

OMERO.searcher:

Context and content-based search

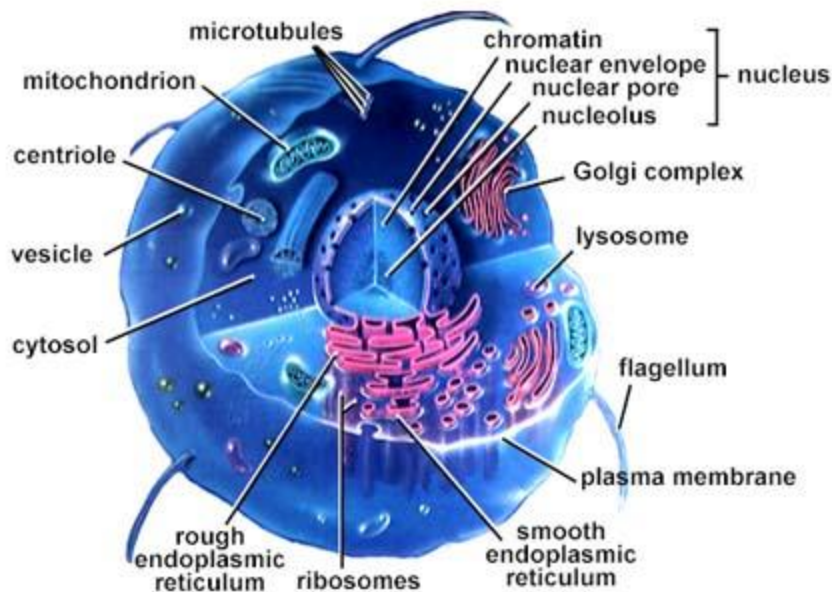
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Lane Center for Computational Biology
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PSLID overview

- PSLID (Protein Subcellular Location Image Database)
- Mission
 - Providing information on protein subcellular location as determined from microscopy images

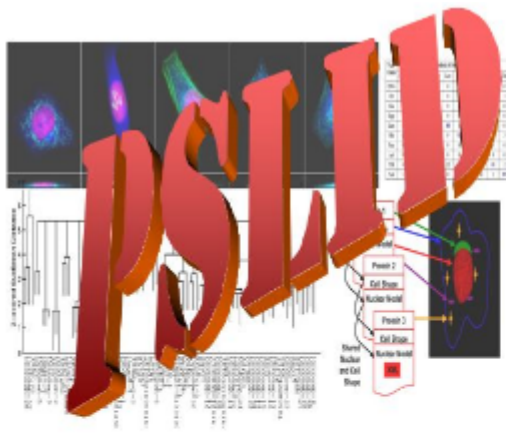


Location Proteomics:

- (dynamic) proteome map to understand normal and abnormal cell behaviors
- clues for interaction/regulation of proteins
- clues for protein function

PSLID overview

- <http://pslid.org>
- An open-source image database webapp



Protein Subcellular Location Image Database

PSLID - Protein Subcellular Location Image Database

[Go to the PSLID database containing CD-tagged NIH 3T3 cell clones](#) **New!**

[Go to the PSLID Public Database Release 4](#) (released August 1, 2008)

[Download datasets contained within PSLID](#)

[Download SLIC feature calculation and pattern analysis software used in PSLID and full PSLID software](#)



Supported by the National Institute of General Medical Sciences, Grant GM075205

PSLID overview

- Multi criterion search

PSLID Service

Logged in
as: demo

Home

Search

Sets

Results

Logout

Reference

RandTag
Public
Database
release 1.0
PSLID
Software
release 5.0

Cell type: ALL
Protocol type: ALL
Microscope type: ALL
Experiment title: ALL
Type of images: 2D static only
Max no. of displayed records: 30
Target:

ALL

1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase delta-1 (Phosphoinositide phospholipase C)(Phospholipase C-delta-1)
28 kDa heat- and acid-stable phosphoprotein (PDGF-associated protein)(PAP)(PDGFA-associated protein 1)(PAP1)
39S ribosomal protein L18, mitochondrial Precursor (L18mt)(MRP-L18)
40S ribosomal protein S11
40S ribosomal protein S24
40S ribosomal protein S28
40S ribosomal protein SA (Laminin receptor 1)(p40)(34/67 kDa laminin receptor)(37 kDa oncofetal antigen)(OFA/iLRP)
60S acidic ribosomal protein P1
60S ribosomal protein L10 (Protein QM homolog)

Which type of sets do you want create ?

- ☐ Set of images
☒ Set of regions

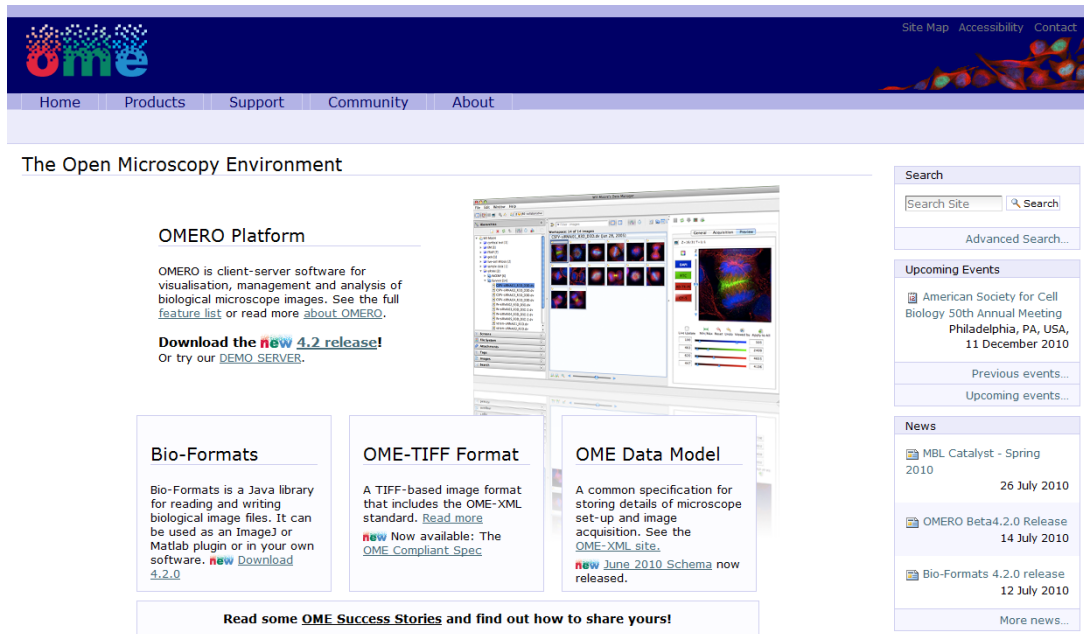
Segmentation Method: External

Name your query result for future analysis:

Search

- Analysis tools
 - Segmentation/feature calculation
 - Typical image selection
 - Set comparison
 - Feature selection
 - Classifier training/use
 - Stacked/meta classifier training/use
 - Clustering to sets
 - Generative models training/synthesis

- Open Microscopy Environment (OME)
 - OME data model
 - OME-XML
 - OME-TIFF
 - OMERO



The Open Microscopy Environment

OMERO Platform

OMERO is client-server software for visualisation, management and analysis of biological microscope images. See the full [feature list](#) or read more [about OMERO](#).

Download the new 4.2 release!
Or try our [DEMO SERVER](#).

Bio-Formats

Bio-Formats is a Java library for reading and writing biological image files. It can be used as an ImageJ or Matlab plugin or in your own software. [Download 4.2.0](#)

OME-TIFF Format

A TIFF-based image format that includes the OME-XML standard. [Read more](#)

OME Data Model

A common specification for storing details of microscope set-up and image acquisition. See the [OME-XML site](#).

