

# openBIS Importer Toolset (oBIT)

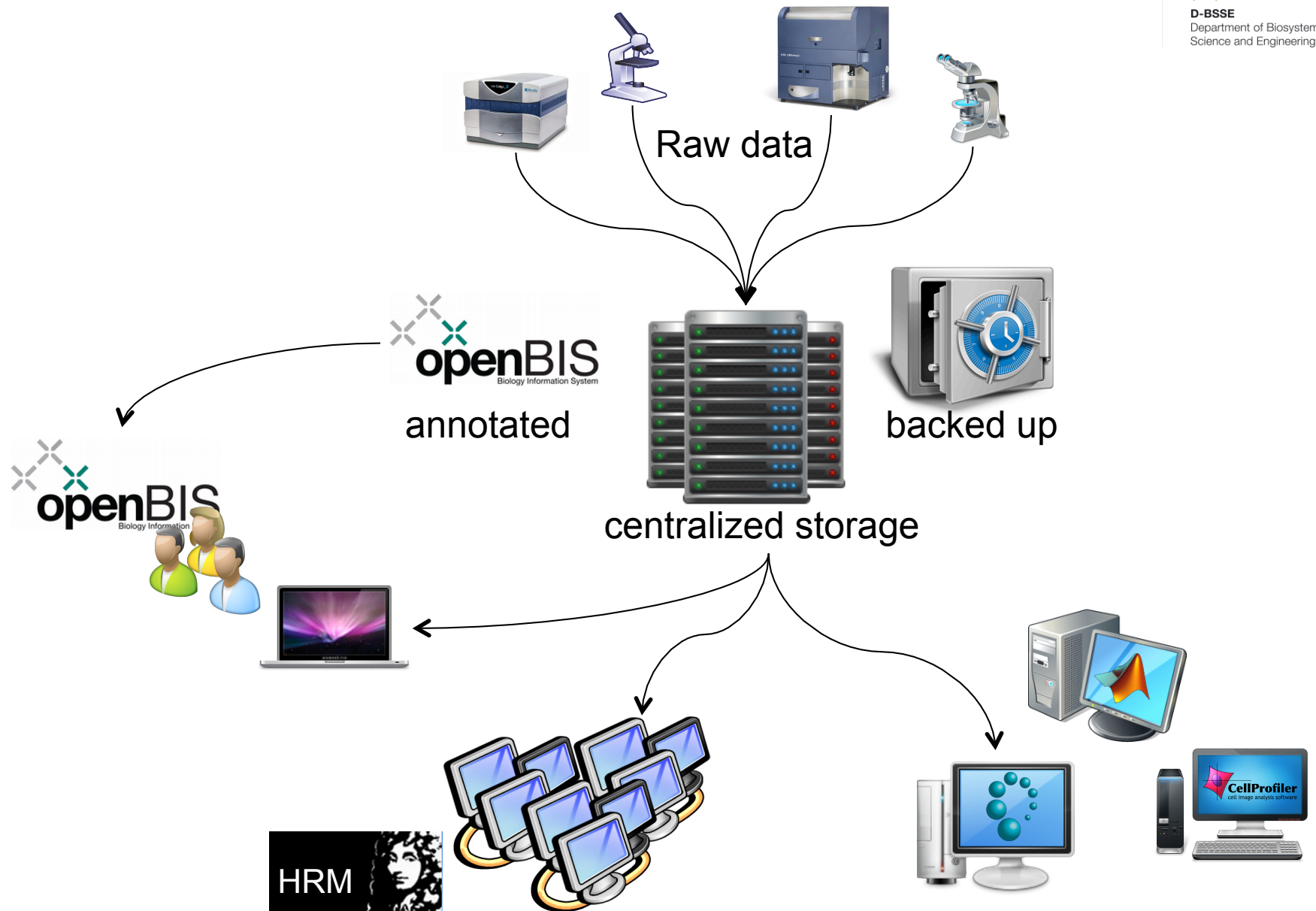
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# openBIS – open Biology Information System

openBIS is an **extensible**, **open source** software **framework** for **constructing** user-friendly, scalable and powerful **information systems** for **data** and **metadata** acquired in biological experiments.

It enables users to **collect**, **integrate**, **share**, **publish data** and to **connect to data processing pipelines**.

<http://www.cisd.ethz.ch/software/openBIS>



# openBIS core

- Separate metadata ([application server](#)) and data ([data store server](#))
- Clean and flexible hierarchical metadata structure:
  - [Space](#) > [Project](#) > [Experiment](#) > [Sample](#) > [Dataset](#) > [File](#)
  - Authorization at space level
  - Samples and datasets: entities have parent/child or container relationships
  - Datasets belong to samples or experiments
  - All entities have user defined [types](#), [properties](#) and [vocabularies](#)
  - [Attachments](#) can be associated to most entities
- Information indexing and searching by metadata
- Rich set of [APIs](#) and [plug-in](#) interfaces
  - Java, Python (Jython), RESTful web services



# openBIS extensions

- Core plug-ins
  - Dropboxes (dataset ingestion)
  - Master data (import/export/update)
  - Data sources (additional databases)
  - Aggregation (reporting) plug-ins (metadata collection)
  - Processing plug-ins (on datasets)
  - Ingestion plug-ins (create/update entities)
  - Maintenance tasks (update/fix)
  - Web applications / RESTful web services (custom openBIS views)
- An organized set of core plug-ins can become a “core technology”
- Core plug-ins expand openBIS APIs to interface with custom client apps

# openBIS “vanilla”

Experiment EXP-1 - openBIS

<https://sprint-openbis.ethz.ch:8446/openbis/#entity=EXPERIMENT&permId=20110913110350093-82823>

Home All Search Login

PLATONIC » SCREENING-EXAMPLES » Experiment EXP-1 [HCS\_PLATONIC]

**Experiment Properties**

Experiment: /PLATONIC/SCREENING-EXAMPLES/EXP-1

PermID: 20110913110350093-82823

Experiment Type: HCS\_PLATONIC

Registrar: Mallarmé, Günter

Registration Date: 2011-09-13 11:03:50

Project: /PLATONIC/SCREENING-EXAMPLES


Plates Data Sets History Attachments Wells Search Library Index Analysis Summary

**Data Sets** ☒ directly connected Overview

Code	Data Set Type	Sample Identifier	Sample Type	Project	Registrar
20110913111517610...	HCS_IMAGE_RAW	/PLATONIC/PLATE-1	PLATE	SCREENING-EXAMPLES	
20110913111925577...	HCS_IMAGE_SEGMENTATION	/PLATONIC/PLATE-1	PLATE	SCREENING-EXAMPLES	
20110913111955463...	HCS_IMAGE_SEGMENTATION	/PLATONIC/PLATE-1	PLATE	SCREENING-EXAMPLES	
20110913112215416...	HCS_ANALYSIS_WELL_FEATU...	/PLATONIC/PLATE-1	PLATE	SCREENING-EXAMPLES	
20110913112525450...	HCS_IMAGE_RAW	/PLATONIC/PLATE-1	PLATE	SCREENING-EXAMPLES	
2011091311302609...	HCS_IMAGE_RAW	/PLATONIC/PLATE-1	PLATE	SCREENING-EXAMPLES	
20110913113255372...	HCS_IMAGE_RAW	/PLATONIC/PLATE-2	PLATE	SCREENING-EXAMPLES	
20110913113525365...	HCS_IMAGE_SEGMENTATION	/PLATONIC/PLATE-2	PLATE	SCREENING-EXAMPLES	
2011091311354538...	HCS_IMAGE_SEGMENTATION	/PLATONIC/PLATE-2	PLATE	SCREENING-EXAMPLES	
2011091311360536...	HCS_IMAGE_SEGMENTATION	/PLATONIC/PLATE-2	PLATE	SCREENING-EXAMPLES	
20110913113625371...	HCS_ANALYSIS_WELL_FEATU...	/PLATONIC/PLATE-2	PLATE	SCREENING-EXAMPLES	
2011092815391974...	HCS_IMAGE_RAW	/PLATONIC/PLATE-16-BIT	PLATE	SCREENING-EXAMPLES	
2011092815553607...	HCS_IMAGE_RAW	/PLATONIC/SANOPI-EXAMPLE	PLATE	SCREENING-EXAMPLES	

