Day-to-day image data management with OMERO

Tom Boissonnet, Ph.D.

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Data management for everyone

- Group leaders
  - Overview of projects
  - Monitor progress
  - Long term view

- Experimenters
  - Knows all the details of a project, which experiment worked, which had an issue
  - Can organize and annotate the data

- Bioimage analyst
  - Needs metadata for processing
  - Share results back
  - Traceability of analysis

OMERO

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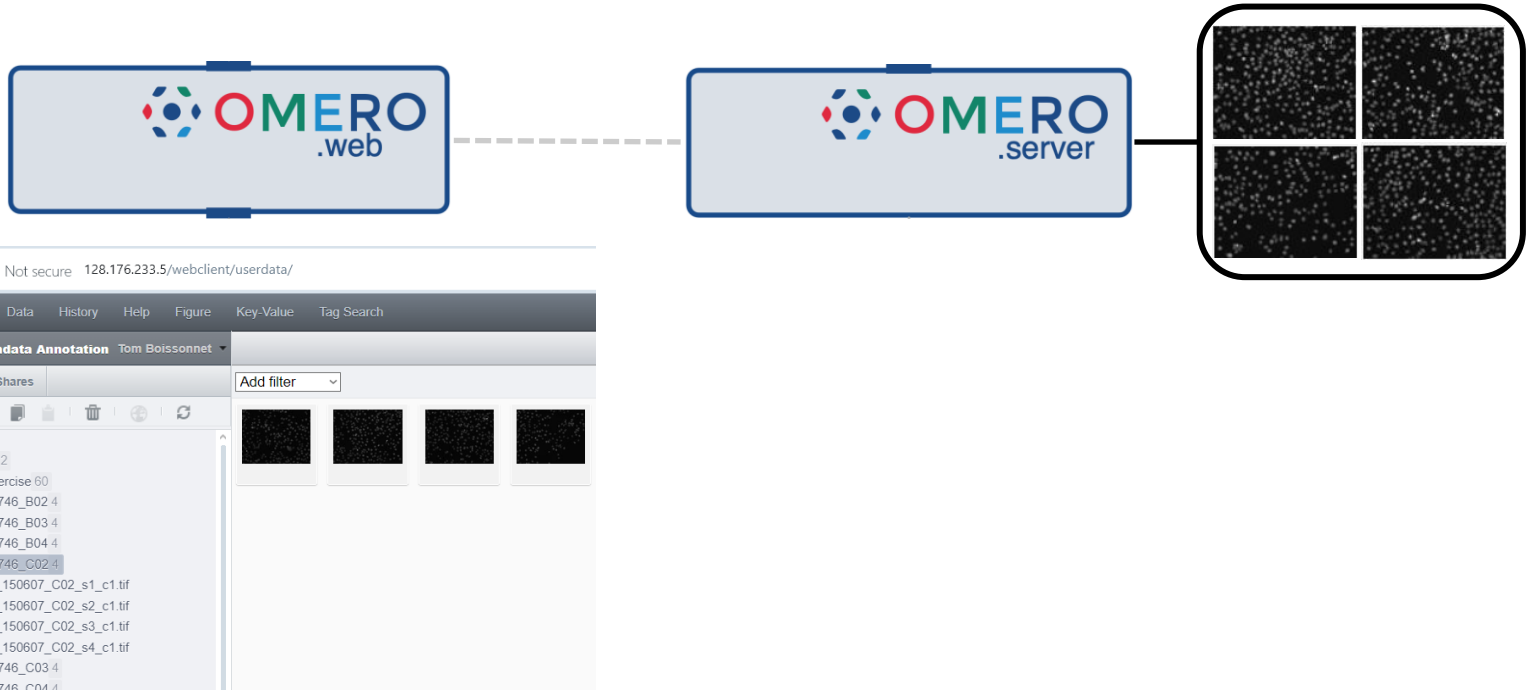
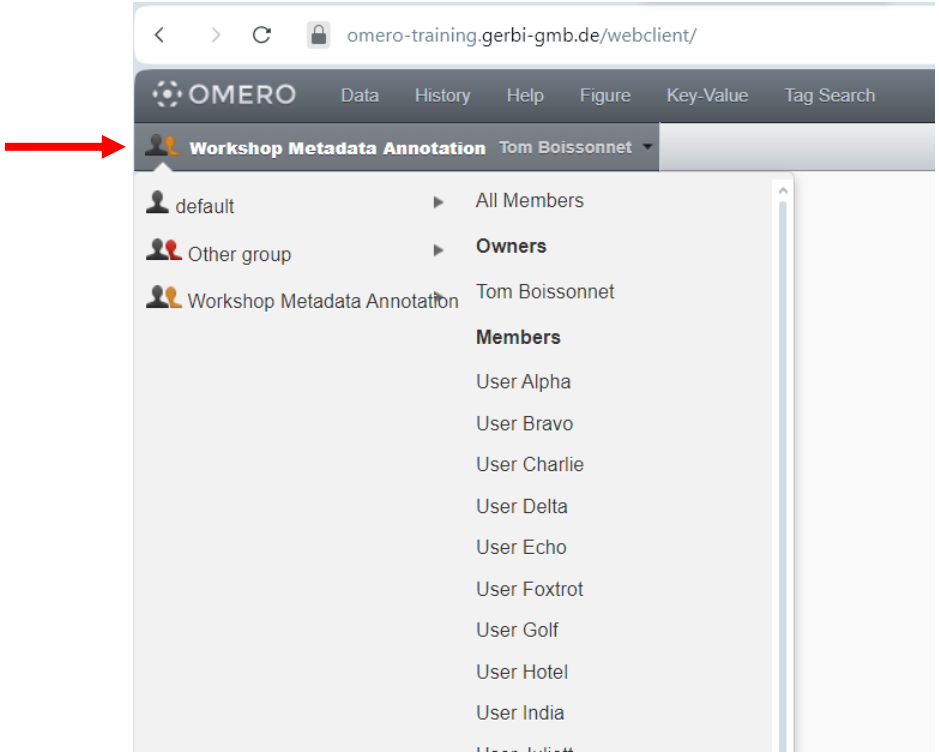
Universität Düsseldorf