News

- MBL Catalyst - Spring 2010
26 July 2010
- OMERO Beta4.2.0 Release
14 July 2010
- Bio-Formats 4.2.0 release
12 July 2010

[Read some OME Success Stories](#) and find out how to share yours!

<http://www.openmicroscopy.org/>

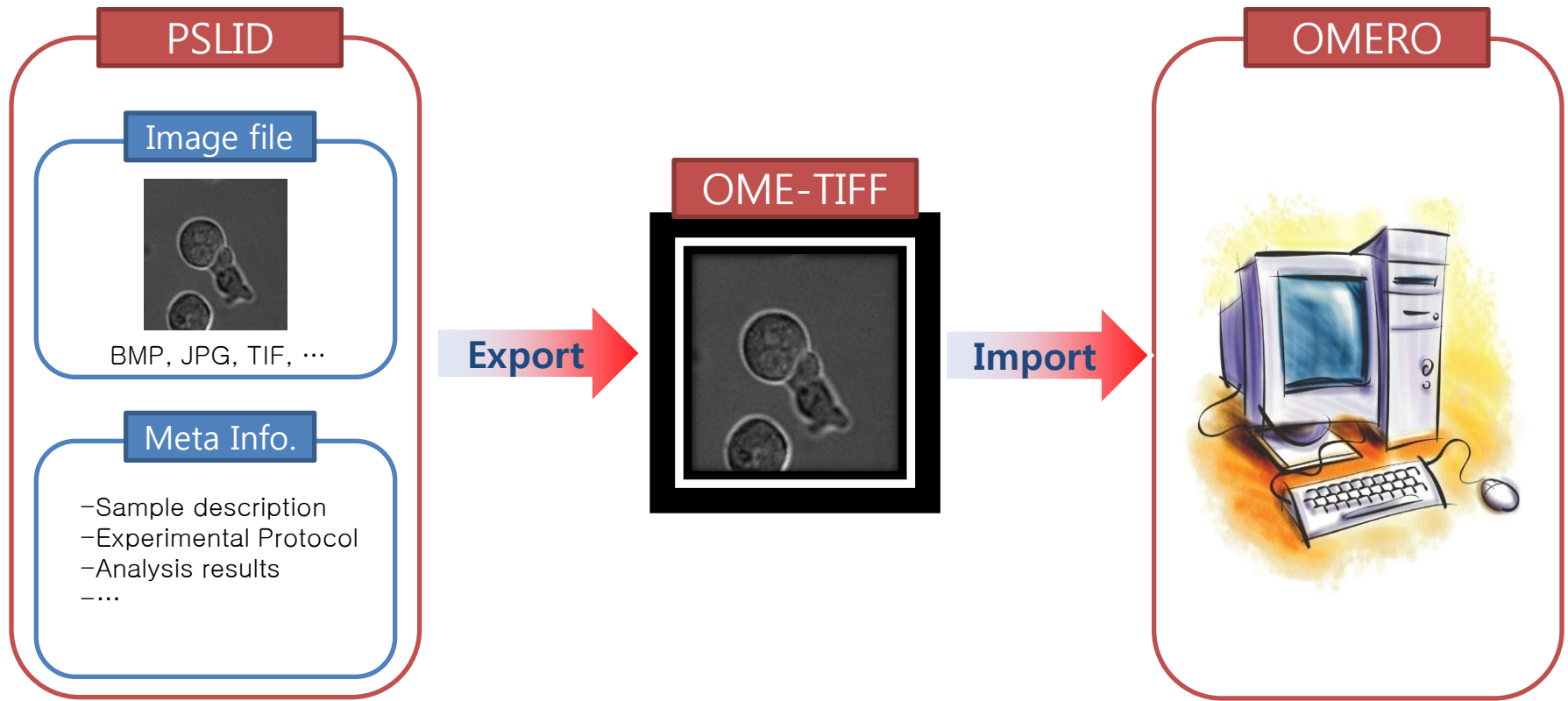
Motivation

- Let people use PSLID tools on existing OMERO DB
- Use robust infrastructure of OMERO
 - PSLID only accepts a few types of images
- Avoid maintaining duplicate image storages and retrieval architecture

Scope of the project

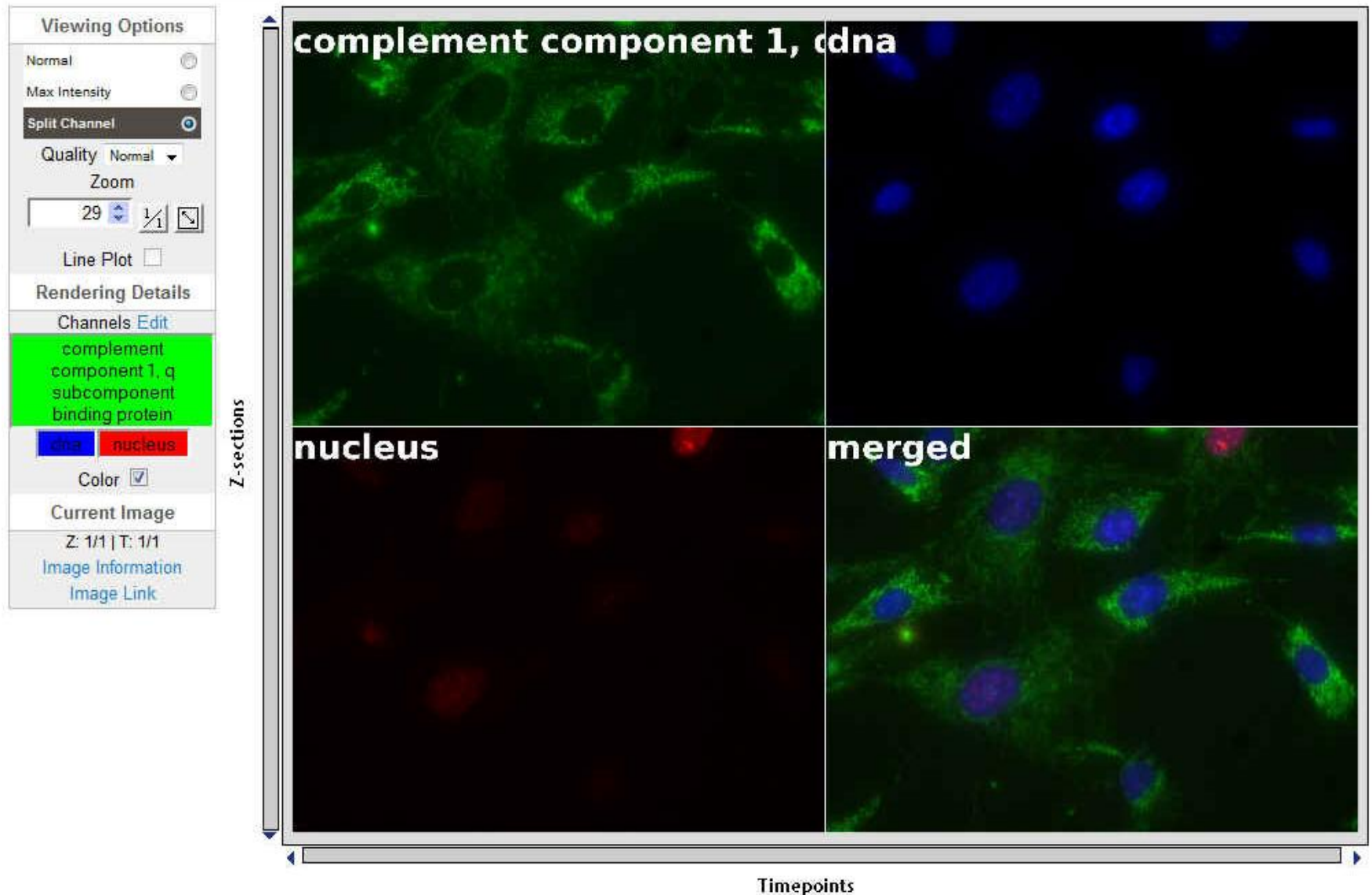
- **Extend OME-XML data model**
 - Context data model
 - experiment protocol etc.
 - Content data model
 - statistical image features etc.
- **Create OMERO-PSLID version**
 - In OMERO.insight (using OMERO.script)
 - In OMERO.web
- Implement **easy transfer** of images and information between OMERO and PSLID