Displaying 1 - 13 of 13 | Table: Filters Settings Refresh Export

Entity: Export Data

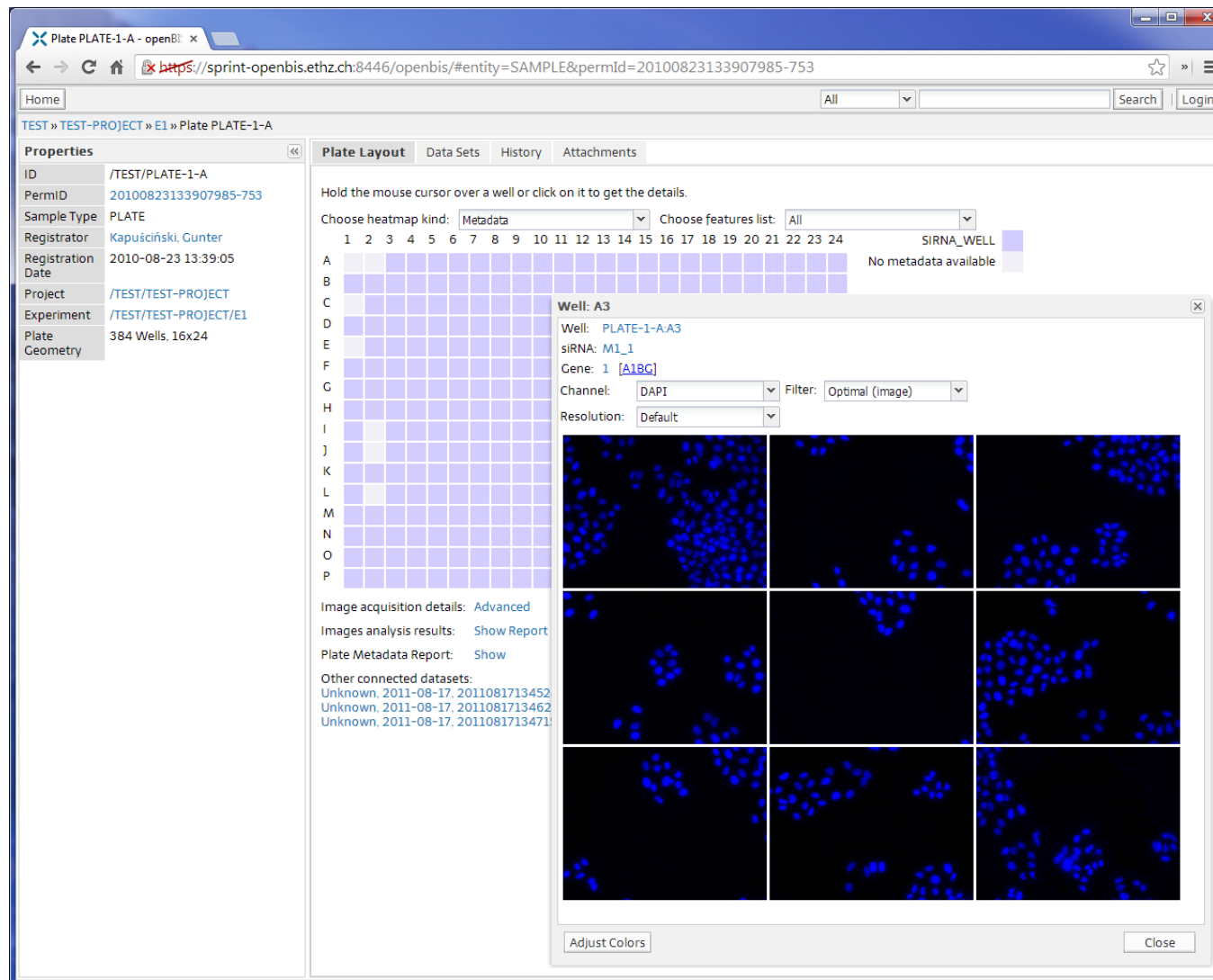


# Current technologies





# Screening core technology



The screenshot displays the openbis web interface for a plate layout. The browser address bar shows the URL: <https://sprint-openbis.ethz.ch:8446/openbis/#entity=SAMPLE&permId=20100823133907985-753>.

**Properties Panel:**

- ID: /TEST/PLATE-1-A
- PermID: 20100823133907985-753
- Sample Type: PLATE
- Registrator: Kapuściński, Gunter
- Registration Date: 2010-08-23 13:39:05
- Project: /TEST/TEST-PROJECT
- Experiment: /TEST/TEST-PROJECT/E1
- Plate Geometry: 384 Wells, 16x24

**Plate Layout:**

Hold the mouse cursor over a well or click on it to get the details.

Choose heatmap kind: Metadata | Choose features list: All

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 SIRNA\_WELL

A B C D E F G H I J K L M N O P

**Well: A3**

Well: PLATE-1-A:A3

siRNA: M1\_1

Gene: 1 [A18G]

Channel: DAPI | Filter: Optimal (image)

Resolution: Default

Image acquisition details: [Advanced](#)

Images analysis results: [Show Report](#)