- OMERO.web is one of the ways to access data in OMERO.server



Data overview & exploration



Data overview & exploration — links

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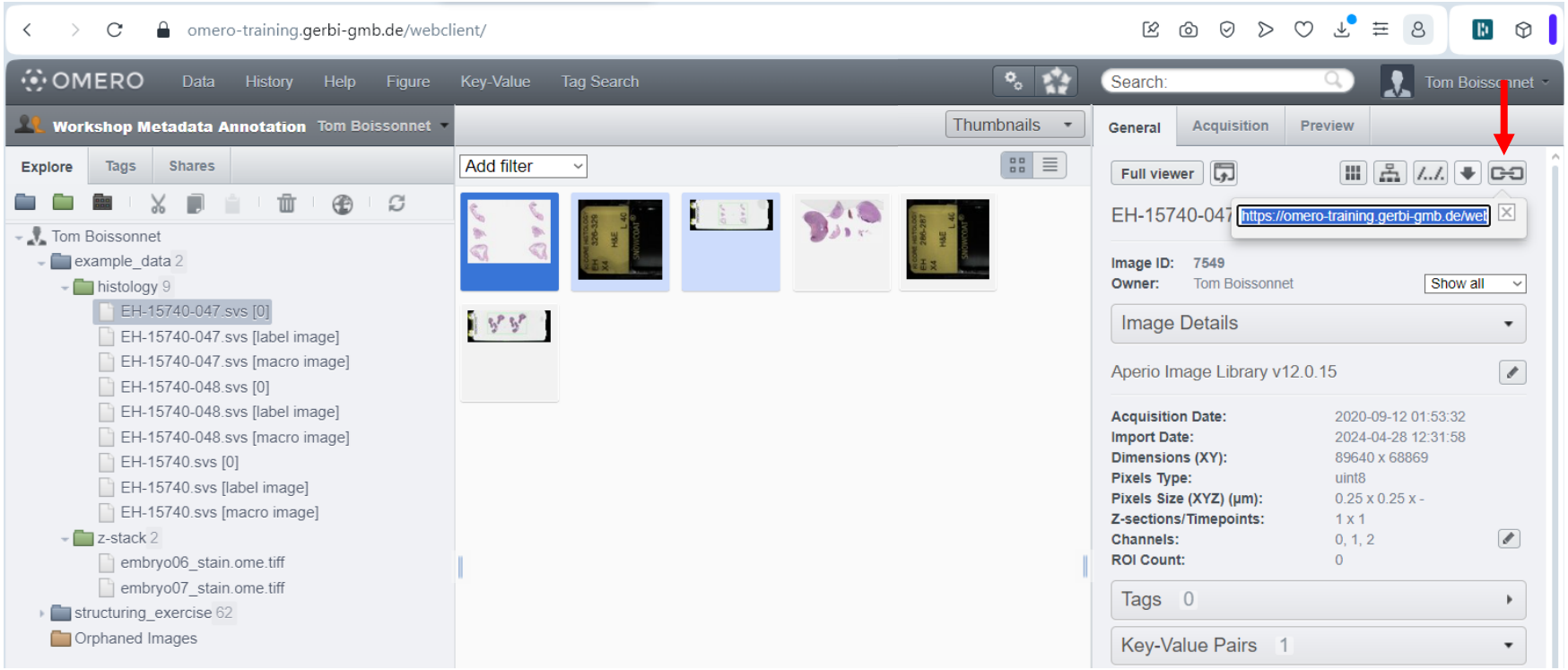