Converting to OME-TIFF



- Automatically map every meta information to either
 - regular OME-XML
 - additional context meta data (will be attached to an image as an external XML file)

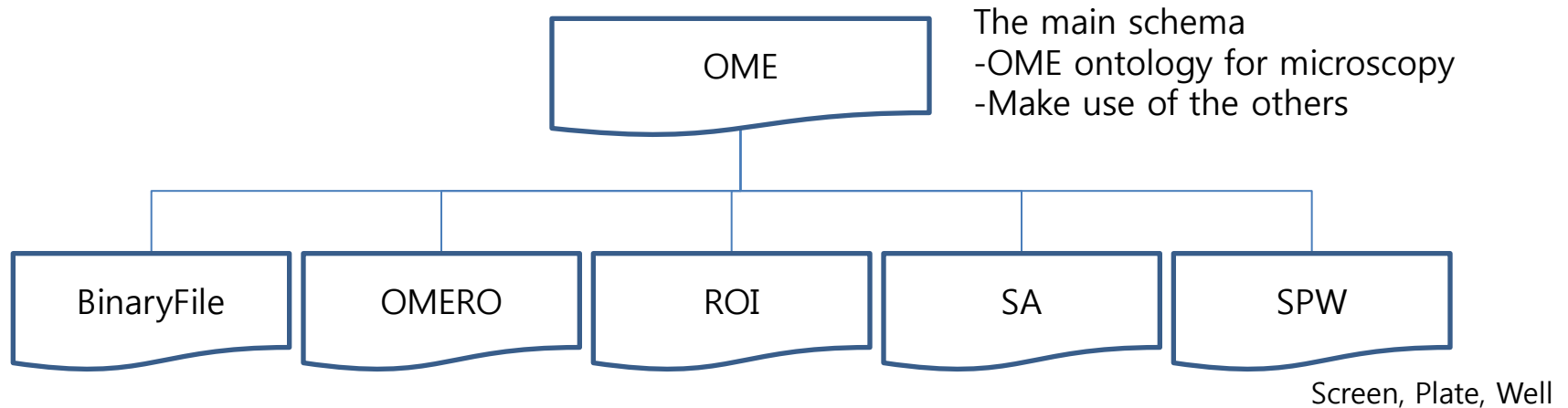
Converted OME-TIFF image



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Extension to current OME-XML data model

OME-XML Schema
(Version 2010-06)



Extend

SMP

- Biological sample description
- Additional experimental protocol description

Feats

- Image content

Initial solution

- Context Meta Data
 - 1) Define an XML Schema for an external XML file
 - 2) Use OMERO to attach the XML file to an image
- Content Meta Data
 - 1) Define format for external HDF5 file
 - 2) Attach the HDF5 files to an image

Additional context metadata model

The screenshot displays a hierarchical metadata form. At the top is a 'Sample' field. Below it is a 'Slide' field. The 'Protocol' field consists of a sequence of five text boxes followed by a temperature unit '°C' and three more text boxes. The 'Cell_Type' field is a single text box. Below these is a 'Labels' section containing five 'Label' entries, each with a text box. The bottom section contains 'Ligand', 'Target', and 'Dye' fields, each consisting of a sequence of text boxes. The interface includes expand/collapse icons and information/help icons for various fields.

- File Format
 - External xml file
 - Edit by
 - OMERO.editor
 - Attach to an image by
 - OMERO.insight

Additional context metadata model

- Viewable from OMERO.insight & OMERO.web

The screenshot displays the OMERO Data Manager interface. On the left, a 'Hierarchies' panel shows a tree structure of data, including a folder named 'demo' containing subfolders like 'convert_from_PSLID [2]', 'CZ1 [2400]', 'temp [3]', and 'Ivan's Demos [6]'. The 'temp [3]' folder is expanded, showing files '32670_1_98008.ome.tif', 'img_bk.ome.tif', and 'screenshot.tif'. The main workspace, titled 'Workspace: 3 of 3 images', shows three image thumbnails. The first image is selected, and its metadata is displayed in a panel on the right. This panel is titled 'General' and contains a 'Sample' section with a description: 'This element describes the components with which the biological sample is prepared before the acquisition.' Below this, there are two tables of metadata. The first table lists acquisition parameters, and the second table lists cell-related information. The 'Sample' section is highlighted with a red rectangle.

Protocol	
Reference	None
Fixation	none
Permeabilization	none
Substrate	Glass
Temperature (°C)	20
Description	Media was aspirated and replaced with Opt
Author	None
Title	3T3 RandTag Protocol 7

Cell_Type	
Name	3T3-CDtag-CZ1E5
Organism	Mus musculus
atcc_number	CRL-1658
cell_mesh_heading	NIH 3T3 Cells
cell_mesh_tree_number	A11,251,210,700,550

Content metadata model

- File Format
 - HDF5 file (1 feature set per a file)
- Examples
 - File Name: iid<4355>_feature_<SLF34>_field.h5

FF_001	FF_002	FF_003	FF_004	FF_005	FF_006	FF_007
10.5	0.7	0.88	0.1	145	20	0.7

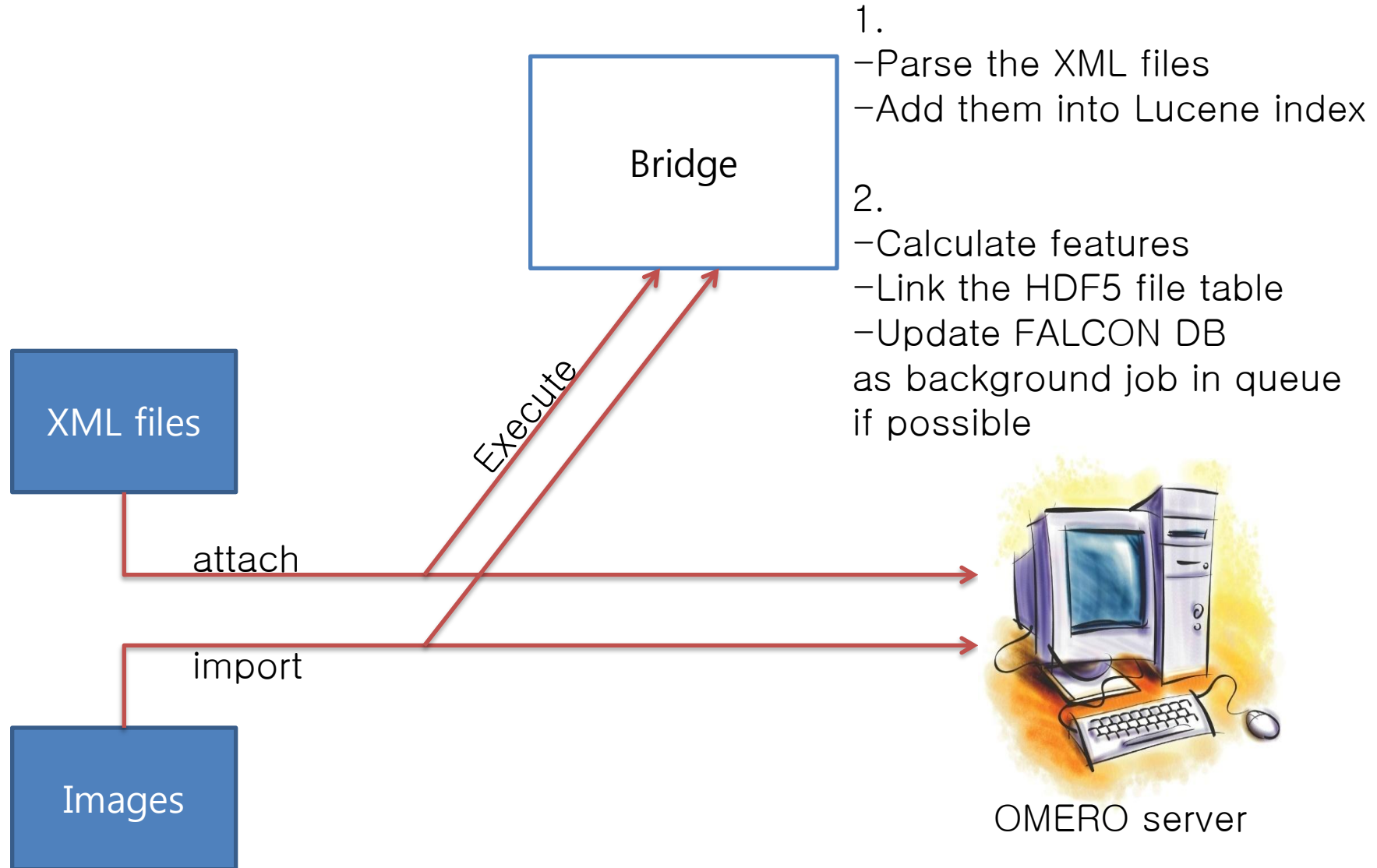
- File Name: iid<2738>_feature_<SLF20>_roi.h5