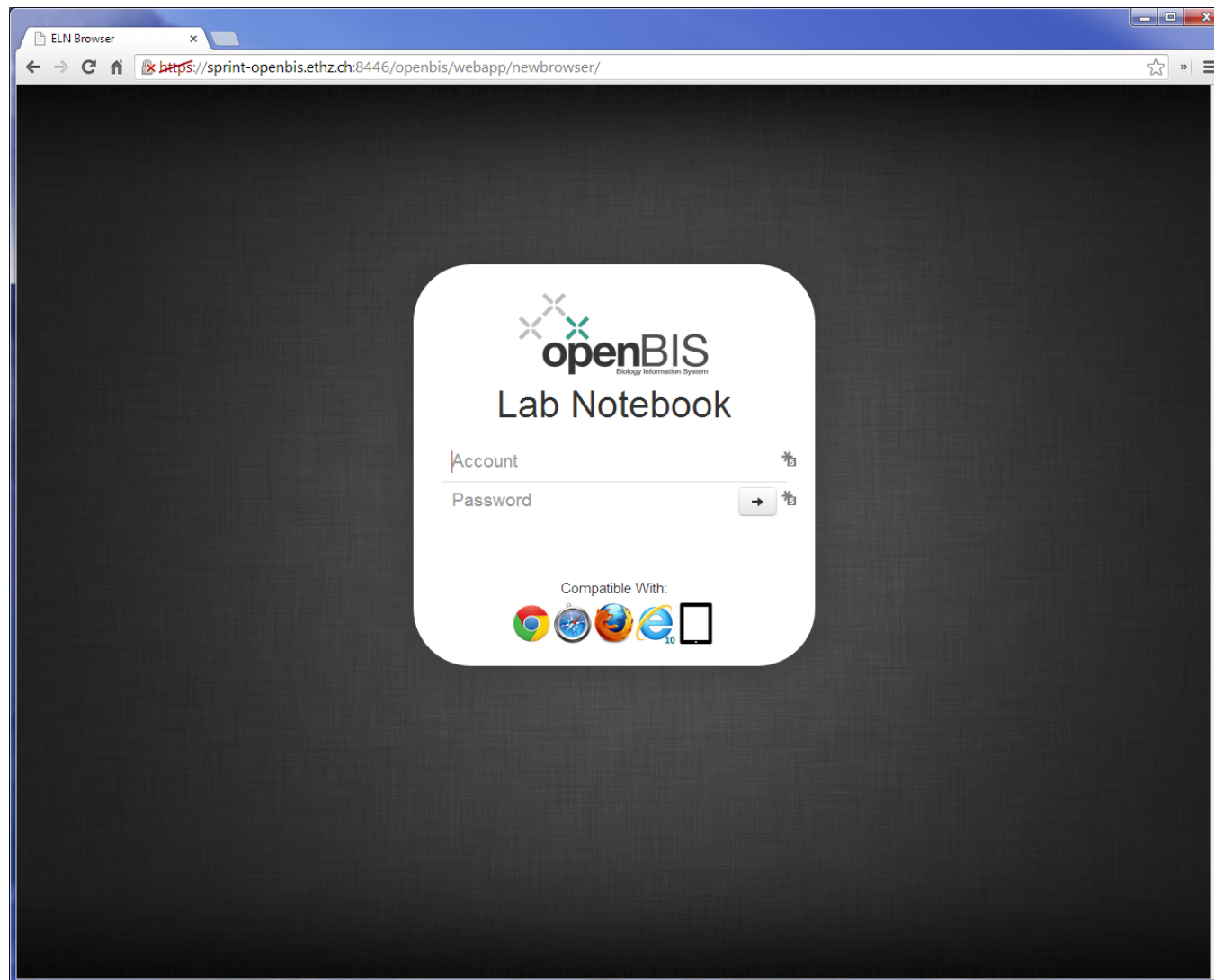
Plate Metadata Report: [Show](#)

Other connected datasets:

- Unknown, 2011-08-17, 2011081713452
- Unknown, 2011-08-17, 2011081713462
- Unknown, 2011-08-17, 2011081713471

