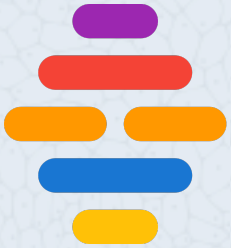


Tour of the Image Data Resource

Eleanor Williams, Josh Moore, Gabriella Rustici, Aleksandra (Ola) Tarkowska

University of Dundee

University of BRISTOL

OME

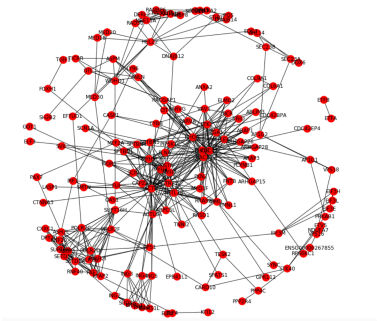
EMBL-EBI

IDR Tour Workshop

- Querying IDR annotations using the web user interface

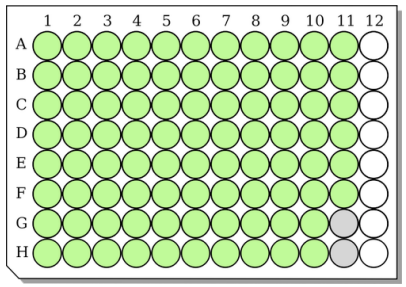
- Using the API to query annotations

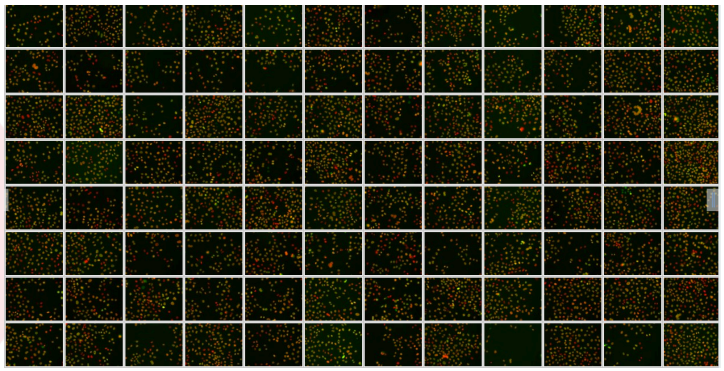
- Performing more complex queries and analyses



1

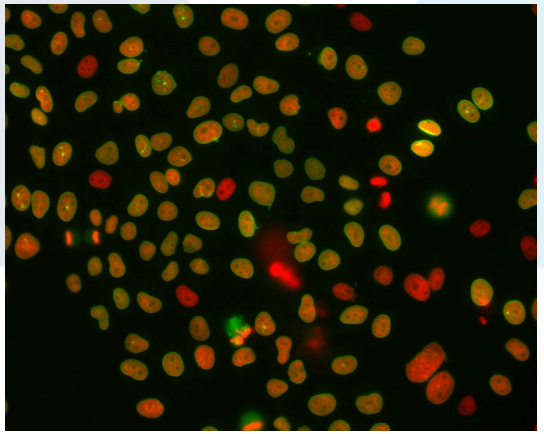
High Content Screens





Cells in wells are treated in parallel:

- **genes knocked down or out**, or
- **proteins tagged** for visualization, or
- treated with chemical **compounds**