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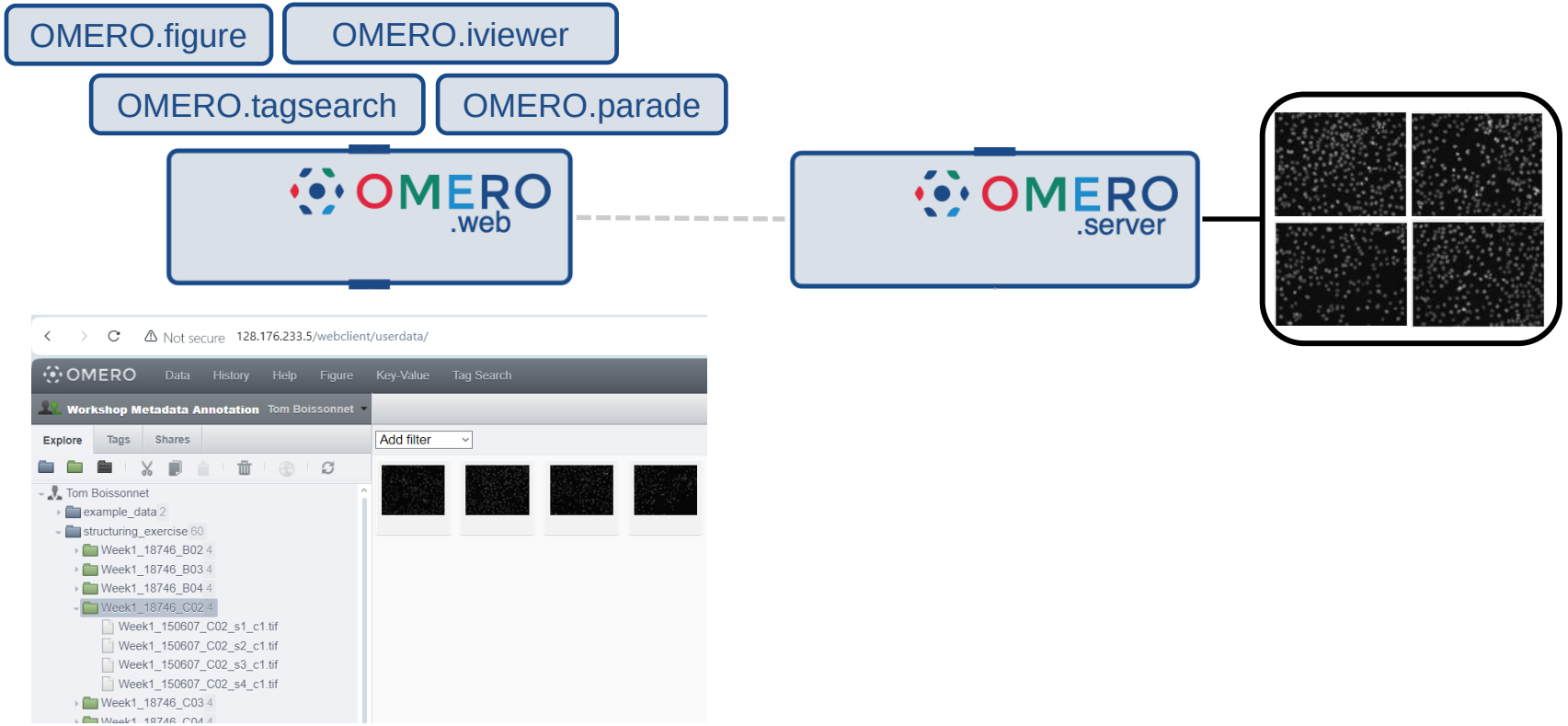
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Explore Tags Shares
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Tom Boissonnet
example_data 2
structuring_exercise 60
Week1_18746_B02 4