Adjust Colors | Close

# Custom web apps



# Custom web apps

https://sprint-openbis.ethz.ch:8446/openbis/webapp/newbroser

## Inhibitors List

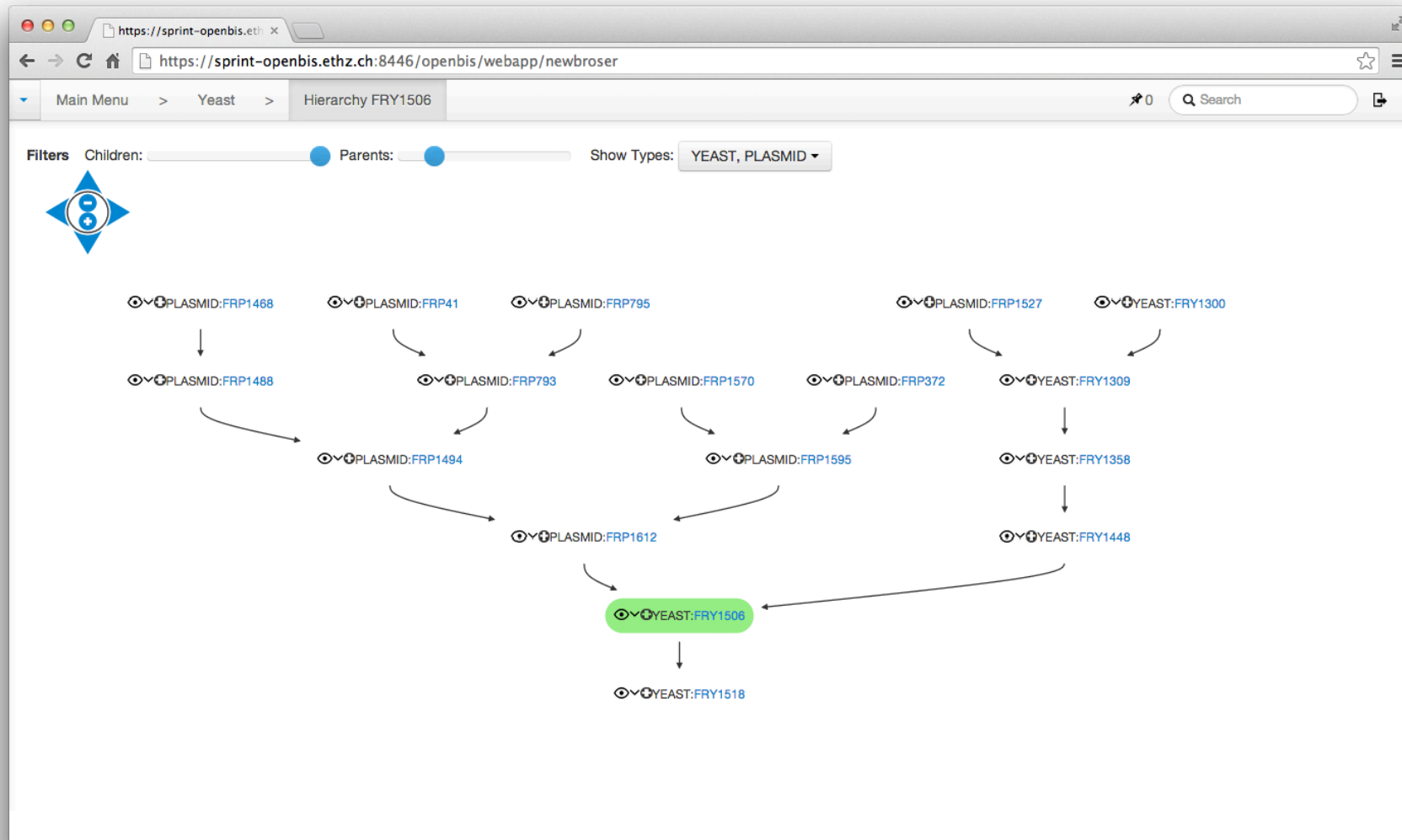
Filter visible columns

Showing 1 to 20 from 45

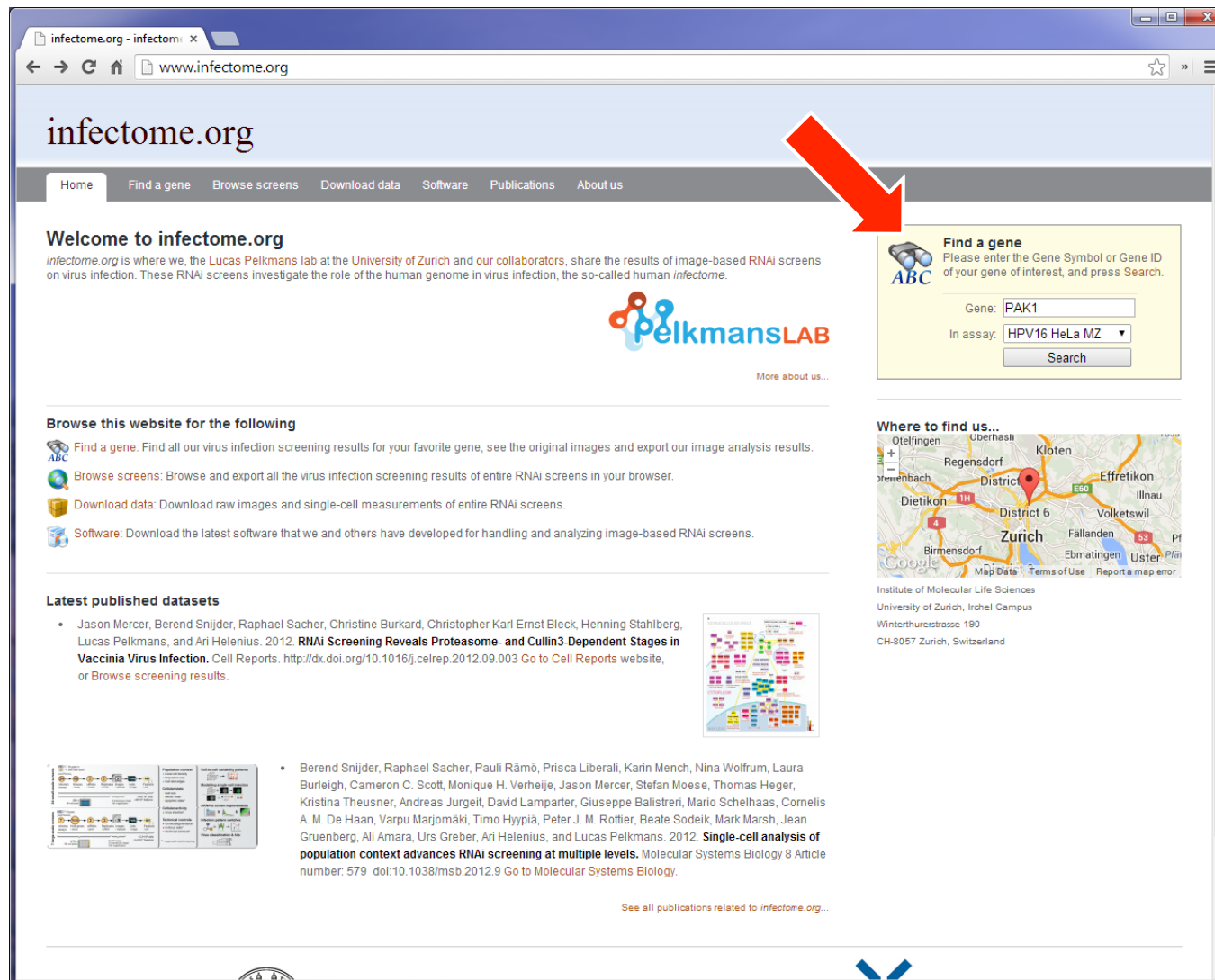
Code	Preview	Alternative name	Inhibitor type	Target	Company	Catalogue number	Solubility	FW	Stock concentration	Final concentration		
ALLN	Unavailable	LLnL; calpain inhibitor I	Proteasome inhibitor		Sigma	A6185	DMSO	383.5 g/mol	26 mM (10 mg/ml)	25-50 mM		
AMPICILLIN	Unavailable		Drugs		Sigma	A9518	dH2O	371.4 g/mol	100 mg/ml	100 mg/ml		
B-GLYCEROPHOSPHATE	Unavailable		phosphatase inhibitor	Tyrosine	Sigma	G6251	dH2O	216 g/mol	1 M	10 mM		
BLASTICIDIN	Unavailable		Drugs		Invitrogen	R210-01	dH2O	458.9 g/mol	5 mg/ml	2.5 mg/ml		
CAFFEINE	Unavailable		Kinase inhibitor	ATM/ATR	Sigma	C8960	dH2O	194.2 g/mol	80 mM	5 mM		
CHLORAMPHENICOL	Unavailable		Drugs		Sigma	C0378	Ethanol	323.1 g/mol	10 mg/ml	20 mg/ml		
COLCHICINE			Spindle		Sigma		Ethanol	399.4	10 mg/ml	100 ng/ml		



# Custom web apps



# Embedded openBIS



The screenshot shows the infectome.org website. A red arrow points to the 'Find a gene' search box on the right side of the page. The search box contains the text 'Gene: PAK1' and 'In assay: HPV16 HeLa MZ'. Below the search box is a 'Search' button. The website header includes navigation links: Home, Find a gene, Browse screens, Download data, Software, Publications, and About us. The main content area features a 'Welcome to infectome.org' message, a 'Browse this website for the following' section with links to 'Find a gene', 'Browse screens', 'Download data', and 'Software', and a 'Latest published datasets' section with two entries. The first entry is a paper by Jason Mercer et al. (2012) titled 'RNAi Screening Reveals Proteasome- and Cullin3-Dependent Stages in Vaccinia Virus Infection'. The second entry is a paper by Berend Snijder et al. (2012) titled 'Single-cell analysis of population context advances RNAi screening at multiple levels'. A map of Zurich is also visible on the right side of the page.

infectome.org

Home Find a gene Browse screens Download data Software Publications About us

Welcome to infectome.org

infectome.org is where we, the Lucas Pelkmans lab at the University of Zurich and our collaborators, share the results of image-based RNAi screens on virus infection. These RNAi screens investigate the role of the human genome in virus infection, the so-called human infectome.

More about us...

Find a gene

Please enter the Gene Symbol or Gene ID of your gene of interest, and press Search.

Gene: PAK1

In assay: HPV16 HeLa MZ

Search

Browse this website for the following

- Find a gene: Find all our virus infection screening results for your favorite gene, see the original images and export our image analysis results.
- Browse screens: Browse and export all the virus infection screening results of entire RNAi screens in your browser.
- Download data: Download raw images and single-cell measurements of entire RNAi screens.
- Software: Download the latest software that we and others have developed for handling and analyzing image-based RNAi screens.