Heriche et al, Mol Biol Cell. 2014

Using the web user interface

idr.openmicroscopy.org

3

Using the API to query data annotations

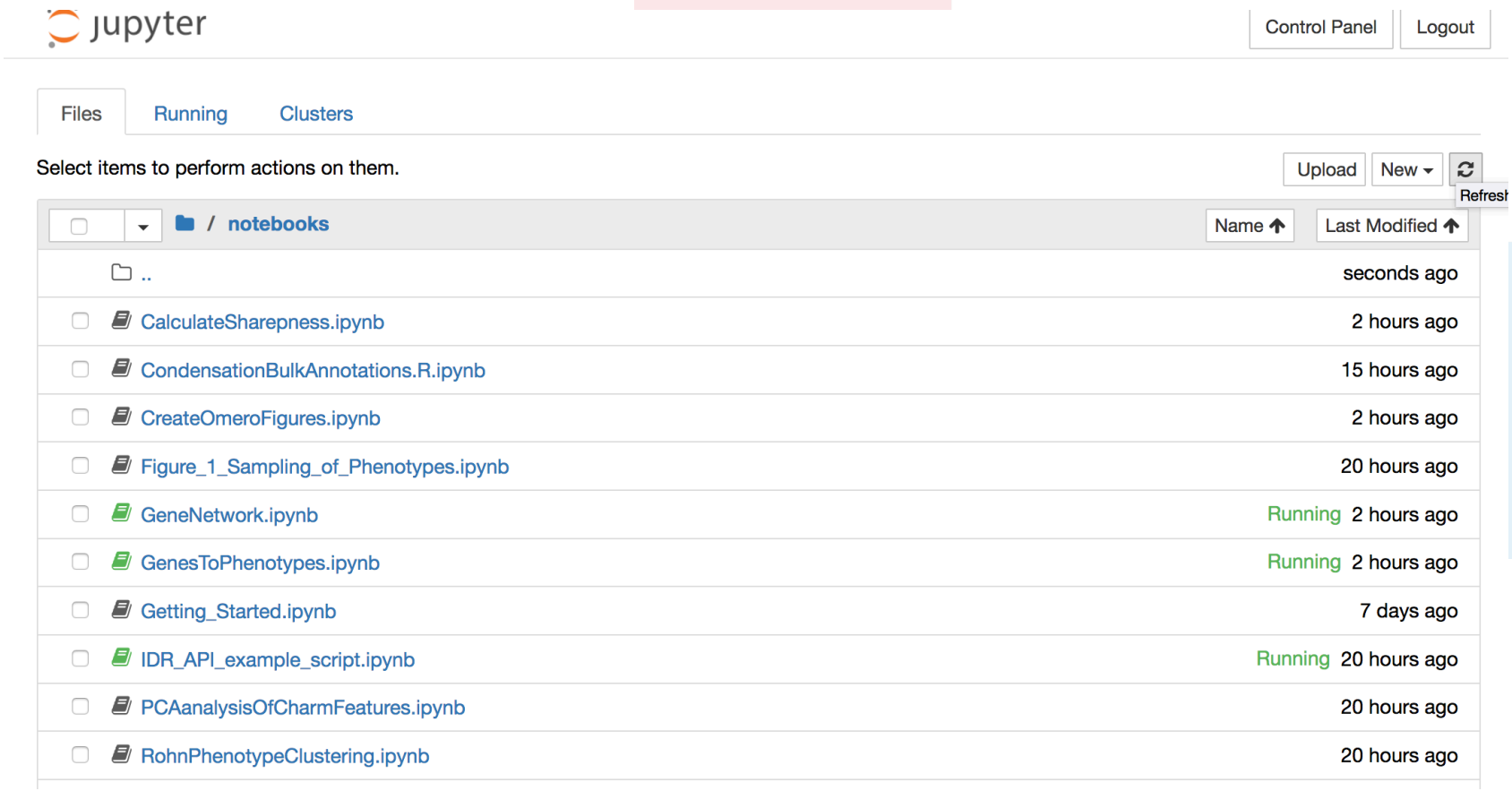
- IDR datasets, thumbnails and metadata are accessible through the web-based API in JSON format

- The full API specification for MAPR is available from https://github.com/ome/omero-mapr/tree/master/docs

- Further API documentation for the IDR including an example Jupyter notebook to load data from IDR is available from http://idr.openmicroscopy.org/about/api.html.

Jupyter – follow along with workshop

https://jupyter.openmicroscopy.org/jupyter/



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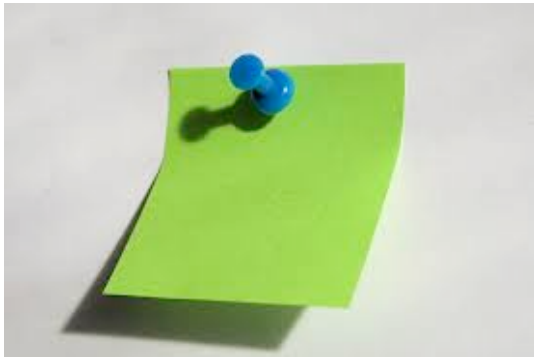
More complex queries and analyses

- Have a list of genes you are interested in, what phenotypes are they associated with in IDR?