Week1_18746_B03 4
Week1_18746_B04 4
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Week1_150607_C02_s1_c1.tif
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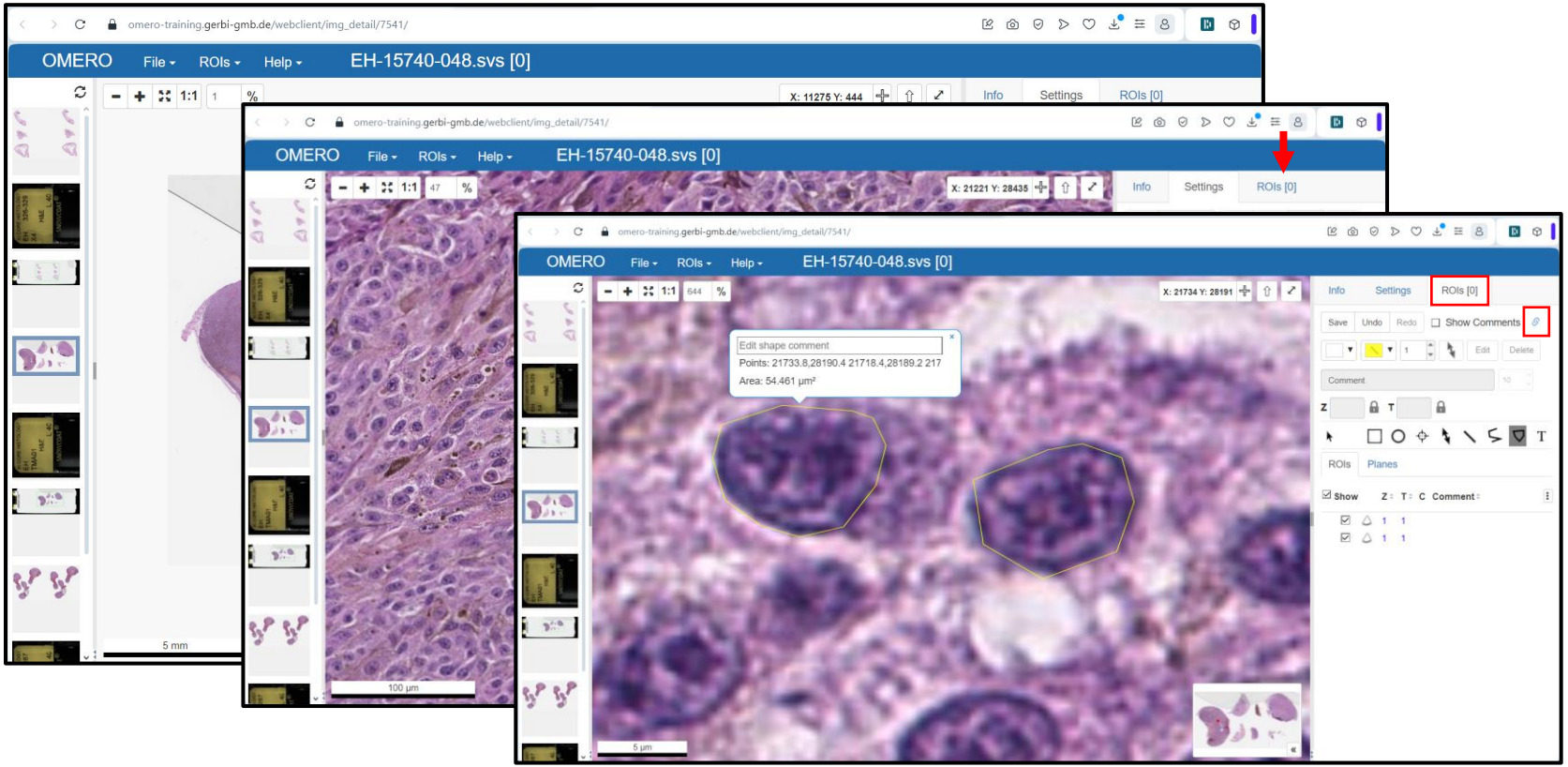
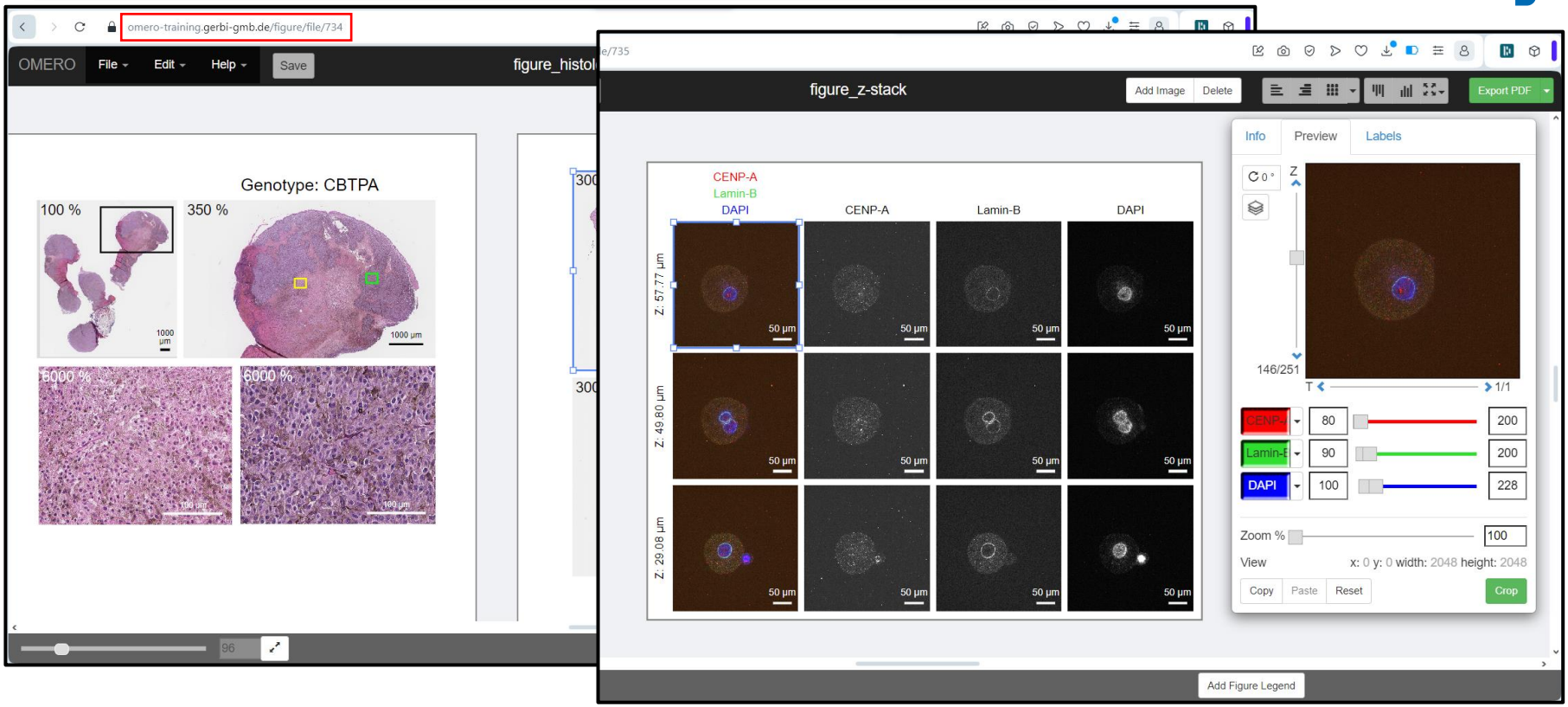
Working with images — OMERO.iviewer



