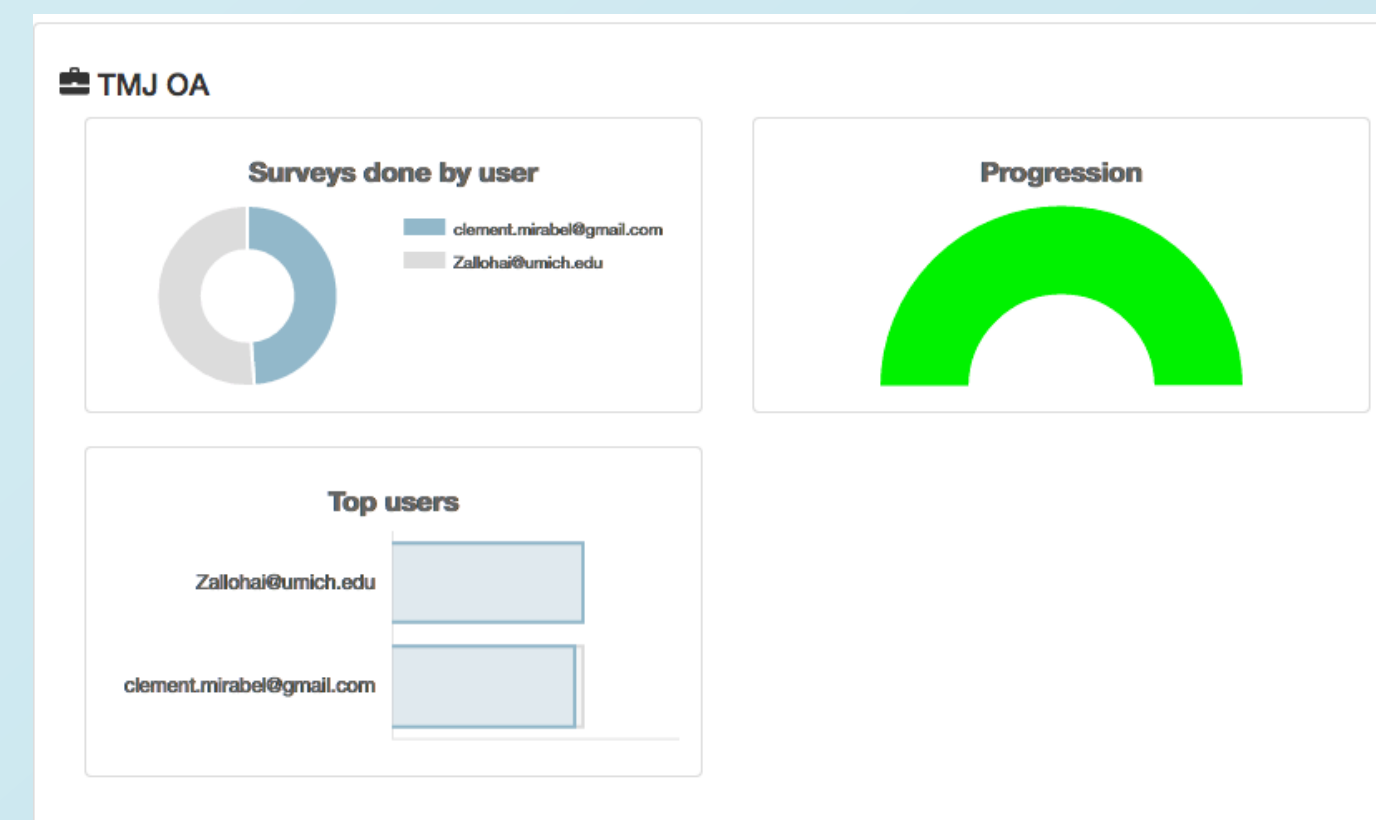
☐ Excellent

☐ Very good

☐ Good

☐ Fair

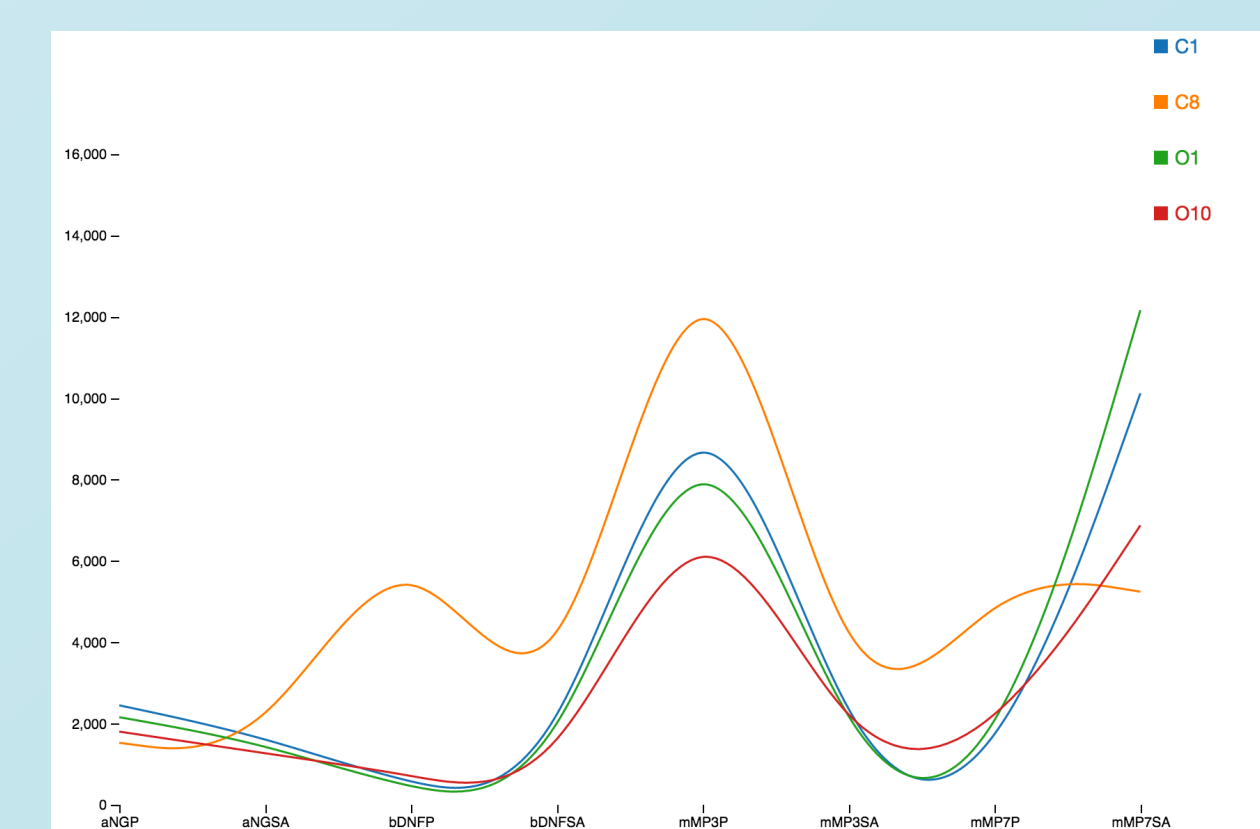
☐ Poor



patientid	aNGP	aNGSA	bDNFP	bDNFSA
C1	2445.9	1684.8	443.8	0.5
C8	1524.5	1054.7	7839	0
O1	2154.7	1520.7	313.2	0
O10	1800.3	1265.3	747.4	0
C2	2040.4	738.3	10120.7	0

Biological markers

Number of items: 24



Download data

Find data with:

☒ Patientid only ☐ Patientid and date

Choose a destination:

☒ Users/miracle/Applications/Slicer/installed

Choose a collection:

Collection1

Download entire collection

Choose a patient:

Patient1

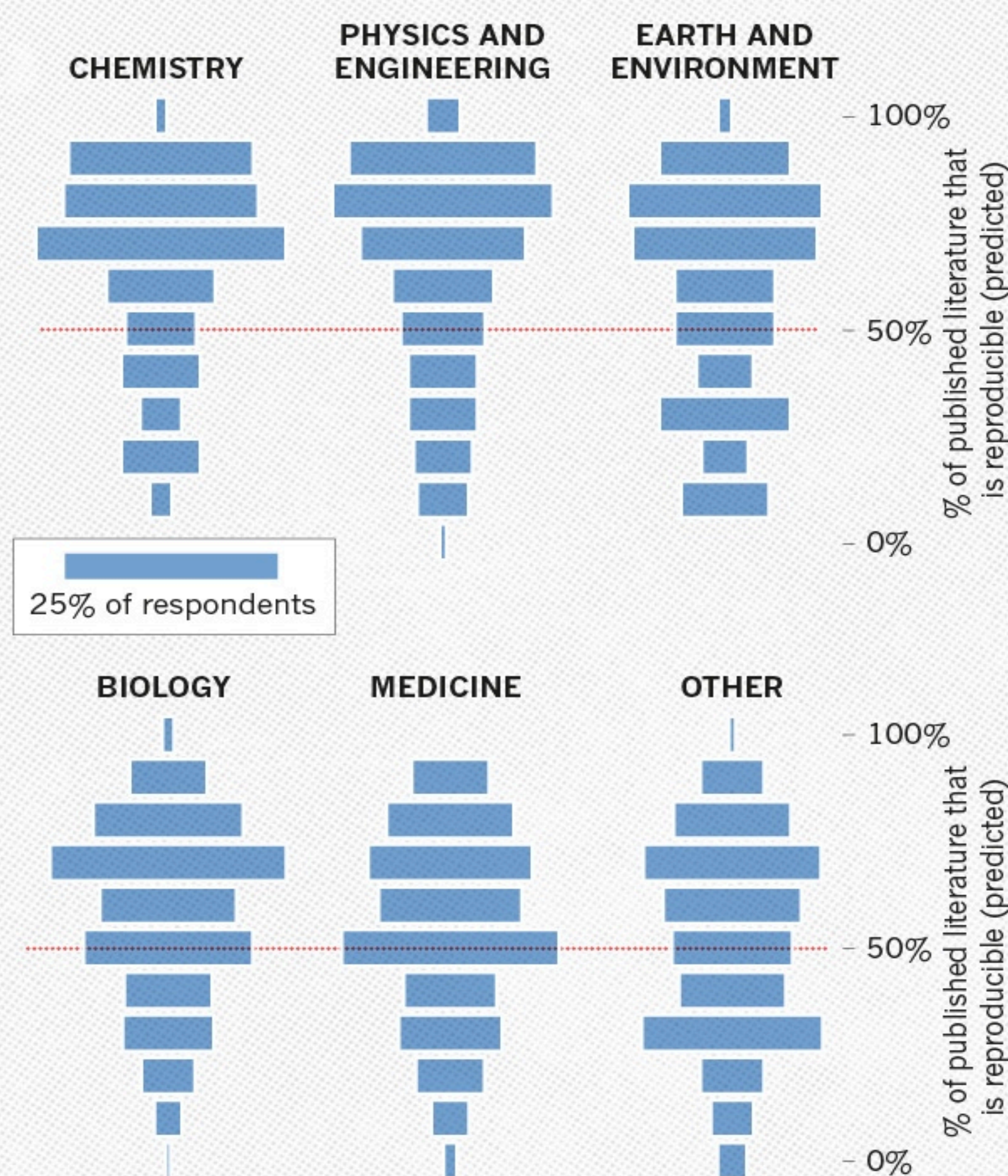
Choose an attachment:

P1_pp_surSPHARM.vtk

Download selected attachment

HOW MUCH PUBLISHED WORK IN YOUR FIELD IS REPRODUCIBLE?

Physicists and chemists were most confident in the literature.



Number of respondents from each discipline:
Biology 703, Chemistry 106, Earth and environmental 95,
Medicine 203, Physics and engineering 236, Other 233

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