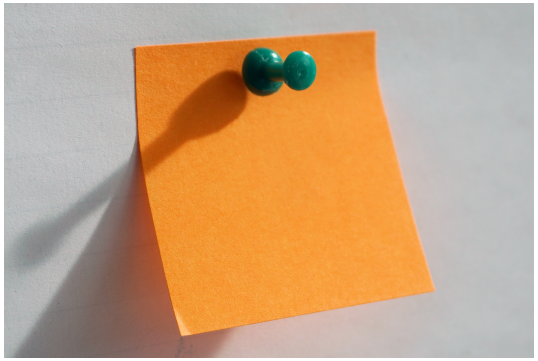
- Interested in the elongated cell phenotype. What genes are associated with this phenotype in IDR, across species?

https://github.com/IDR/idr-notebooks

IDR – your opinions

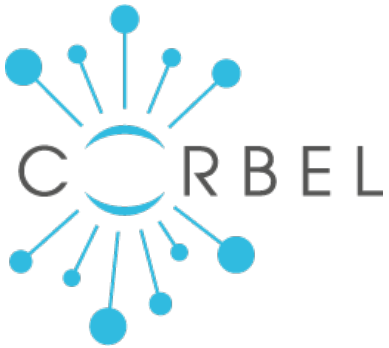


GREEN – one thing you **like** about the IDR



ORANGE – one thing you would like **added or changed** in the IDR