Latest published datasets

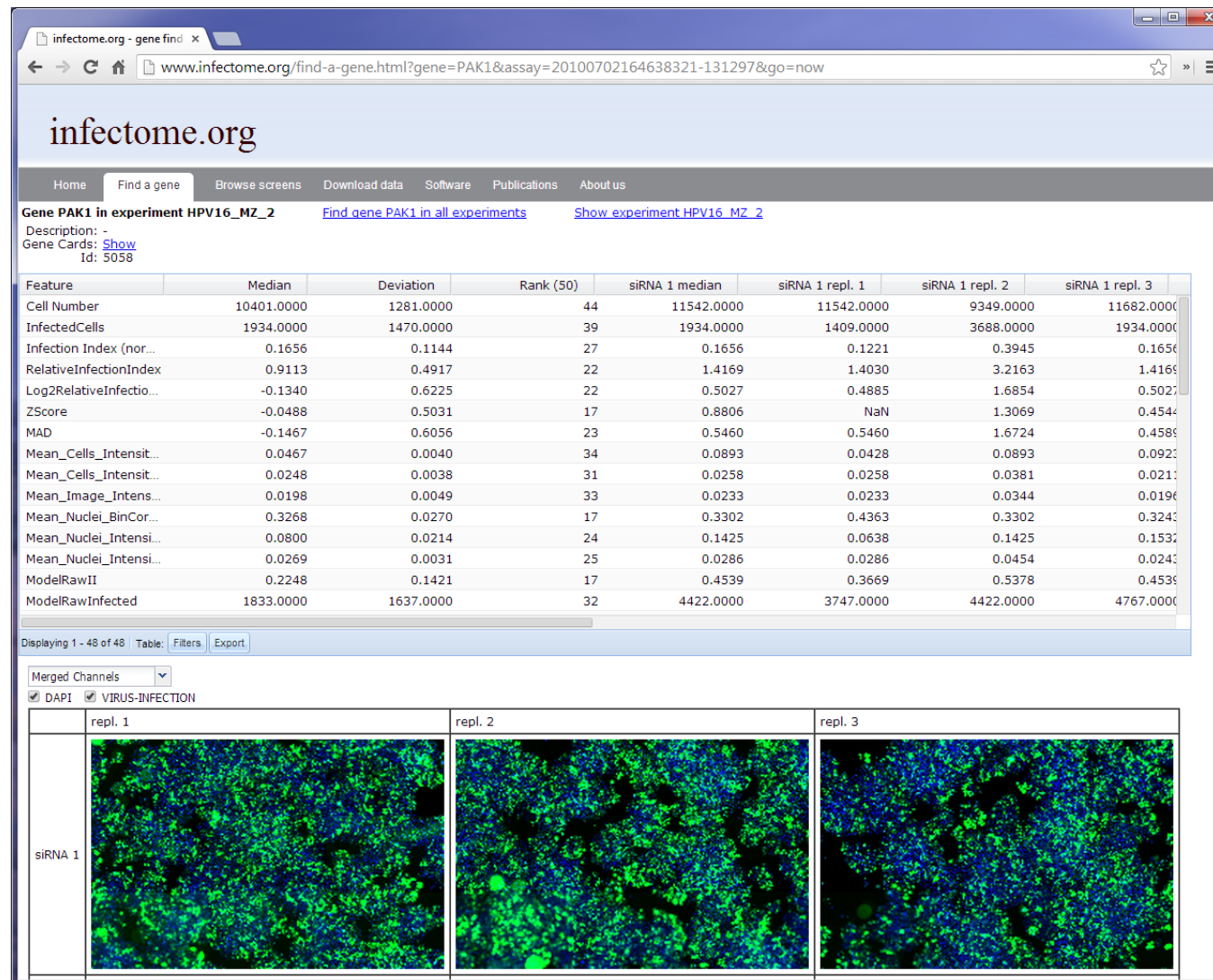
- Jason Mercer, Berend Snijder, Raphael Sacher, Christine Burkard, Christopher Karl Ernst Bleck, Henning Stahlberg, Lucas Pelkmans, and Ari Helenius. 2012. **RNAi Screening Reveals Proteasome- and Cullin3-Dependent Stages in Vaccinia Virus Infection**. Cell Reports. <http://dx.doi.org/10.1016/j.celrep.2012.09.003> Go to Cell Reports website, or Browse screening results.
- Berend Snijder, Raphael Sacher, Pauli Rämö, Prisca Liberali, Karin Mench, Nina Wolfrum, Laura Burleigh, Cameron C. Scott, Monique H. Verheije, Jason Mercer, Stefan Moese, Thomas Heger, Kristina Theusner, Andreas Jurgeit, David Lamparter, Giuseppe Balistreri, Mario Schelhaas, Cornelis A. M. De Haan, Varpu Marjomäki, Timo Hyypä, Peter J. M. Rottier, Beate Sodeik, Mark Marsh, Jean Gruenberg, Ali Amara, Urs Greber, Ari Helenius, and Lucas Pelkmans. 2012. **Single-cell analysis of population context advances RNAi screening at multiple levels**. Molecular Systems Biology 8 Article number: 579 doi:10.1038/msb.2012.9 Go to Molecular Systems Biology.

See all publications related to infectome.org...

Where to find us...

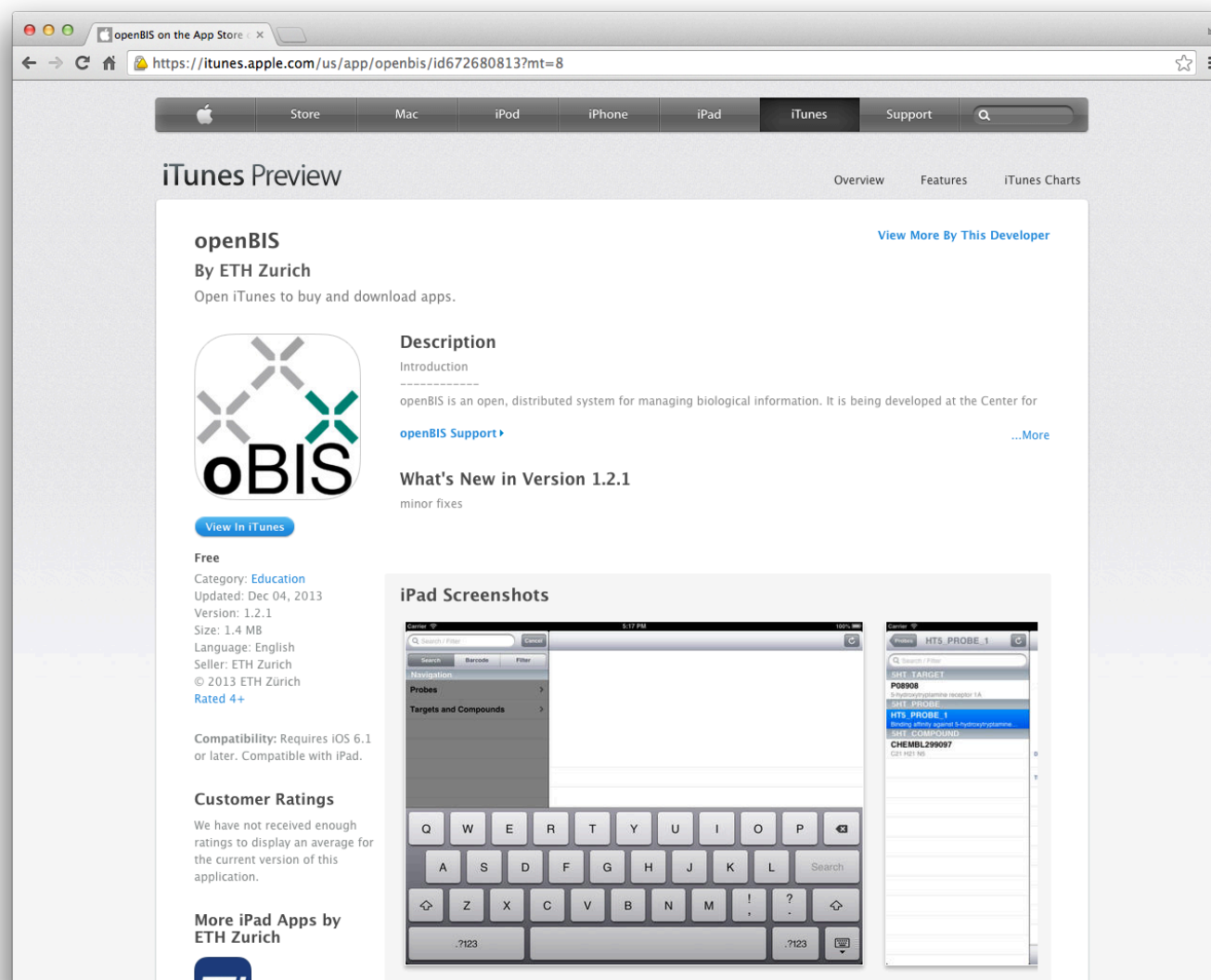
Institute of Molecular Life Sciences  
University of Zurich, Irchel Campus  
Winterthurerstrasse 190  
CH-8057 Zurich, Switzerland