region	RF_001	RF_002	RF_003	RF_004	RF_005
1	10.5	0.7	0.88	0.1	145
2	13.1	0.1	0.51	1.1	2
3	16.2	1.9	0.12	3.7	30
4	9.5	2.2	0.23	0.9	78
5	11.9	0.2	0.95	0.7	15
6	7.7	0.1	0.42	1.5	86

Content metadata: feature calculation

- Implemented feature calculation library
 - Uses PySLIC
 - Texture features
 - Object features
 - Morphological features
 - Overlap features between protein and DNA channel images
 - Supports
 - Feature calculation
 - Linking (attaching) features to an image as an HDF5 file
 - Retrieving features from an HDF5 file

Custom Bridge



Search by additional context metadata

- Default search
 - 3T3

The screenshot shows the OME web interface. The top navigation bar includes icons for Home, Data, Public, Search (highlighted with a red circle), History, Me, Help, and Contact. Below the navigation bar, the 'BASKET' contains 0 items and the 'STATUS' is 0 job(s). The main content area is titled 'Searching feature enables you to search within the images, datasets, projects, plates and screens stored on the server. It supports single and multiple character wildcard searches.' The search form on the left has a 'Search for *:' field with '3T3' entered, and a 'Date:' field. Below these are 'Cell Type:' and 'Target:' fields. The 'In *:' section has checkboxes for Images (checked), Datasets, Projects, Plates, and Screens. A 'Search' button is at the bottom left. The search results table on the right shows a list of objects with their names and dates. The legend at the bottom indicates that the icons represent Project, Dataset, Screen, and Plate.

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BASKET contains 0 items STATUS: 0 job(s)

Searching feature enables you to search within the images, datasets, projects, plates and screens stored on the server. It supports single and multiple character wildcard searches.

Search for *: 3T3

Date:

Cell Type:

Target:

In *:

☒ Images ☐ Datasets ☐ Projects
☐ Plates ☐ Screens

Search

Filter: search

Object	Name	Date
	32495_1_97483.ome.tif	2010-12-03 16:57:14
	32495_1_97483.ome.tif	2010-12-09 00:23:51
	32495_1_97483.ome.tif	2010-12-09 13:52:01
	32496_1_97486.ome.tif	2010-12-09 00:24:49
	32496_1_97486.ome.tif	2010-12-09 13:52:05
	32670_1_98008.ome.tif	2010-09-23 15:08:01

Legend: - Project; - Dataset; - Screen; - Plate;

Home | Basket | Data | Public | History | Search | Person | Help | Contact | Classification |

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Search by additional context metadata

- Specific keyword search (enabled by our custom bridge)

The screenshot displays the OME web interface. At the top, the OME logo is on the left, and navigation icons for HOME, DATA, PUBLIC, SEARCH, HISTORY, ME, HELP, and CONTACT are on the right. Below the navigation bar, a status bar shows 'BASKET contains 0 items' and 'STATUS: 0 job(s)'. The main content area is divided into two panels. The left panel, titled 'Searching feature enables you to search within the images, datasets, projects and screens stored on the server. It supports single and multiple character wildcard searches.', contains search input fields: 'Search for *:', 'Date:', 'Cell Type:' (with '3T3' entered), 'Target:', and 'In *:' (with checkboxes for Images, Datasets, Projects, Plates, and Screens). A red oval highlights the 'Cell Type' and 'Target' fields. A 'Search' button is at the bottom of this panel. The right panel shows search results with a 'Filter: search' input. It contains a table with columns 'Object', 'Name', and 'Date'. The table lists four items, each with a small thumbnail image, a filename, and a date. Below the table is a legend: 'Legend: [Project icon] - Project; [Dataset icon] - Dataset; [Screen icon] - Screen; [Plate icon] - Plate;'. The footer of the interface includes a navigation bar with links: Home | Basket | Data | Public | History | Search | Person | Help | Contact | Classification |, and a copyright notice: '© University of Dundee & Open Microscopy Environment'.

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BASKET contains 0 items STATUS: 0 job(s)

Searching feature enables you to search within the images, datasets, projects and screens stored on the server. It supports single and multiple character wildcard searches.

Search for *: ?

Date: ?

Cell Type:

Target:

In *: ☒ Images ☐ Datasets ☐ Projects ☐ Plates ☐ Screens

Search

Filter:

Object	Name	Date
	32495_1_97483.ome.tif	2010-12-09 13:52:01
	32496_1_97486.ome.tif	2010-12-09 00:24:49
	32496_1_97486.ome.tif	2010-12-09 13:52:05
	32670_1_98008.ome.tif	2010-09-23 15:08:01

Legend: - Project; - Dataset; - Screen; - Plate;

Home | Basket | Data | Public | History | Search | Person | Help | Contact | Classification |

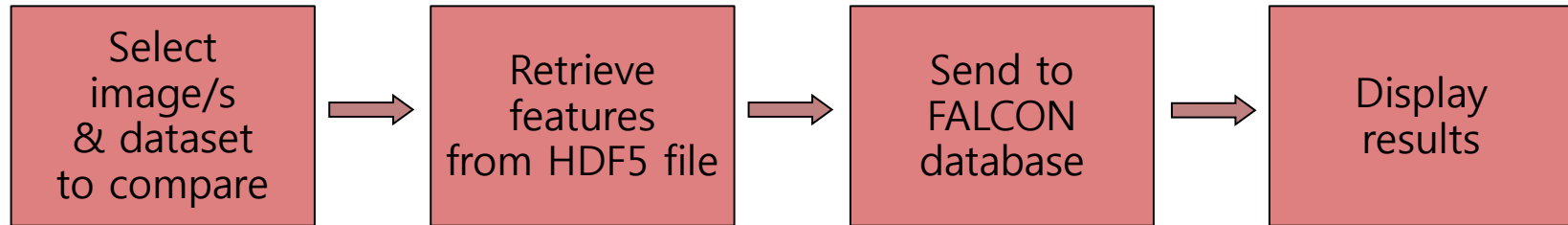
© University of Dundee & Open Microscopy Environment