Thanks to the Funders

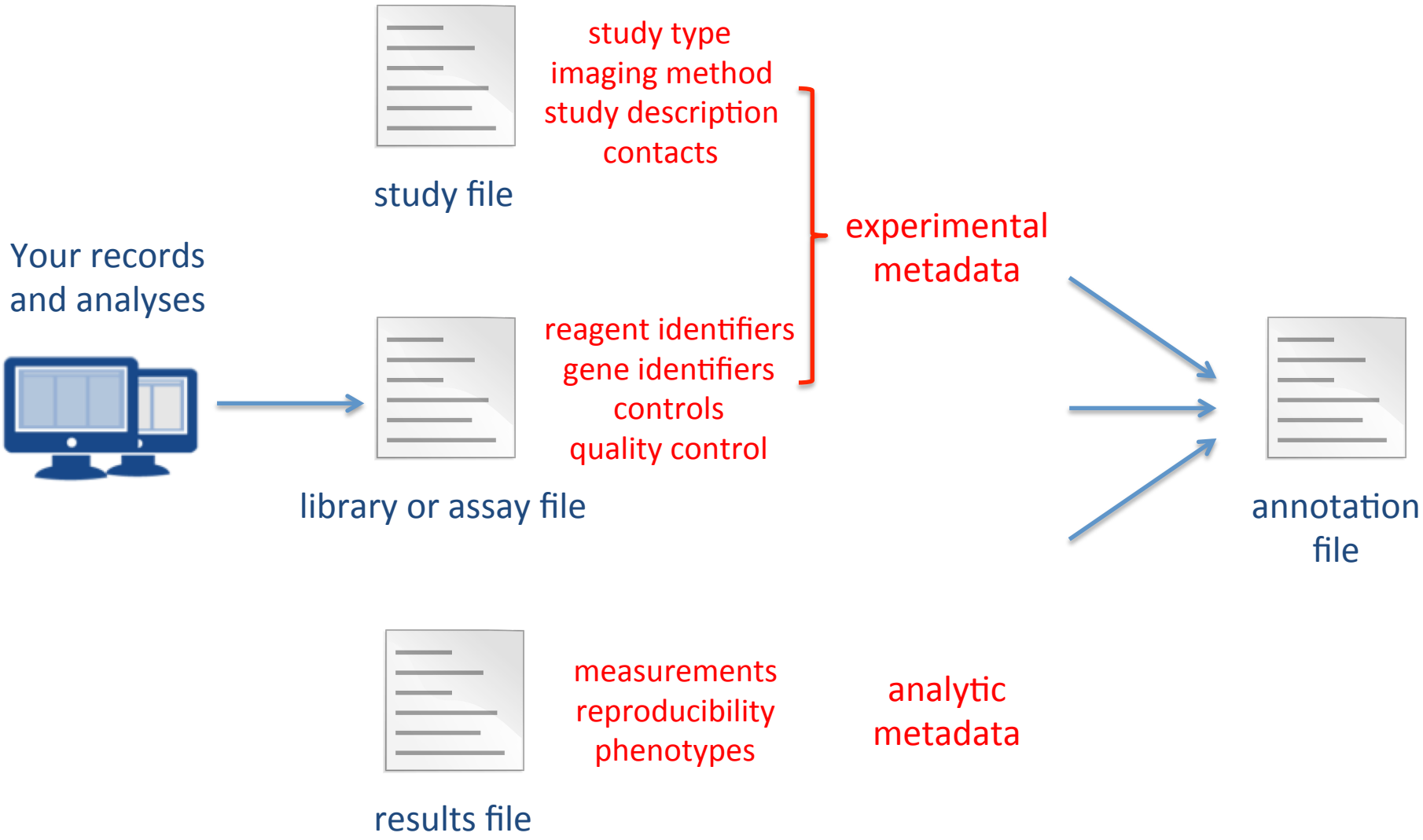


8

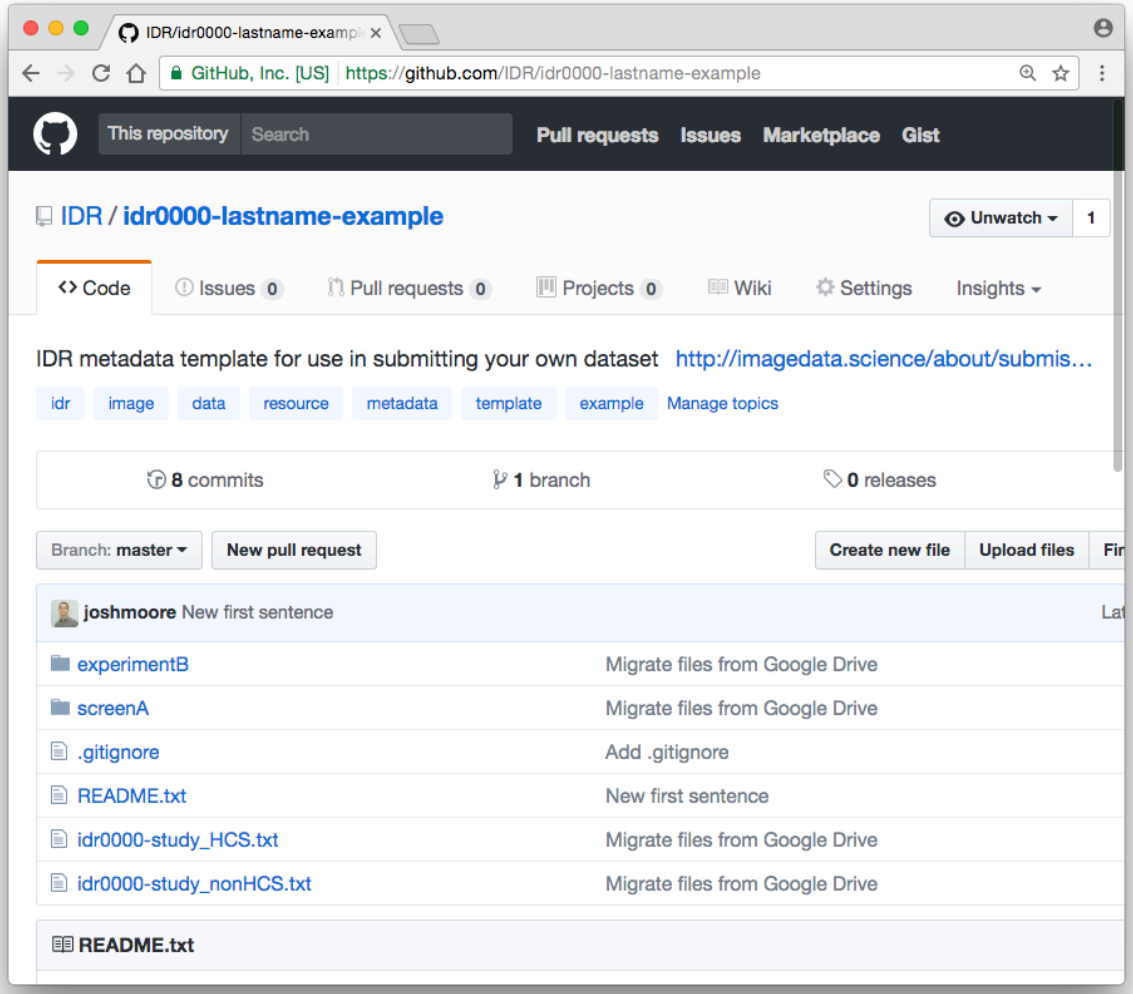
Annotating your own images in OMERO and preparing data for submission

- What is the format for recording IDR annotations?
- How are the annotations added to the images in IDR?

IDR metadata templates



How are the IDR annotations formatted?



