OME, IDR and Glencoe - Innovating with Imaging Data

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Professor of Quantitative Cell Biology | School of Life Sciences, University of Dundee | CEO, Glencoe Software
The Image Problem is Ubiquitous

- Organelles
- Cells
- Dynamics
- Physiology
- Lead Discovery
- Target Validation
- Pathology
- In Vivo

A picture?
A measurement?
A resource?
Towards Image Informatics

Digital Image Acquisition System

Raw Data

Processed Data

Metadata

Data Management, Tagging, Querying

Quantitative Analysis

Visualization

http://openmicroscopy.org
What We Do

OME DATA MODEL
OME-TIFF
OMEFILES
BIO-FORMATS
OMERO
IDR
OME, Bio-Formats, OMERO, IDR: Data Access and Integration
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University of Dundee: Undergraduate Training

Paul Felts, University of Dundee, learning.openmicroscopy.org
EMPIAR/EMDataBank / PDBe

EMD-2363 > Volume slicer

Electron tomogram through a Gemmata obscurogibbus cell

Sample name: Gemmata obscurogibbus cell
Method: Tomography
Resolution: N/A

Quick links:
- EMD-2363 overview
- Function and Biology
- Experiments and Validation

View
- Downloads
- Volume viewer
- Volume slicer
- Visual analysis

Ardan Patwardhan,
Ingvar Lagerstadt &
Gerard Kleywegt, EBI
Multi-Channel Whole Slide Imaging
HMS Laboratory of Systems Pharmacology

Jia-Ren Lin, Zoltan Maliga, Douglas Russell, Peter Sorger, Harvard Med School
Diane Saunders, Marcela Brissova, Alvin Powers, Vanderbilt University Medical Center
What is OME?

- File Formats – open, validated, performant, scalable
- Bio-Formats – interoperability w/ metadata & binary data
- OMERRO – image data management and integration
- IDR – image data publication and sharing
- Glencoe Software – commercial imaging data management solutions

A platform for FAIR data in bioimaging
Overview of Breakout Options | Short presentations
Glencoe Software

Chris Allan
VP Software Engineering
Breakout Sessions Later! (Chris Allan, Erin Diel, Emil Rozbicki)
Image Data Resource (IDR)

Frances Wong
IDR Curator, University of Dundee
The Image Data Resource (IDR): a scalable resource for FAIR biological imaging data

- Public access
- Reference datasets - complete datasets containing molecular and functional annotations, associated with an existing or upcoming publication.
- Study integration - integrating studies or datasets with other datasets via genes, compounds or phenotypes.
- Curated metadata
- Cloud re-analysis

Breakout Sessions – Sebastien Besson & Frances Wong
https://www.openmicroscopy.org/events

IDR currently has:
- **260TB** of public imaging data.
- super-resolution, high content screening, time-lapse and histological whole slide imaging data.
- metadata related to experimental design, image acquisition, downstream analysis and interpretation.
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Tissue Data
idr0083

Cell Data
idr0094

IDR Data: SARS-CoV-2

Lamers et al. Science DOI:10.1126/science.abc1669

Ellinger et al. Sci Data DOI:10.1038/s41597-021-00848-4

0.0064µM

20µM
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*Breakout Sessions – Sebastien Besson & Frances Wong*
2021 OME Community Meeting

Open data, advanced imaging data applications, and more

Registration Upcoming

8-11 JUNE 2021

https://www.openmicroscopy.org/events/ome-community-meeting-2021/