Initial use case

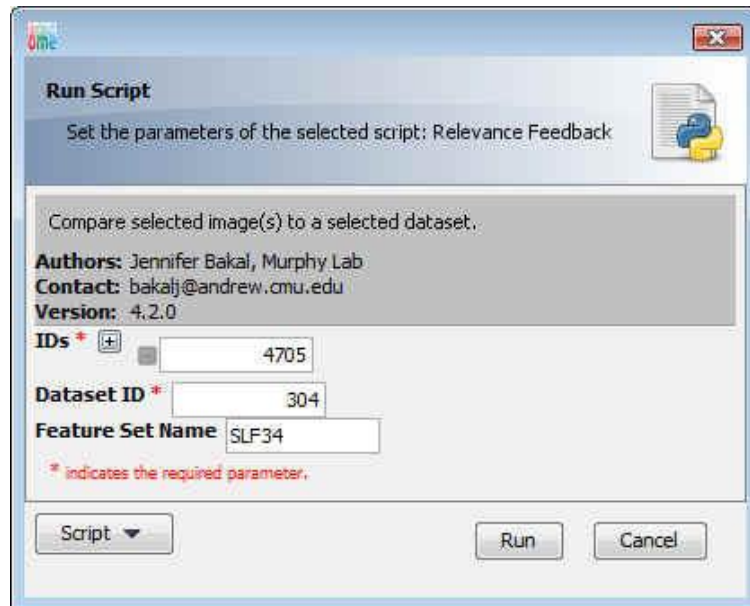
- Search by image content (Relevance Feedback)
 - Give me the images that match best with this/these image(s) in terms of image content
 - Using Murphy lab's subcellular location features (SLFs)
 - 173 features
 - Using FALCON DB

Initial use case (from OMERO.Insight)

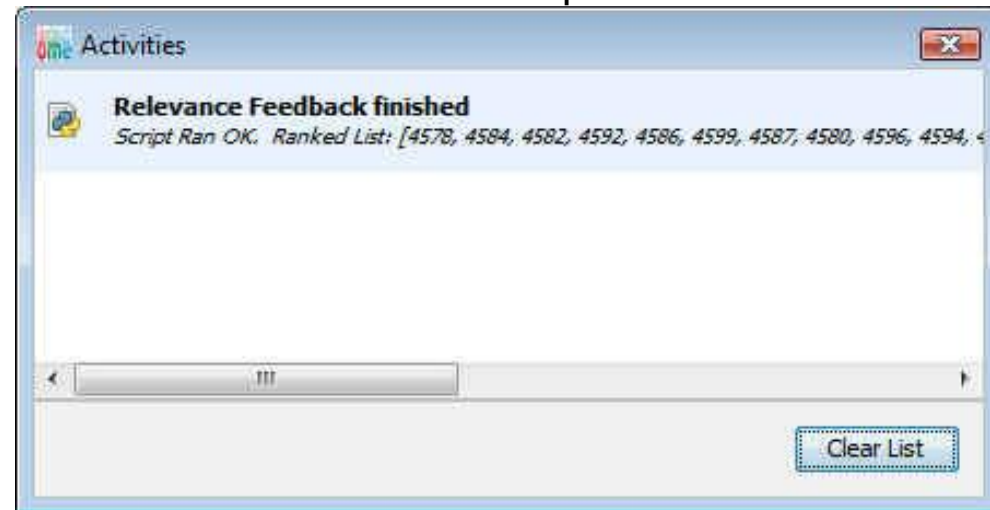
Search Process



Initial Implementation from OMERO.Insight



Result output



Screenshot: selecting image(s)

Content-based search against entire DB

The screenshot displays the OME web interface. At the top left is the OME logo with the text "open microscopy environment". Below it, a status bar indicates "BASKET contains 1 item" and "STATUS: 0 job(s)". A navigation bar on the right contains icons for HOME, DATA, PUBLIC, SEARCH, HISTORY, ME, HELP, and CONTACT. A red arrow points from the "Content-based search against entire DB" text to the search icon in the navigation bar. On the left, a sidebar shows a tree view of the file system, including "ome users ome users (demo_ome)" and a list of files like "GQ1H6_image_00001.ome.tif". The main area displays a grid of 16 microscopy images. The image in the second row, second column is selected with a dashed border. On the right, a preview panel shows the selected image, "GQ1H6_image_00006.ome.tif", with tabs for Preview, Metadata, and Annotation. The footer contains a navigation bar with links like Home, Basket, Data, Public, History, Search, Person, Help, Contact, and Classification, along with the copyright notice "© University of Dundee & Open Microscopy Environment".

Screenshot: search results against entire DB

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BASKET contains 1 item STATUS: 0 job(s)

HOME DATA PUBLIC SEARCH HISTORY ME HELP CONTACT | logout

Search again with additional image(s) ?

Content Search

retrieved images 10

Search by image content

Query configuration

Selected featureset and dataset

Featureset name	Dataset ID
SLF34	Entire DB

Selected image(s)

Image	ID	Name	Type
	9957	GQ1H6_image_00007.ome.tif	+

Go to Basket

Search results using image content

Image	ID	Name	Neg	Pos
	9957	GQ1H6_image_00007.ome.tif		
	9950	GQ1H5_image_00025.ome.tif		
	9952	GQ1H6_image_00002.ome.tif		
	9860	GQ1A6_image_00010.ome.tif		
	9926	GQ1H5_image_00001.ome.tif		
	9821	GQ1H4_image_00021.ome.tif		
	9955	GQ1H6_image_00005.ome.tif		
	9751	GQ1A4_image_00001.ome.tif		
	9930	GQ1H5_image_00005.ome.tif		
	9812	GQ1H4_image_00012.ome.tif		

Legend: - Project; - Dataset; - Screen; - Plate;

Home | Basket | Data | Public | History | Search | Person | Help | Contact
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Screenshot: selecting image(s)

Add selected images to basket

The screenshot displays the OME web interface. At the top left is the OME logo with the tagline 'open microscopy environment'. Below it, a status bar indicates 'BASKET contains 1 item' and 'STATUS: 0 job(s)'. The top navigation bar includes icons for Home, Data, Public, Search, History, ME, Help, and Contact, along with a calendar showing 'SEP 12' and a 'logout' link. The left sidebar shows a file tree under 'ome users ome users (demo_ome)' with a 'Demo' folder containing various image files, including 'GQ1H6_image_00001.ome.tif' through 'GQ1H6_image_00011.ome.tif'. The main area features a grid of 16 microscopy image thumbnails. A red arrow points from the text 'Add selected images to basket' to the 'Add to Basket' icon (a shopping basket) in the toolbar above the grid. The right-hand panel shows the 'Preview' tab for the selected image 'GQ1H6_image_00006.ome.tif', with a 'Launch full viewer' link and a large preview window displaying the image. The bottom footer contains navigation links and copyright information: '© University of Dundee & Open Microscopy Environment'.

Screenshot: modified Basket (specific options)

Search against a specific dataset

Search against entire DB

The screenshot displays the OME (Open Microscopy Environment) web interface. At the top, the OME logo and navigation icons (Home, Data, Public, Search, History, Me, Help, Contact) are visible. The main content area is divided into two sections: 'Content Search' and 'Basket Items'.


Content Search: This section contains a 'Featureset Name' field with the value 'SLF34' and a '# retrieved images' dropdown set to '10'. Below these are two search buttons: 'Search by image content' and 'Search by image content against entire DB'. The 'Dataset ID' field is set to '1103'. Red arrows point from the text boxes at the top to these two search buttons.