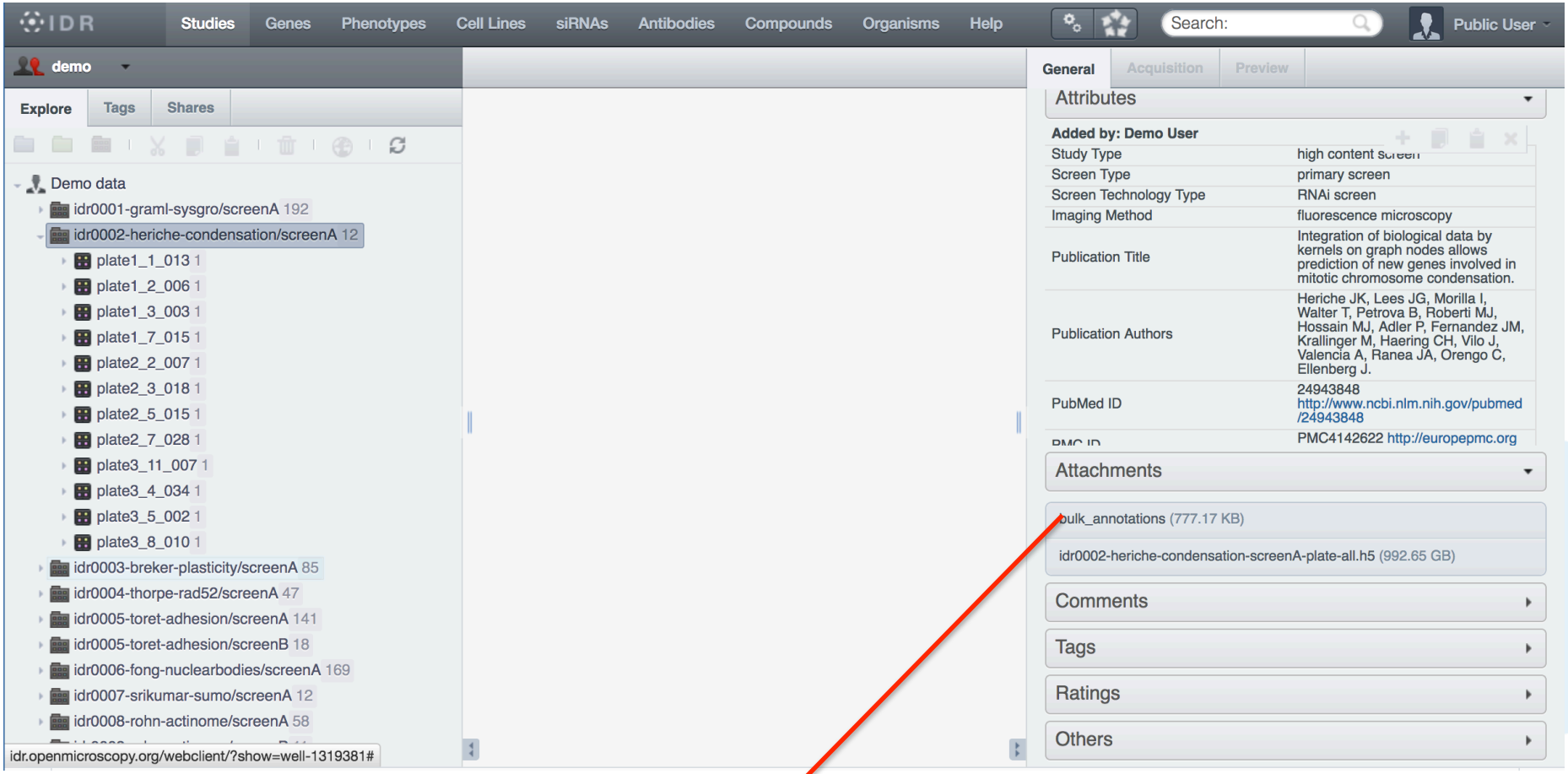
https://github.com/IDR/idr-metadata

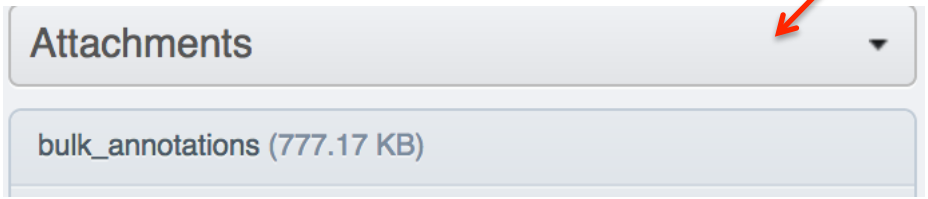
How do we add the annotations to IDR?