Working with images — OMERO.figure



Working with images — organizing

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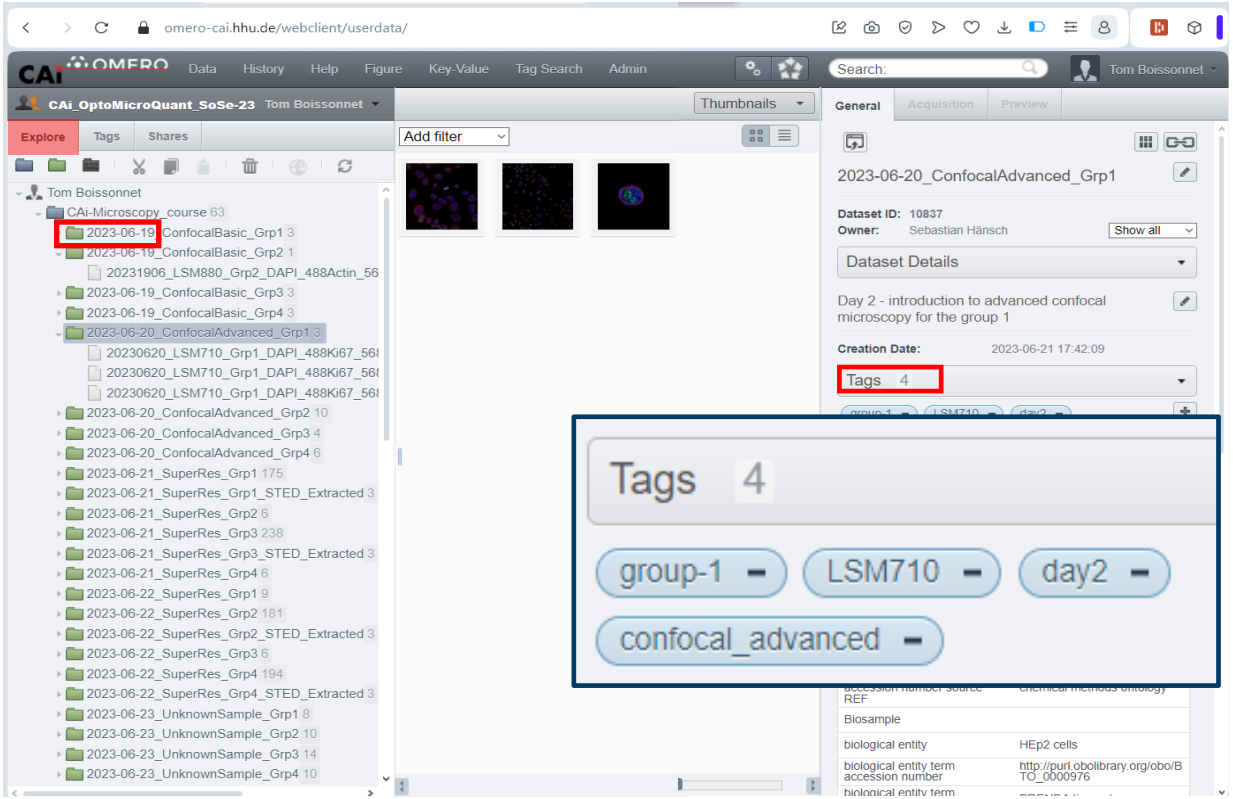

