

The Open Microscopy Environment: Open Image Informatics for the Life and Biomedical Sciences

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²<http://www.openmicroscopy.org/site/about/who-ome>

Despite significant advances in biological imaging and analysis, major informatics challenges remain unsolved: file formats are proprietary, storage and analysis facilities are lacking, as are standards for sharing image data and results. The Open Microscopy Environment (OME) [1] is an open-source software framework developed to address these challenges. OME has three components—an open data model for biological imaging: OME data model; standardised file formats (OME-TIFF) and software libraries for file conversion (Bio-Formats [2]); and a software platform for image data management and analysis (OMERO [3]).

The Java-based OMERO client-server platform [3] comprises an image metadata store, an image repository, visualization and analysis by remote access, enabling sharing and publishing of image data. OMERO's model-based architecture has enabled its extension into a range of imaging domains, including light and electron microscopy, high content screening and recently into applications using non-image data from clinical and genomic studies [4]

Our current version, OMERO-5 improves support for large datasets and reads images directly from their original file format, allowing access by third party software.

OMERO and Bio-Formats run the JCB DataViewer [5], the world's first on-line scientific image publishing system and several other institutional image data repositories (e.g. [6], [7]).

[1] <http://openmicroscopy.org>

[2] <http://openmicroscopy.org/site/products/bio-formats>

[3] <http://openmicroscopy.org/site/products/omero>

[4] <http://www.openmicroscopy.org/site/products/partner>

[5] <http://jcb-dataviewer.rupress.org/>

[6] <http://odr.stowers.org>

[7] <http://emdatbank.org/>