1. Add the annotations.csv file to a screen or experiment

```
/bin/omero metadata populate --file idr0002-screenA-
annotation.csv Screen:102

/bin/omero metadata populate --file idr0021-experimentA-
annotation.csv Project:51
```

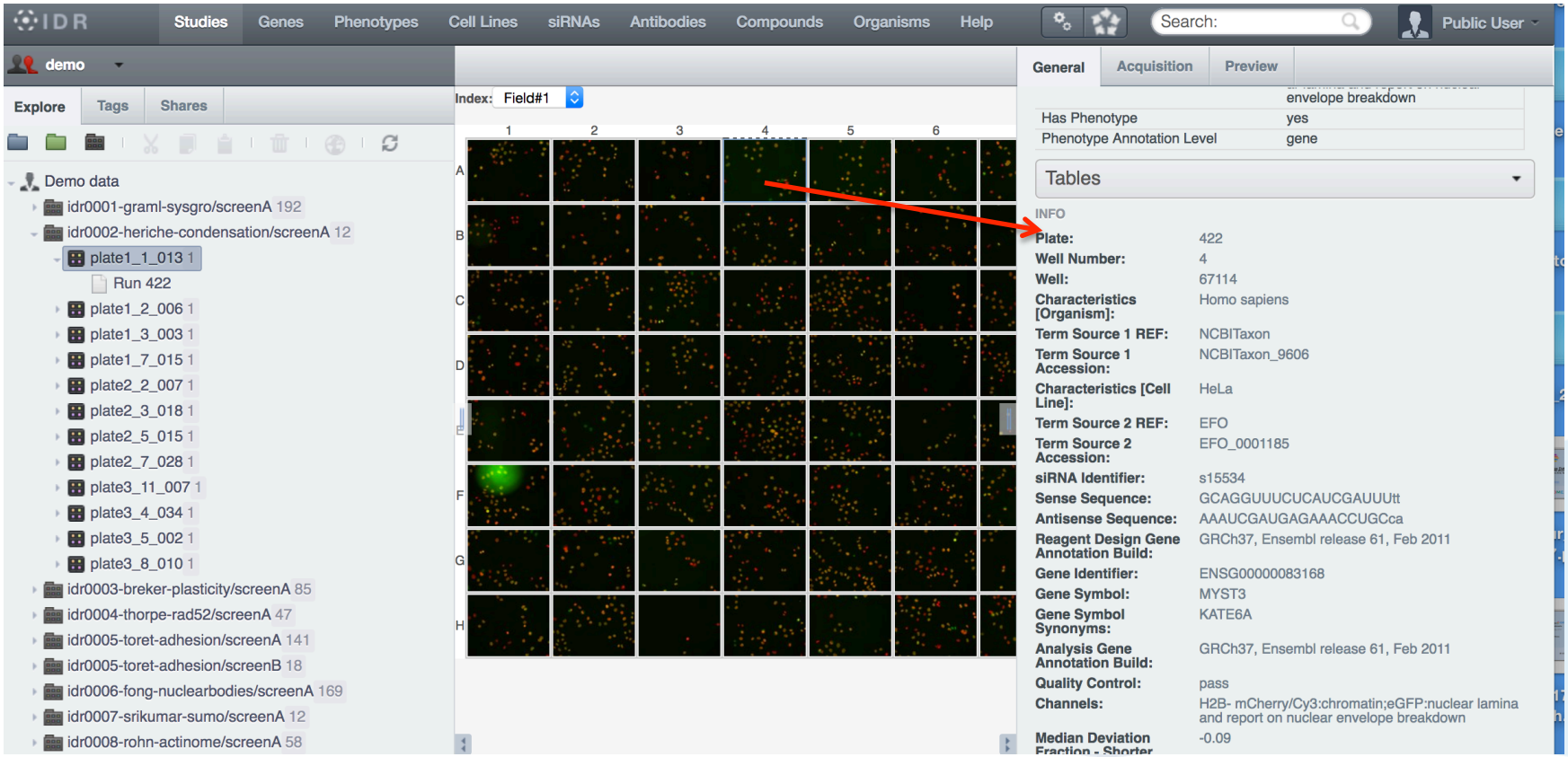
How do we add the annotations to IDR?





Annotations.csv file once attached is named bulk_annotations

How do we add the annotations to IDR?



How do we add the annotations to IDR?