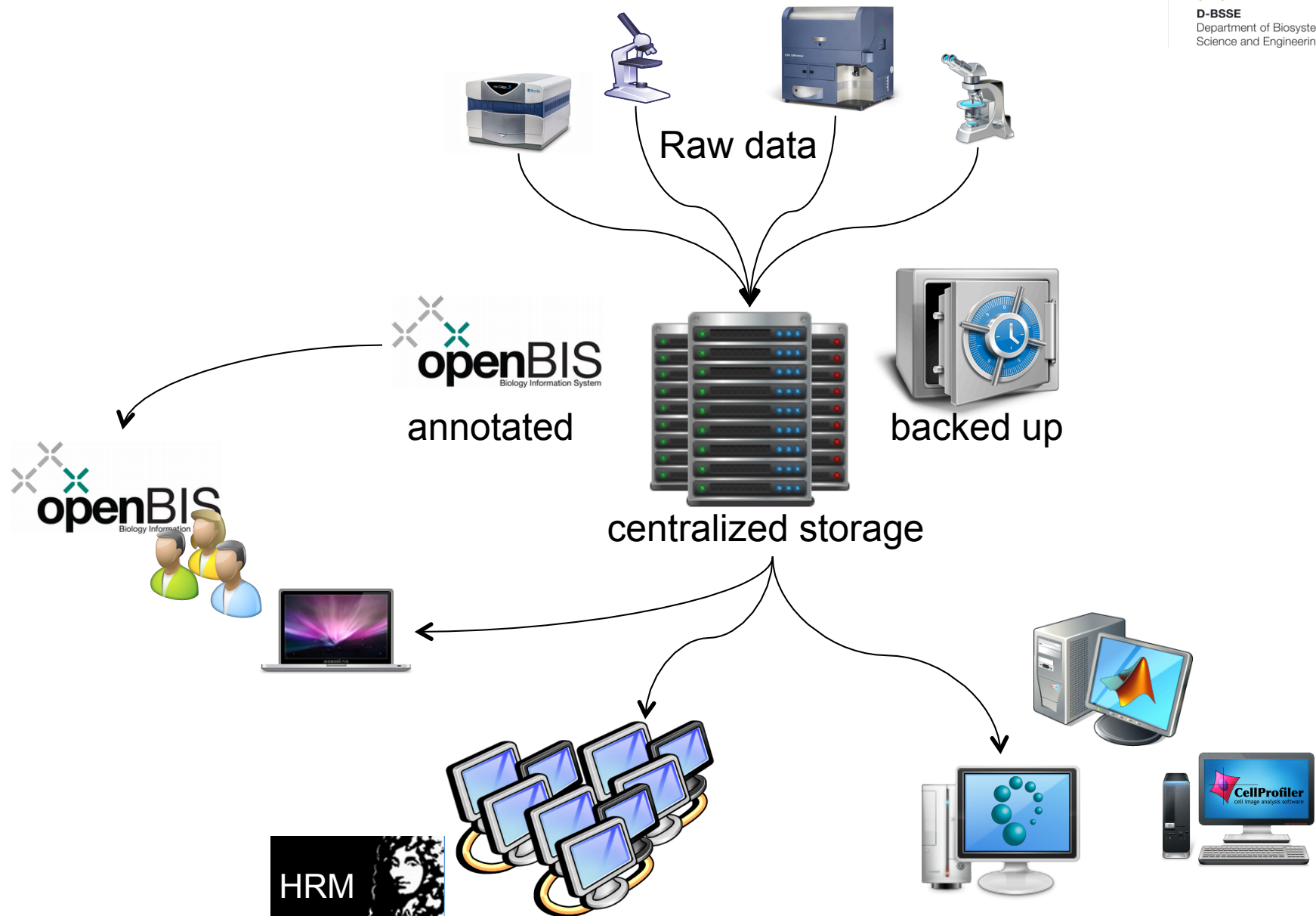
# Embedded openBIS

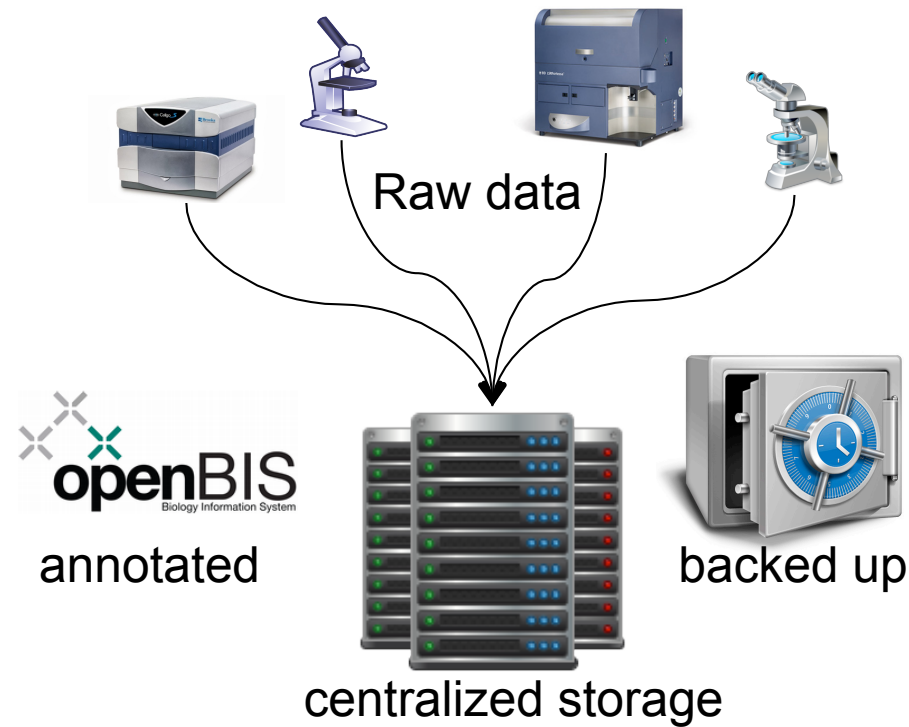




# openBIS for tablets







## openBIS Importer Toolset

- semi-automatic
  - semi-unsupervised
- } data registration in openBIS

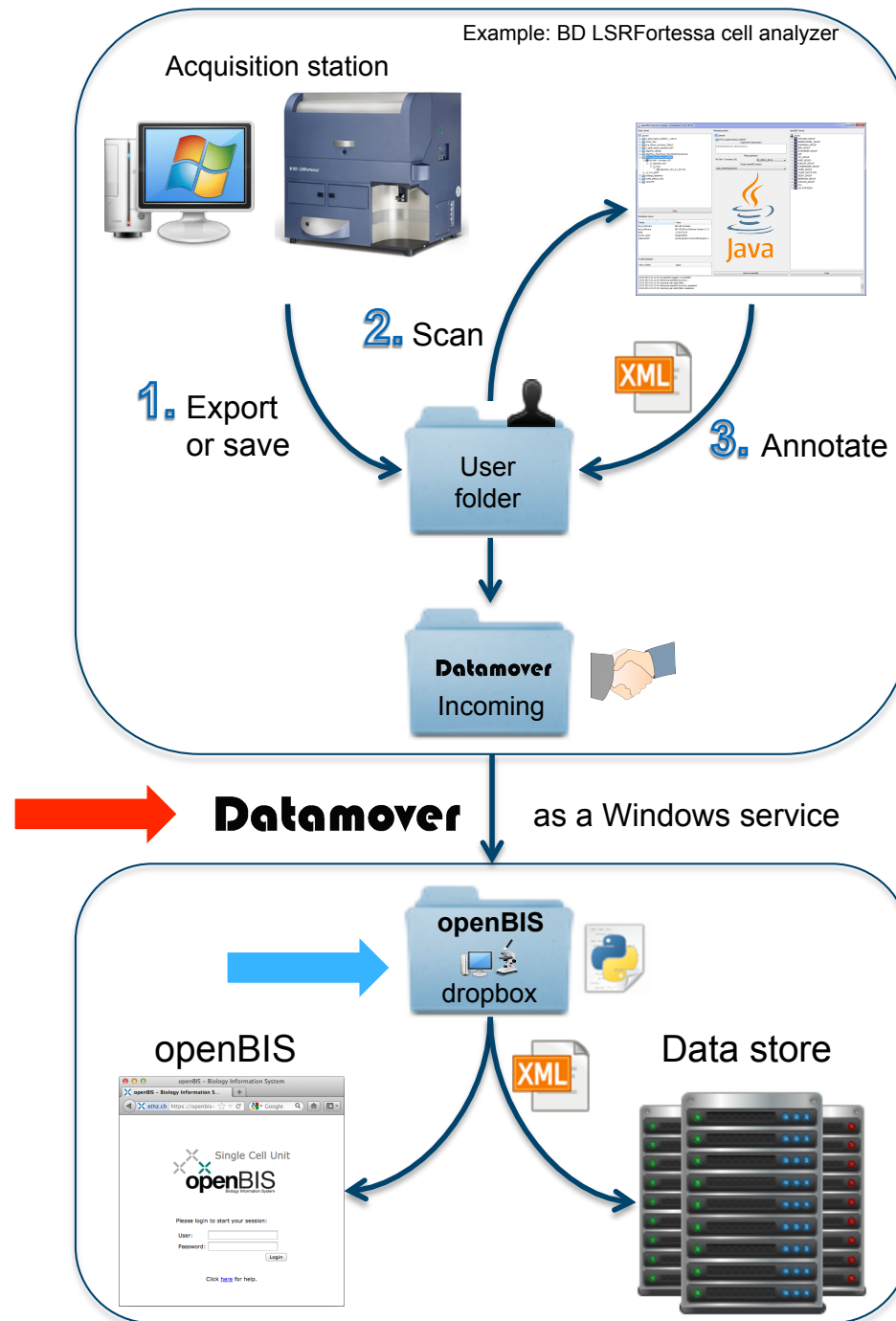


# oBIT – openBIS Importer Toolset

The openBIS Importer Toolset is a **tightly integrated collection of tools** that allows for the **semi-automated, semi-unsupervised registration of annotated datasets** into openBIS directly from the acquisition stations.

It also extends openBIS with **custom data viewers** and **server-side core plug-ins**.

Example: BD LSRFortessa cell analyzer

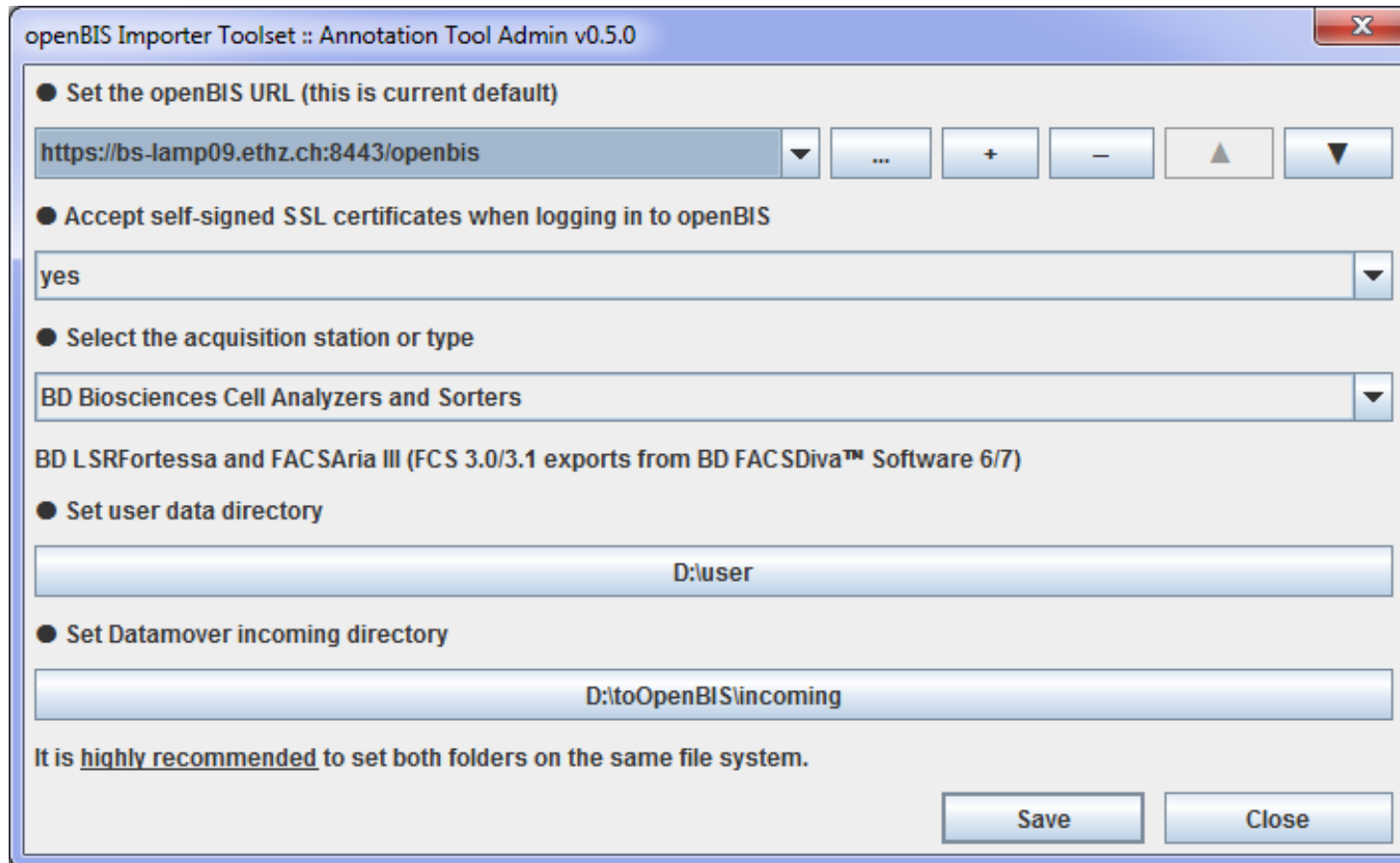


**Annotation Tool**



# [Admin] Annotation Tool Admin

An administrator must set up the acquisition machine before the first use.