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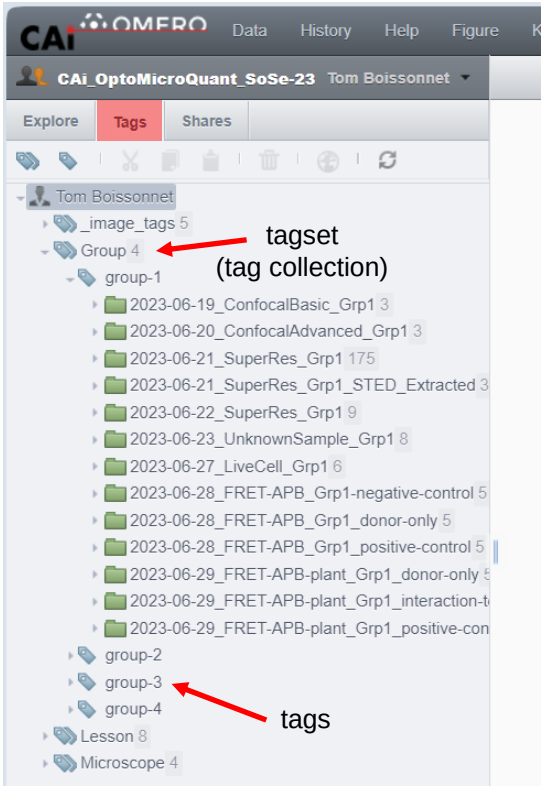
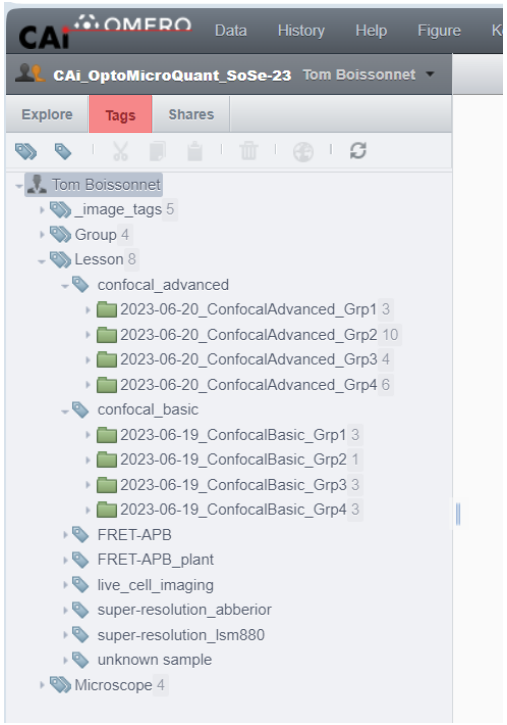
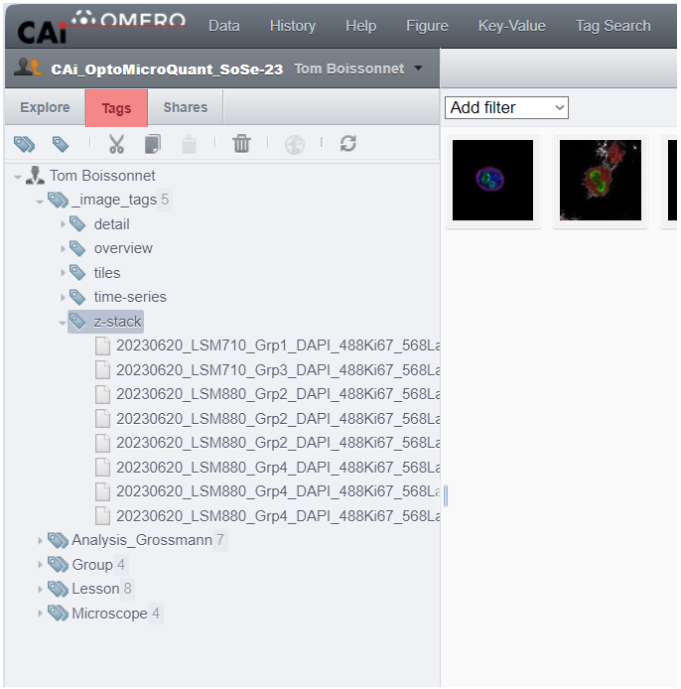
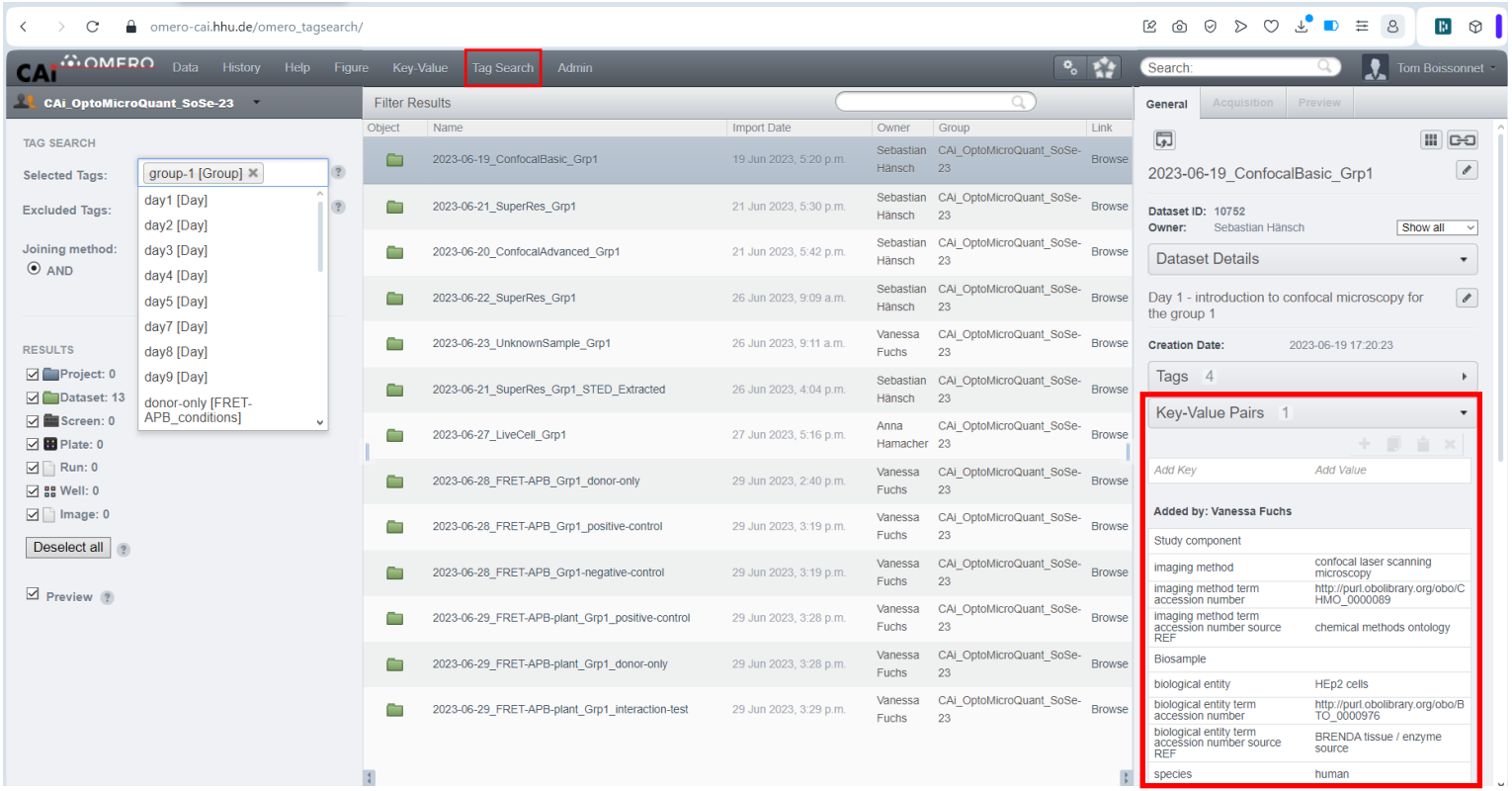
Working with images — organizing