2. Convert selected annotations from the bulk table to key value pairs (map annotations)

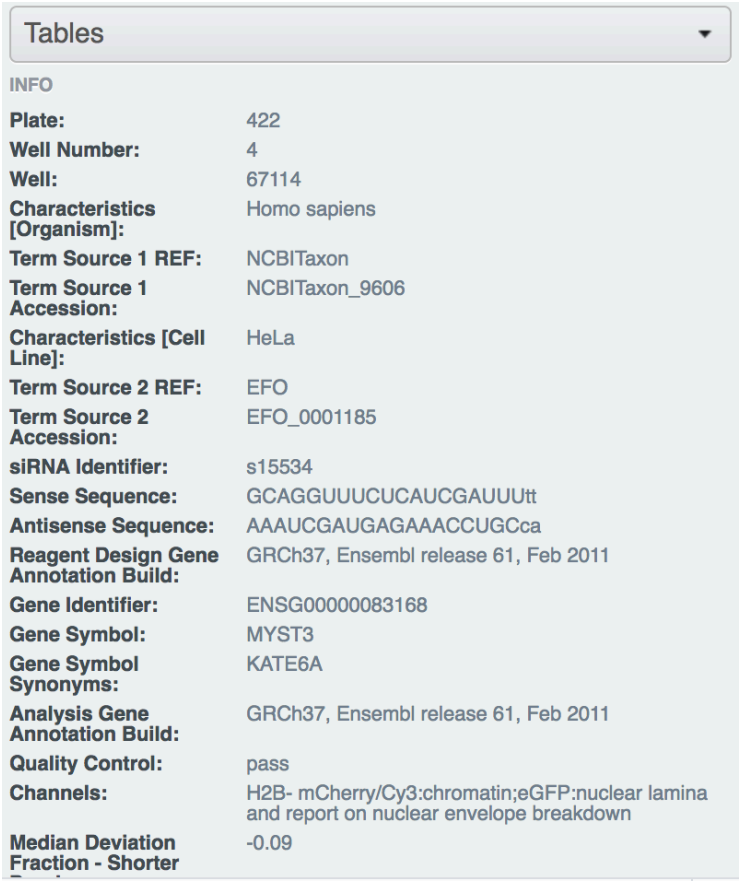
```
/bin/omero metadata populate --context bulkmap --cfg
idr0002-screenA-bulkmap-config.yml Screen:102
```

How do we add the annotations to IDR?

```
#####################################################################
# mapr groups
#####################################################################

  - group:
      namespace: openmicroscopy.org/mapr/organism
      columns:
      - name: Characteristics [Organism]
        clientname: Organism
        include: yes

  - group:
      namespace: openmicroscopy.org/mapr/sirna
      columns:
      - name: siRNA Identifier
        include: yes

  - group:
      namespace: openmicroscopy.org/mapr/sirna/supplementary
      columns:
      - name: Sense Sequence
        include: yes
      - name: Antisense Sequence
        include: yes
      - name: Reagent Design Gene Annotation Build
        include: yes

  - group:
      namespace: openmicroscopy.org/mapr/gene
      columns:
      - name: Gene Identifier
        include: yes
      - name: Gene Identifier
        clientname: Gene Identifier URL
        clientvalue: http://www.ensembl.org/id/{{ value|urlencode }}
        include: yes
      - name: Gene Symbol
        include: yes

  - group:
      namespace: openmicroscopy.org/mapr/gene/supplementary
      columns:
      - name: Gene Symbol Synonyms
        include: yes
      - name: Gene Annotation Comments
```

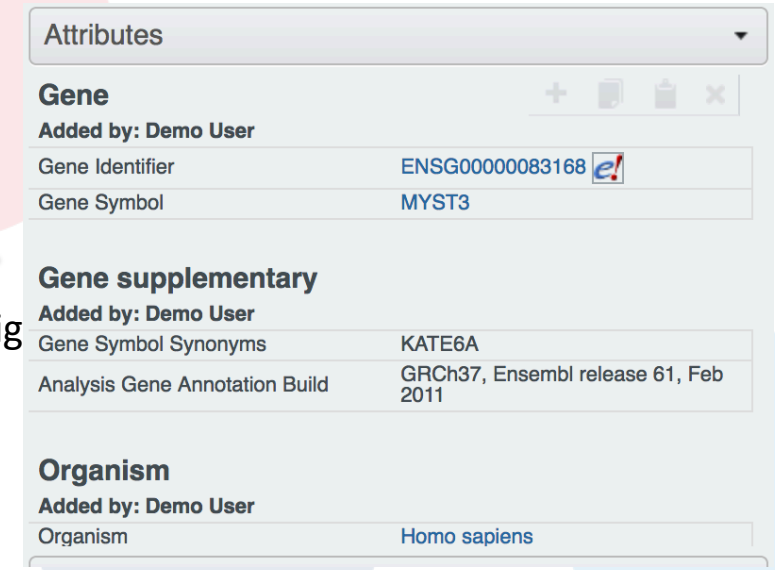
Idr0002-screenA-bulkmap-config.yml

How do we add the annotations to IDR?