Basket Items: This section shows a list of items in the basket. The table has columns for 'Image', 'Name', 'Date', 'Negative', and 'Positive'. The first item is 'GQ1H6_image_00007.ome.tif' with a date of '2011-06-15 04:10:13'.

Basket Panel: On the right side, there is a 'Basket' panel titled 'Basket' with the text 'This page shows the current contents of your basket.' Below this is a table of items in the basket, with columns for 'Image', 'Name', and 'Date'. The items are listed with their respective names and dates.

Navigation links at the bottom include: Home | Basket | Data | Public | History | Search | Person | Help | Contact | Classification | © University of Dundee & Open Microscopy Environment

Screenshot: search results against dataset 1103

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BASKET contains 1 item STATUS: 0 job(s)

HOME DATA PUBLIC SEARCH HISTORY ME HELP CONTACT | logout

Search again with additional image(s) ?

Content Search

retrieved images 10


Search by image content

Query configuration

Selected featureset and dataset











Featureset name	Dataset ID
SLF34	1103





Selected image(s)

Image	ID	Name	Type
	9957	GQ1H6_image_00007.ome.tif	+

Go to Basket

Search results using image content

Image	ID	Name	Neg	Pos
	9821	GQ1H4_image_00021.ome.tif	<input type="radio"/>	<input type="radio"/>
	9812	GQ1H4_image_00012.ome.tif	<input type="radio"/>	<input type="radio"/>
	9802	GQ1H4_image_00002.ome.tif	<input type="radio"/>	<input type="radio"/>
	9817	GQ1H4_image_00017.ome.tif	<input type="radio"/>	<input type="radio"/>
	9808	GQ1H4_image_00008.ome.tif	<input type="radio"/>	<input type="radio"/>
	9813	GQ1H4_image_00013.ome.tif	<input type="radio"/>	<input type="radio"/>
	9814	GQ1H4_image_00014.ome.tif	<input type="radio"/>	<input type="radio"/>
	9801	GQ1H4_image_00001.ome.tif	<input type="radio"/>	<input type="radio"/>
	9818	GQ1H4_image_00018.ome.tif	<input type="radio"/>	<input type="radio"/>
	9816	GQ1H4_image_00016.ome.tif	<input type="radio"/>	<input type="radio"/>

Legend:  - Project;  - Dataset;  - Screen;  - Plate;

Home | Basket | Data | Public | History | Search | Person | Help | Contact
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Screenshot: another round of search

Another round of search

- Select images from results as positive/negative samples

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BASKET contains: 1 item STATUS: 0 job(s)

Search again with additional image(s) ?

Content Search

retrieved images 10

Search by image content

Query configuration

Selected featureset and dataset

Featureset name	Dataset ID
SLF34	Entire DB

Selected image(s)

Image	ID	Name	Type
	9957	GQ1H6_image_00007.ome.tif	+

Go to Basket

Search results using image content

Image	ID	Name	Neg	Pos
	9957	GQ1H6_image_00007.ome.tif		
	9950	GQ1H5_image_00025.ome.tif		
	9952	GQ1H6_image_00002.ome.tif		
	9860	GQ1A6_image_00010.ome.tif		
	9926	GQ1H5_image_00001.ome.tif		
	9821	GQ1H4_image_00021.ome.tif		
	9955	GQ1H6_image_00005.ome.tif		
	9751	GQ1A4_image_00001.ome.tif		
	9930	GQ1H5_image_00005.ome.tif		
	9812	GQ1H4_image_00012.ome.tif		

Legend: - Project; - Dataset; - Screen; - Plate;

Preview Metadata Annotation


GQ1A6_image_00010.ome.tif

Launch full viewer

These 2 images are for different target protein
File name starts with GQ1A4....

Screenshot: another round of search results

Keep searching until you are satisfied!

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BASKET contains 1 item STATUS: 0 job(s)

HOME DATA PUBLIC SEARCH HISTORY ME HELP CONTACT | logout

Search again with additional image(s) ?

Content Search

retrieved images 10



Search by image content

Query configuration











Selected featureset and dataset





Featureset name	Dataset ID
SLF34	Entire DB

Selected image(s)

Image	ID	Name	Type
	9957	GQ1H6_image_00007.ome.tif	+
	9860	GQ1A6_image_00010.ome.tif	-

Search results using image content

Image	ID	Name	Neg	Pos
	9938	GQ1H5_image_00013.ome.tif	<input type="radio"/>	<input type="radio"/>
	9928	GQ1H5_image_00003.ome.tif	<input type="radio"/>	<input type="radio"/>
	9952	GQ1H6_image_00002.ome.tif	<input type="radio"/>	<input type="radio"/>
	9943	GQ1H5_image_00018.ome.tif	<input type="radio"/>	<input type="radio"/>
	9944	GQ1H5_image_00019.ome.tif	<input type="radio"/>	<input type="radio"/>
	9975	GQ1H6_image_00025.ome.tif	<input type="radio"/>	<input type="radio"/>
	9816	GQ1H4_image_00016.ome.tif	<input type="radio"/>	<input type="radio"/>
	9811	GQ1H4_image_00011.ome.tif	<input type="radio"/>	<input type="radio"/>
	9956	GQ1H6_image_00006.ome.tif	<input type="radio"/>	<input type="radio"/>
	9947	GQ1H5_image_00022.ome.tif	<input type="radio"/>	<input type="radio"/>

Legend:  - Project;  - Dataset;  - Screen;  - Plate;

Those images are gone

Home | Basket | Data | Public | History | Search | Person | Help | Contact

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Another use case

- Classification
 - Classifying images according to whether they are showing tagged protein or not
 - in order to recognize protein-protein interaction
 - Using texture features and modified histogram features

Screenshot: training configuration

The screenshot displays the OME web interface for training a classifier. The top navigation bar includes icons for Home, Data, Public, Search, History, ME, Help, and Contact, along with a status bar showing 'BASKET contains 0 items' and 'STATUS: 0 job(s)'. The main content area is titled 'Classification' and features a 'Settings' panel on the left. In this panel, the 'Process Option' is set to 'Train', which is circled in red. Below this, the 'Positive Dataset' is 452 and the 'Negative Dataset' is 451, both with 'Set' buttons. The 'Feature Set / Method' is 'vci' and the 'Classifier Name' is 'ome_user201'. A 'Run' section at the bottom of the settings panel contains a green 'Train' button. The central pane shows a file tree for 'demo2 demo2 (demo2)' with subfolders like 'Septins', 'Septins_CV', 'negative', 'positive', 'Septins_Test', 'Temp01', and 'Orphaned images'. To the right, three small thumbnail images of cell structures are displayed. The bottom of the interface shows a breadcrumb trail: 'Home | Basket | Data | Public | History | Search | Person | Help | Contact | Classification', with 'Classification' circled in red. The footer indicates '© University of Dundee & Open Microscopy Environment'.