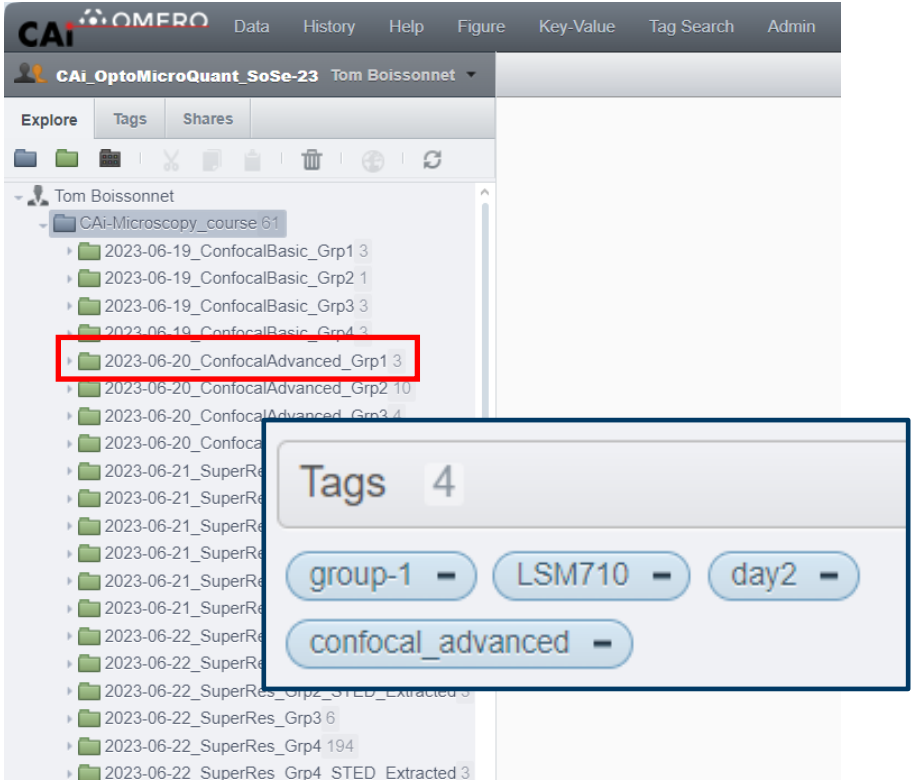


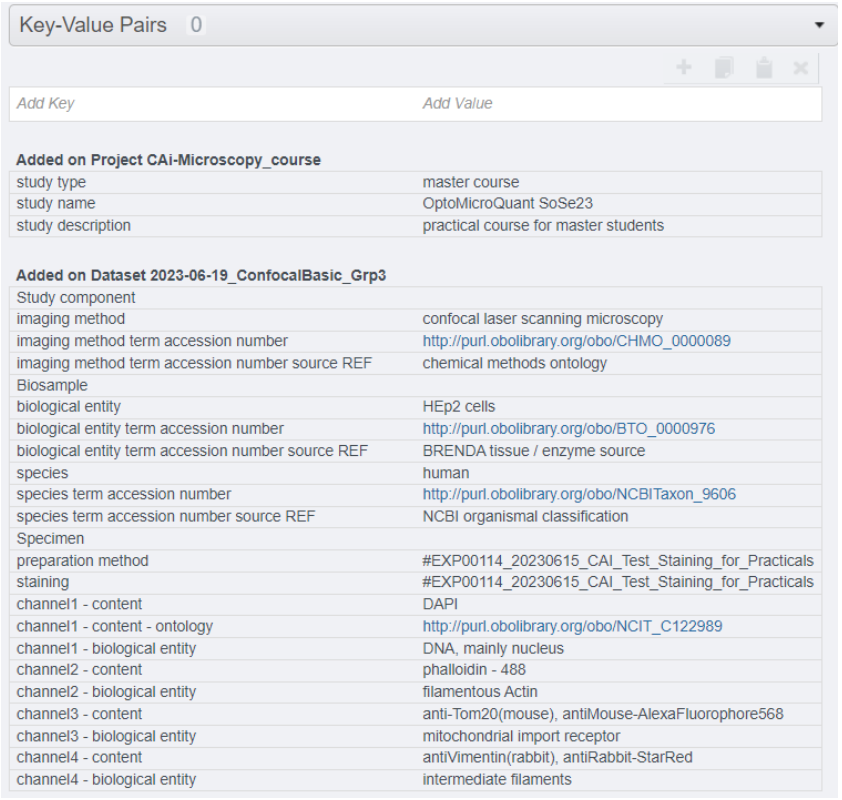


Working with images — filtering

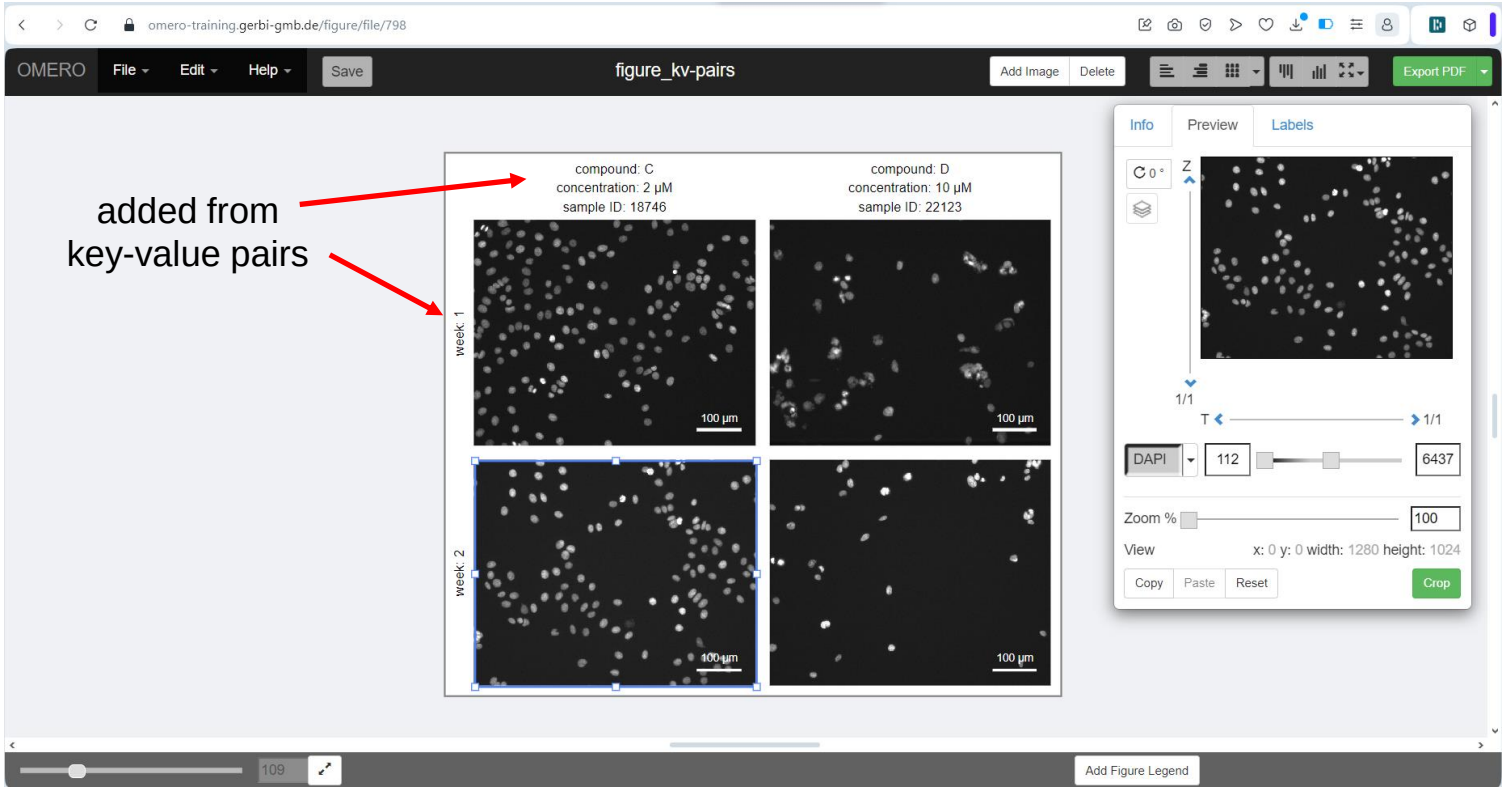


Working with images — key-value pairs

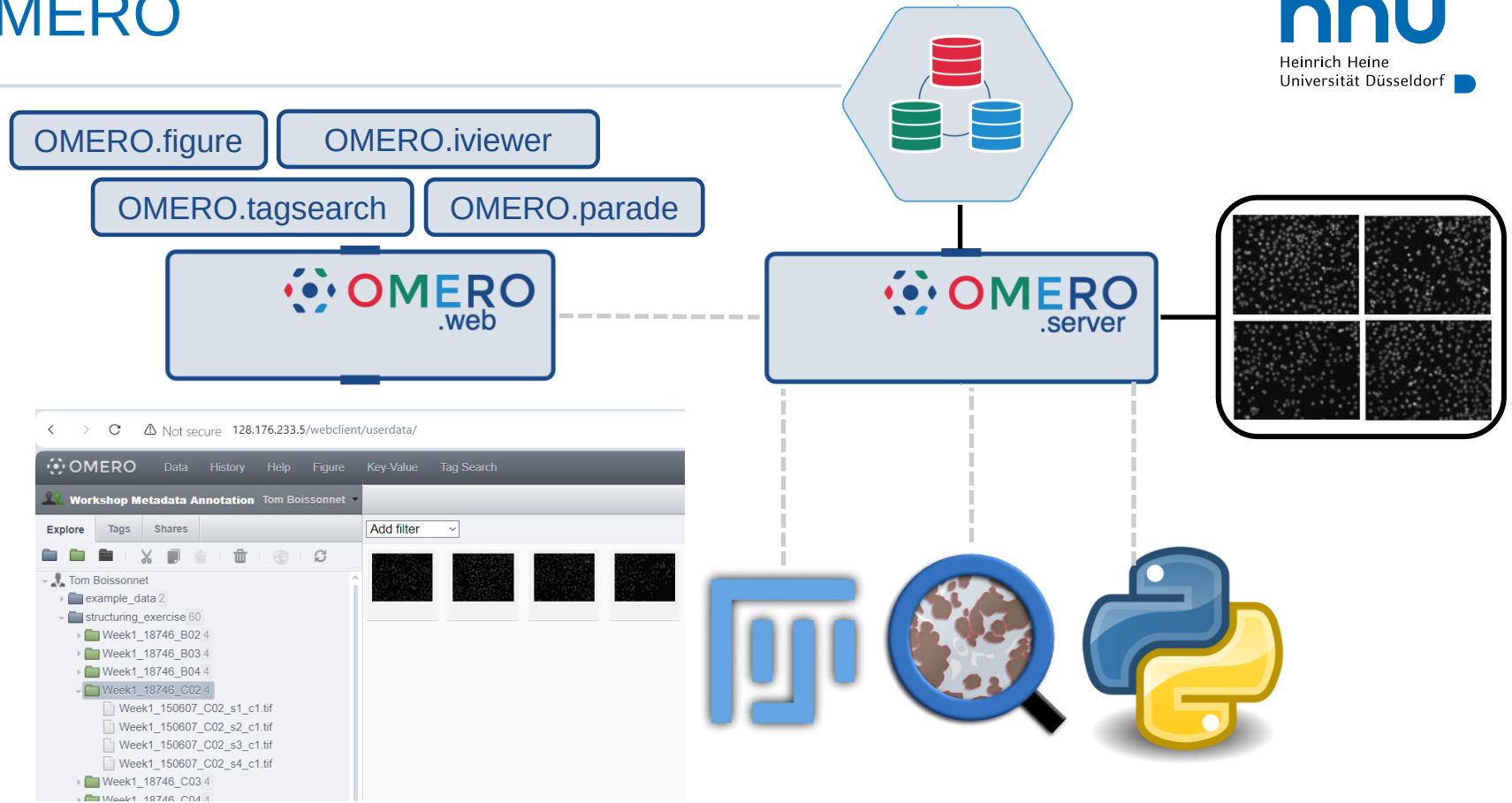




Working with images — OMERO.figure



OMERO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Week1_150607_C02_s4_c1.tif
Week1_18746_C03 4

Storing results — tables

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roi_analysis

Download as CSV: Whole Table
Show current page as: CSV | JSON

To filter rows you can use a query based on named columns. For example, to filter for rows where **shape** is greater than **501669** add ?query=shape>501669 to the URL.
For a more complex example, try ?query=(shape>501669)&(shape<501672)

Table rows: **252**.
Showing page **1** (**200** rows). Prev | Next

dataset	image	roi	shape	cell_index	temperature	roi_area	roi_mean	roi_sum	roi_std
12409	381487	69002	501669	1	T32	0.21474598181052906	81.41065830721003	25970	47.2751965878439
12409	381487	69003	501670	1	T32	0.19387725003583817	97.52083333333333	28086	56.2723990896563
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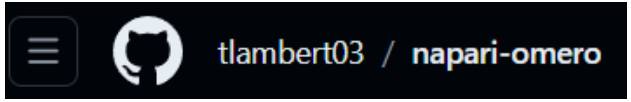
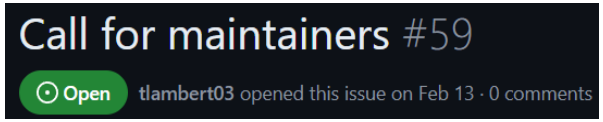
12409	381487	69012	501679	1	T32	0.08347492709876365	105.70161290322581	13107	57.9794151233323

Beyond — topics for discussion

Heinrich Heine
Universität Düsseldorf