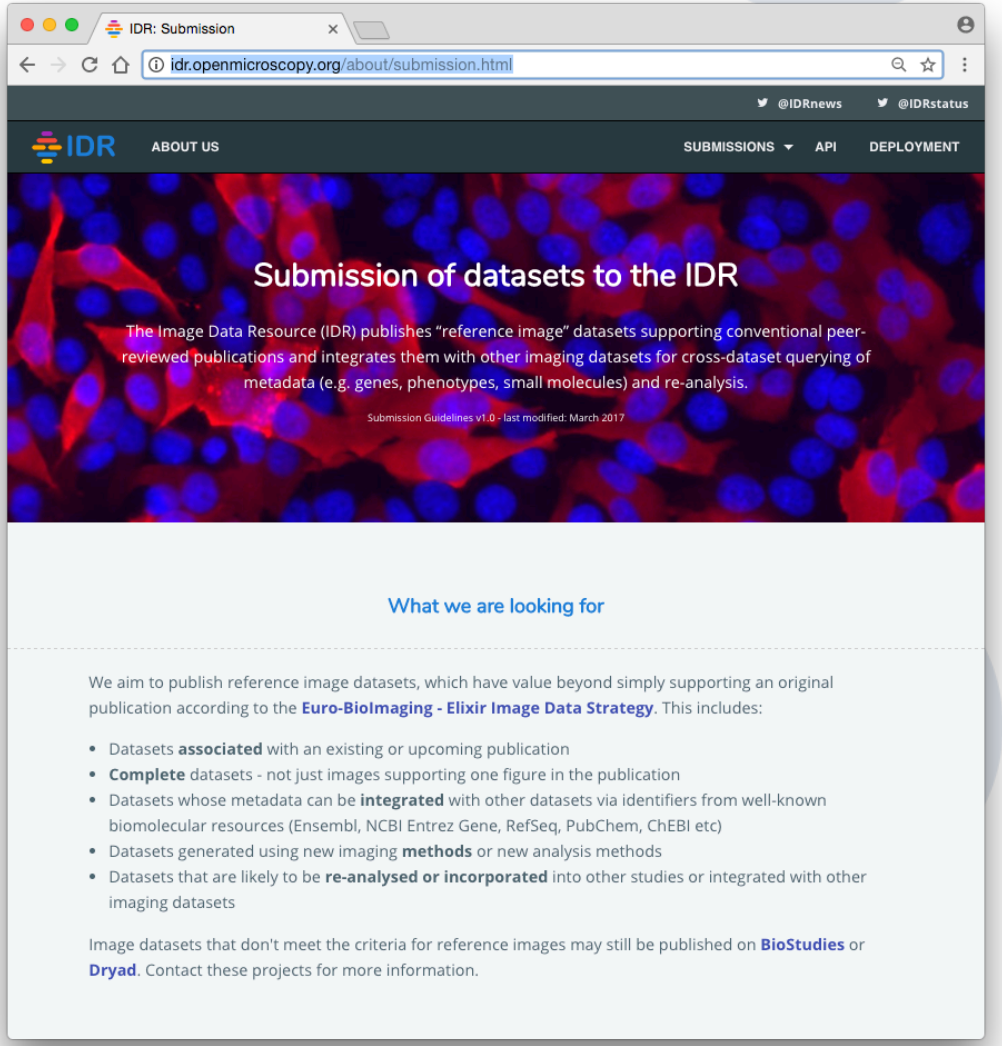
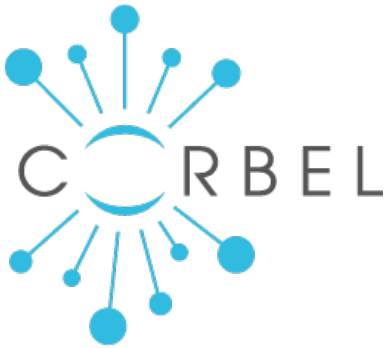
Bulk table

bulkmap-config



Key value pairs
(aka map annotations)

Submitting data



Thanks to the Funders