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BASKET contains 0 items STATUS: 0 job(s)

HOME DATA PUBLIC SEARCH HISTORY ME HELP CONTACT

current group: Researchers | logout

Classification

Settings

Process Option **Train**

Positive Dataset 452 Set

Negative Dataset 451 Set

Feature Set / Method vci

Classifier Name ome_user201

Run

Train

*demo2 demo2 (demo2)

- demo2 demo2
 - Septins
 - Septins_CV
 - negative
 - positive
 - Septins_Test
 - Temp01
 - Orphaned images

Page: 1

Home | Basket | Data | Public | History | Search | Person | Help | Contact | **Classification**

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Screenshot: training results



BASKET contains 0 items STATUS: 0 job(s)

Configurations

Parameter	Value
Cross Validation method	LOOCV
Dataset ID for positive samples	452
Dataset ID for negative samples	451
Saved Classifier	ome_user2011.pkl
Feature set / Method	vci

Cross Validation Results

Parameter	Value
Cross Validation Accuracy	100.0
P-value for positive vs. negative	0.0227501319482

Confusion Matrix

Samples	No. of Images	Positive	Negative
Positive	3.0	100.0	0.0
Negative	3.0	0.0	100.0

[Hide Samples](#)

Sample(s)

Image	ID	Original Label	Predicted Label	Name
	4781	Positive	Positive	110510_Snf1-GFP_Sep7-Snf4-0016_z6c2.JPG
	4854	Positive	Positive	-0003_z4c2.JPG
	4855	Positive	Positive	110510_Snf1-GFP_Sep7-Snf4-0008_z7c2.JPG
	4851	Negative	Negative	0002_z5c2.JPG
	4852	Negative	Negative	1-0001_z5c2.JPG
	4853	Negative	Negative	1-0002_z5c2.JPG

[Home](#) | [Basket](#) | [Data](#) | [Public](#) | [History](#) | [Search](#) | [Person](#) | [Help](#) | [Contact](#) | [Classification](#) |

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Screenshot: test configuration

The screenshot displays the OME web interface. At the top left is the OME logo with the text "open microscopy environment". To the right is a navigation bar with icons for Home, Data, Public, Search, History, Me, Help, and Contact, each with a corresponding label below it. Below the navigation bar, a status bar shows "BASKET contains 0 items" and "STATUS: 1 job(s)". On the right side of the status bar, it says "current group: Researchers" and "logout".

The main content area is titled "Classification" with a help icon. It is divided into two main sections: "Settings" and "Run".

Settings:

- Process Option:** A dropdown menu with "Test" selected, circled in red.
- Classifier Dataset:** A text input field containing "452" and a "Set" button.
- Classifiers:** A dropdown menu with "ome_user2011.pkl" selected and a "Find" button.
- Test Dataset:** A text input field containing "453" and a "Set" button.
- Feature Set / Method:** A text input field containing "vci".

Run:

- A green "Test" button.

The right side of the interface shows a file tree for "demo2 demo2 (demo2)". The tree structure is:

- demo2 demo2
 - Septins
 - Septins_CV
 - Septins_Test
 - Test
 - 1-0002_z6c2.JPG
 - Train_neg
 - Train_pos
 - Temp01
 - Orphaned images

Below the file tree, there are two small thumbnail images of microscopy data. Below the thumbnails, it says "Page: 1".

Screenshot: test results



HOME DATA PUBLIC SEARCH HISTORY ME HELP CONTACT

|| [logout](#) |

BASKET contains 0 items STATUS: 1 job(s)

Configurations

Parameter	Value
Cross Validation method	TEST
Dataset ID for Test	453
Classifier Name	ome_user2011.pkl
Feature set / Method	vci


[Hide Samples](#)

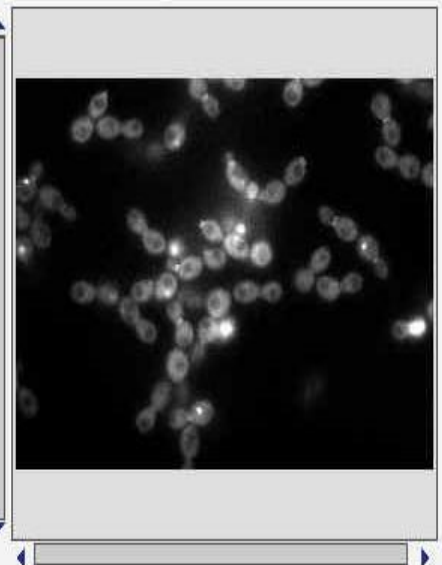
Sample(s)

Image	ID	Predicted Label	Name
	4854	Positive	-0003_z4c2.JPG
	4855	Positive	110510 Snf1-GFP Sep7-Snf4-0008_z7c2.JPG

>> [Preview](#) [Metadata](#) [Annotation](#)

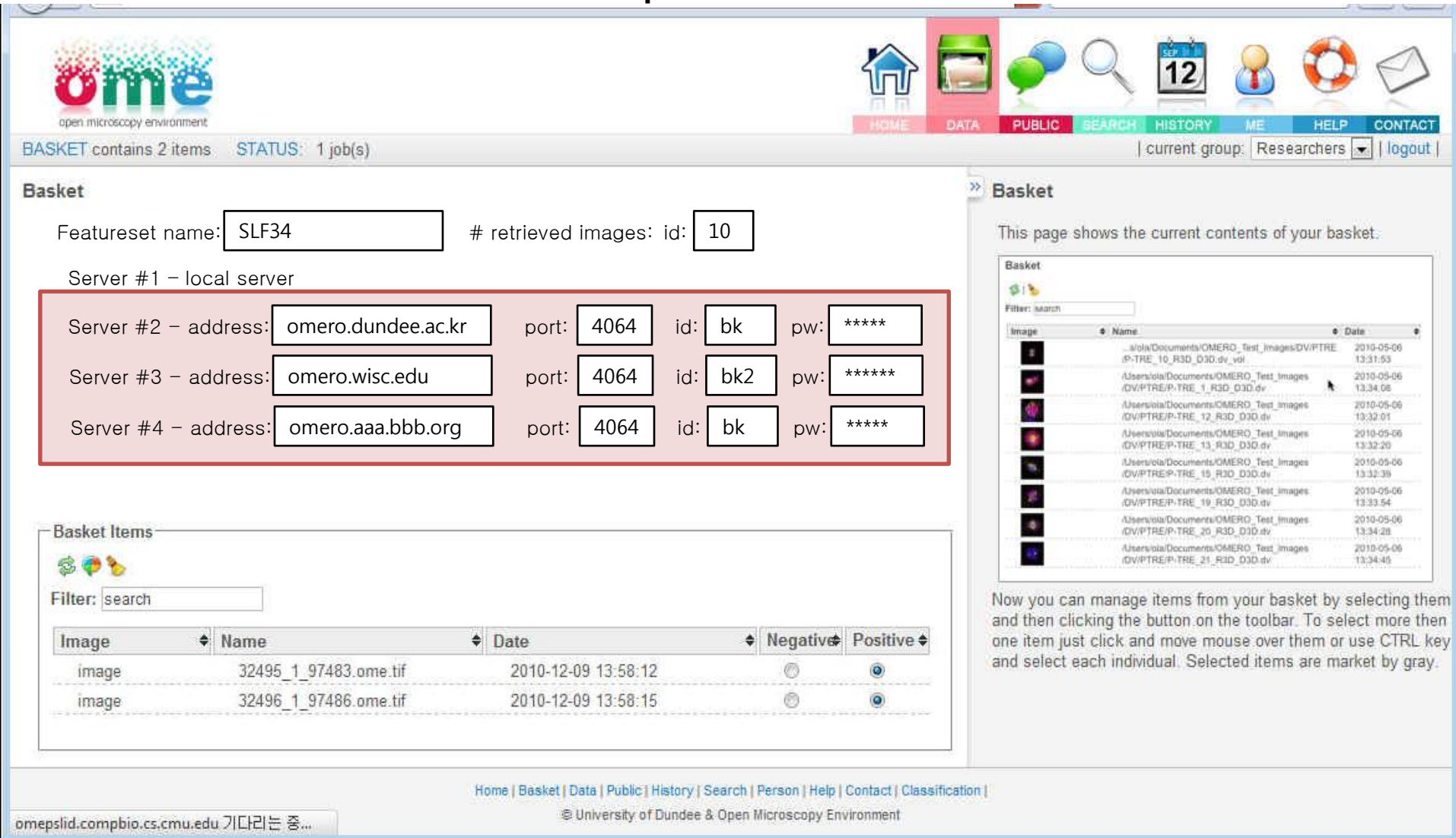
-0003_z4c2.JPG

[Launch full viewer](#) 