- Large images - symbolic linking from fileserver (in-place imports)
  - no difference from OMERO side of things
  - able to programmatically locate images (path in OMERO database)
- Data publication - submission to BioImageArchive (omero-cli-transfer)
- Developing OMERO
  - give other means of working with structured data, metadata, database
  - small changes, large impacts (thousands of users globally)





- Electronic lab notebook
  - now only weak linking between OMERO and elabs
  - elab API standardization?

Conclusion

Heinrich Heine
Universität Düsseldorf

- Data management is for everyone throughout a project
  - group leaders
  - experimenters
  - bioimage analysts

- Data management purpose is to increase your ability to explore data
  - remote access to data - sharing links over files
  - traceability from acquisition to analysis
  - extensions to solve specific needs: OMERO.figure

Thank you for your attention

- Center for Advanced imaging
  - Stefanie Weidtkamp-Peters
  - Susanne Klichowski
  - Sebastian Hänsch
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  - Sarah Loeck
  - Manuel Anlauf
  - Vanessa Fuchs
  - Ksenia Krooß
  - Katharina Schmitz
  - Tehmina Enayat
  - Fiona Heimes

- I3D:bio
  - Christian Schmidt
  - Susanne Kunis
  - Julia Dohle
  - Elisa Ferrando-May
  - Roland Nitschke
  - Tobias Wernet

- Many more
  - German BioImaging
  - NFDI4BIOIMAGE