

ELMI 2021 IDR Workshop

The presentation and a PDF version of the workshop are available at <https://downloads.openmicroscopy.org/presentations/2021/ELMI/>

Software versions used for this workshop:

- OMERO: 5.6.3
- OMERO.web: 5.8.1
- OMERO.iviewer: 0.10.1
- OMERO.mapr 0.4.1
- omero-guides: 2020.05.27
- Bio-Formats: 6.5.1

Walkthrough

1. **Overview of IDR searching strategies and metadata linkage:**
 - a. Start on <http://idr.openmicroscopy.org/> searching for “Gene” with a value “TCF15” and navigate to idr0062 in results (last item) and click on “More”. This will bring you to the OMERO.web user interface, showing a tree with search results. Only the images associated with TCF15 are shown, but there are more images inside that study. Navigate to the whole study via click on link “Show parent Project&Dataset” in the right-hand pane and then click on the Project.
 - b. In the [idr0062 study](#), on the image <http://idr.openmicroscopy.org/webclient/?show=image-6001239> we can see the attached tiff file with ROIs. These ROIs were extracted into OMERO ROIs (masks) which can be seen in OMERO.iviewer (by double-clicking on the thumbnail).
 - c. Click on the [Experiment](#) and expand the “Attributes” harmonica in the right-hand pane. Find and click on the DOI of the paper link and in the paper find the “Data availability” section. Click on the link to IDR listed there and in the search bar enter “62”. Click on the result of the search, landing back at the [idr0062 study](#). In this way, a round-trip back to IDR was made. This workflow shows one of the main uses of IDR for data visibility, Quality Control for publishers and community.
 - d. A notebook which reproduces the analysis highlighted in the associated paper is also available on <https://github.com/IDR/idr-notebooks>.
2. **Study types in IDR:** The studies in IDR are either Experiments or Screens, see examples of both below.
 - a. Idr0062 for Experiments:
 - i. <http://idr.openmicroscopy.org/webclient/?show=project-801>
 - b. idr0033 for Screens:

i. <http://idr.openmicroscopy.org/webclient/?show=screen-1751>

3. **Explore metadata in OMERO.web:**

- a. Still in OMERO.web, click on the top link “Compounds” to get to a search environment. Start searching for “Remdesivir”. In the results, go to first plate first image and in the RHP click on Remdesivir icon bringing you to Pubchem.

The screenshot shows a metadata panel with three sections:

- Cell Lines**: Added by: Public data. Cell Line: Caco-2.
- Compound**: Added by: Public data. Compound Name: Remdesivir (with a copyright icon).
- Compound supplementary**: Added by: Public data. Identifier: CTRL_Remdesivir. Concentration (microMolar): 20.

- b. Click on the icon to the right of “Compound identifier” . This is a link to the compound summary in the <https://pubchem.ncbi.nlm.nih.gov/compound/121304016>.
- c. The DPC inhibition parameter is available too (under “Others” section of the “Attributes” harmonica).

The screenshot shows the “Others” section of the metadata panel. It includes a table with the following data:

Organism	Severe acute respiratory syndrome coronavirus 2
Others	
Added by: Public data	
Quality Control	pass
Percentage Inhibition (DPC)	96.81
Hit Compound (over 75% activity)	No
Cells - Number of Objects	25159
Phenotype Annotation Level	well level
Channels	cell body

Below the table is a “Tables” section with a right-pointing arrow.

- d. Search for “Loratadine”. Expand the first Plate and select the first image. Similar searches are possible, delivering many results across several studies, which enables cross-study comparisons.

4. Analysis using OMERO API and notebooks:

- a. **See notebooks links on**

<https://downloads.openmicroscopy.org/presentations/2021/ELMI/IDR-works-hop/#/8>