Future Work 1

- Search across multiple servers



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BASKET contains 2 items STATUS: 1 job(s)

current group: Researchers | logout

Basket

Featureset name: SLF34 # retrieved images: id: 10

Server #1 – local server

Server #2 – address: omero.dundee.ac.kr port: 4064 id: bk pw: *****

Server #3 – address: omero.wisc.edu port: 4064 id: bk2 pw: *****

Server #4 – address: omero.aaa.bbb.org port: 4064 id: bk pw: *****

Basket Items

Filter: search









Image	Name	Date	Negative	Positive
image	32495_1_97483.ome.tif	2010-12-09 13:58:12	<input type="radio"/>	<input checked="" type="radio"/>
image	32496_1_97486.ome.tif	2010-12-09 13:58:15	<input type="radio"/>	<input checked="" type="radio"/>

Basket

This page shows the current contents of your basket:

Basket

Filter: search

Image	Name	Date
	.../ola/Documents/OMERO_Test_Images/DV/P/TRE_10_R3D_D3D.dv_vol	2010-05-06 13:31:53
	.../Users/ola/Documents/OMERO_Test_Images/DV/P/TRE/P-TRE_1_R3D_D3D.dv	2010-05-06 13:34:08
	.../Users/ola/Documents/OMERO_Test_Images/DV/P/TRE/P-TRE_12_R3D_D3D.dv	2010-05-06 13:32:01
	.../Users/ola/Documents/OMERO_Test_Images/DV/P/TRE/P-TRE_13_R3D_D3D.dv	2010-05-06 13:32:20
	.../Users/ola/Documents/OMERO_Test_Images/DV/P/TRE/P-TRE_15_R3D_D3D.dv	2010-05-06 13:32:39
	.../Users/ola/Documents/OMERO_Test_Images/DV/P/TRE/P-TRE_19_R3D_D3D.dv	2010-05-06 13:33:54
	.../Users/ola/Documents/OMERO_Test_Images/DV/P/TRE/P-TRE_20_R3D_D3D.dv	2010-05-06 13:34:28
	.../Users/ola/Documents/OMERO_Test_Images/DV/P/TRE/P-TRE_21_R3D_D3D.dv	2010-05-06 13:34:45


Now you can manage items from your basket by selecting them and then clicking the button on the toolbar. To select more than one item just click and move mouse over them or use CTRL key and select each individual. Selected items are marked by gray.

Home | Basket | Data | Public | History | Search | Person | Help | Contact | Classification |









omepsid.compbio.cs.cmu.edu 기다리는 중...

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Future Work 1



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HOME DATA PUBLIC SEARCH HISTORY ME HELP CONTACT

BASKET contains 2 items STATUS: 1 job(s) || logout |

Search again with additional image(s) ?

Content Search

retrieved images 10



Search by image content

Query configuration































Selected featureset and dataset





Featureset name	Dataset ID
SLF34	703

Selected image(s)

Image	ID	Name	Type
	4703	32495_1_97483.ome.tif	+
	4704	32496_1_97486.ome.tif	+

Search results using image content

Image	ID	Name	server	Neg	Pos
	5328	001_1_001.ome - Copy (10).tif	local		
	5329	001_1_001.ome - Copy (11).tif	local		
	5330	001_1_001.ome - Copy (12).tif	dundee		
	5331	001_1_001.ome - Copy (13).tif	dundee		
	5332	001_1_001.ome - Copy (14).tif	dundee		
	5333	001_1_001.ome - Copy (15).tif	dundee		
	5334	001_1_001.ome - Copy (16).tif	dundee		
	5335	001_1_001.ome - Copy (17).tif	dundee		
	5336	001_1_001.ome - Copy (18).tif	wisc		
	5337	001_1_001.ome - Copy (19).tif	wisc		

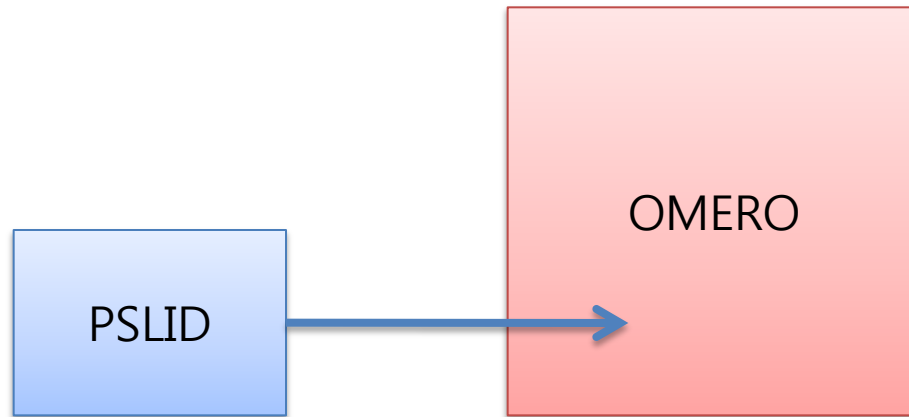
Legend:  - Project;  - Dataset;  - Screen;  - Plate;

Home | Basket | Data | Public | History | Search | Person | Help | Contact

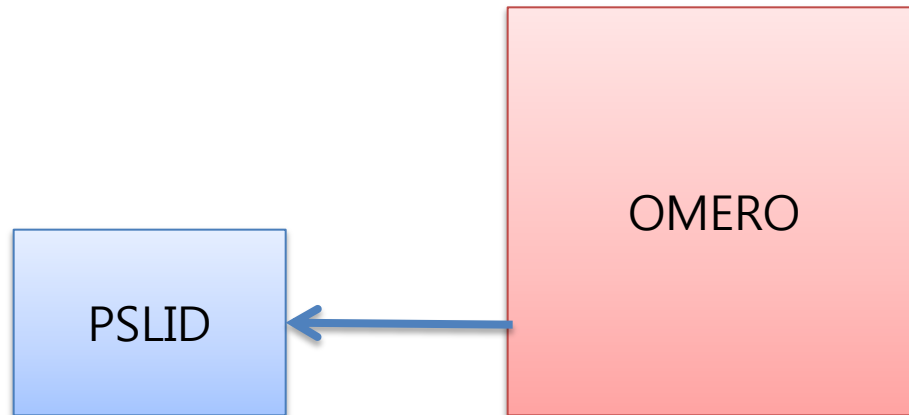
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Future Work 2

- Deploying all PSLID functionalities into OMERO



- Export images/metadata from OMERO into PSLID



Discussion

- Easy to use PSLID functionalities with OMERO's powerful data management
- Easy to save and retrieve additional image context/content metadata
- Deploying PSLID functionalities into OMERO becomes faster
- Initial OMERO.searcher is releasing as an update for OMERO.web (version 4.2.1)

Discussion (cont'd)

- Suggestions to the OMERO team
 - Documentation for OMERO API
 - Smart memory leakage control
 - OMERO.web stops at some point (need to restart OMERO.web)
 - More powerful Bridge
 - Can access to the DB with the administrative privilege
 - Attaching external xml files when importing images
 - Using OMERO.importer

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 - NIH grant R01 GM075205 (Murphy)
 - Lane Center for Computational Biology
- Contact
 - Prof. Murphy: murphy@cmu.edu
 - BK: bhcho@cmu.edu

Release

- Need an account for our OMERO server?
 - Send an email to murphy@cmu.edu
- Patch location
 - <http://murphylab.web.cmu.edu/software/omeropslid-v0.1.tgz>
 - Basic requirements
 - Linux version OMERO server (4.2.1)
 - web on production (Django and Apache)
- Any further questions
 - Send me emails about anything
 - bhcho@cmu.edu