openBIS Importer Toolset :: Annotation Tool Admin v0.5.0

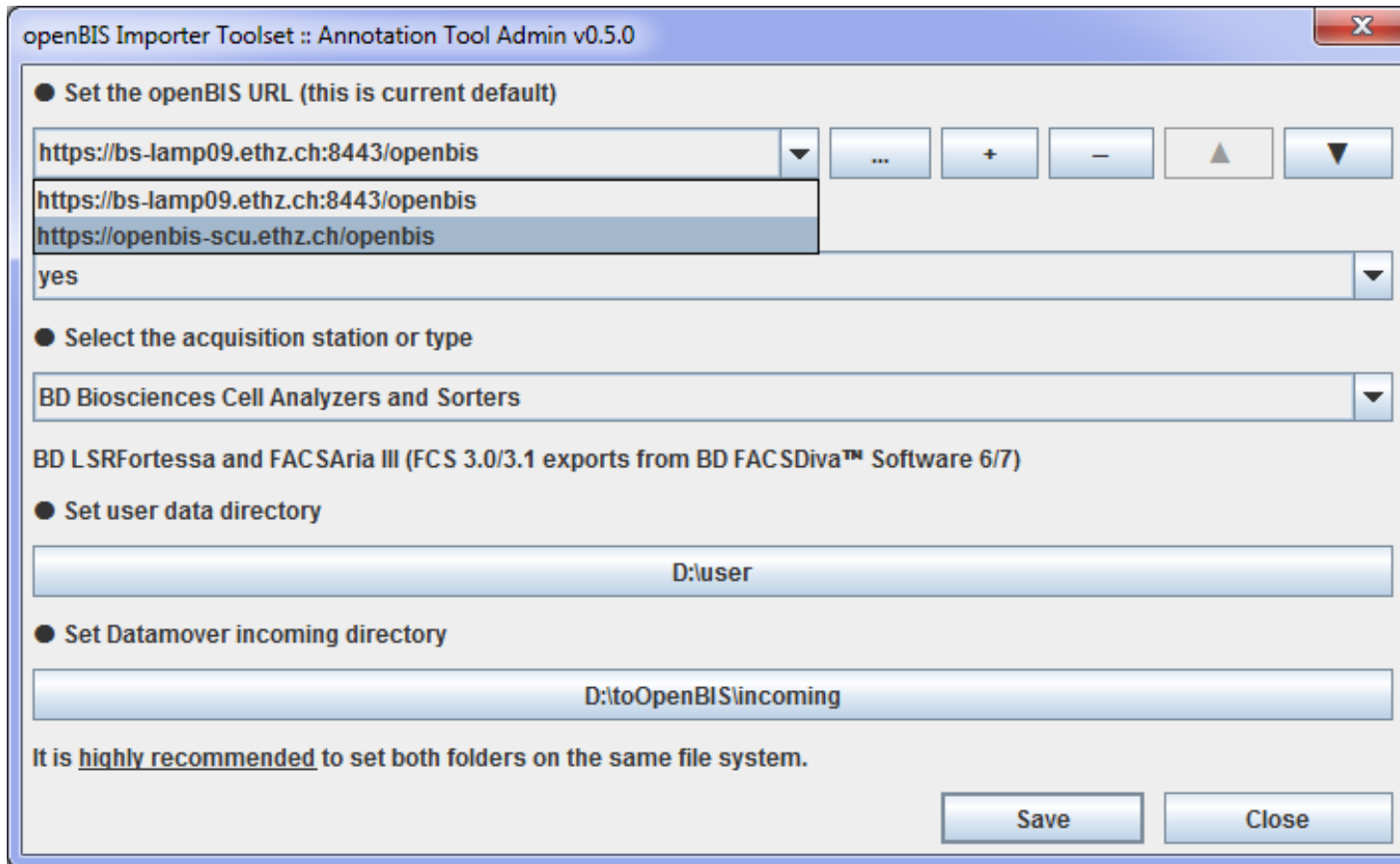
- Set the openBIS URL (this is current default)  
 [Dropdown] [Buttons: ..., +, -, ▲, ▼]
- Accept self-signed SSL certificates when logging in to openBIS  
 [Dropdown]
- Select the acquisition station or type  
 [Dropdown]
- BD LSRFortessa and FACSAria III (FCS 3.0/3.1 exports from BD FACSDiva™ Software 6/7)
- Set user data directory
- Set Datamover incoming directory

It is highly recommended to set both folders on the same file system.

[Save] [Close]

# [Admin] Annotation Tool Admin

Set the openBIS URL(s)



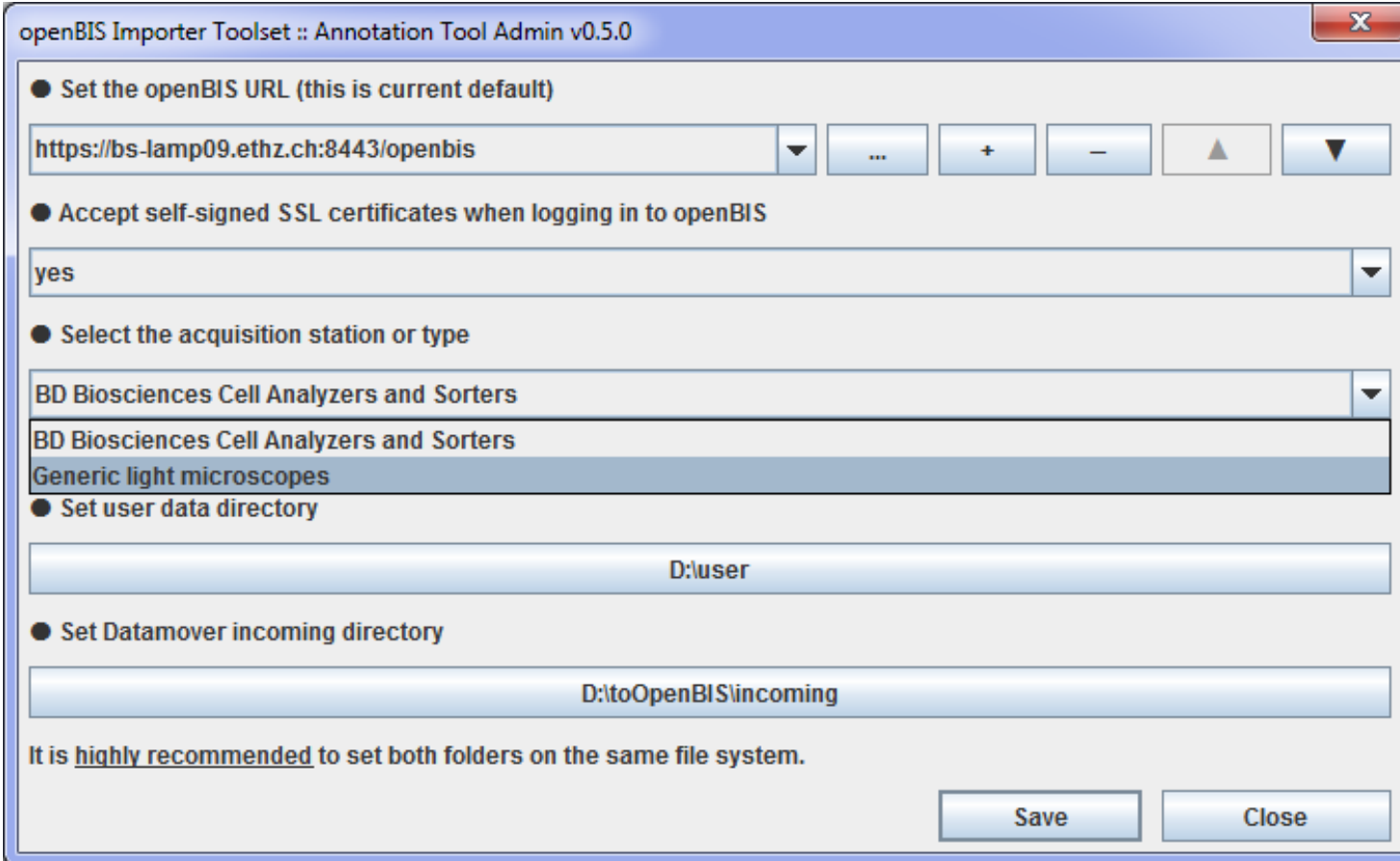
The screenshot shows a Windows-style dialog box titled "openBIS Importer Toolset :: Annotation Tool Admin v0.5.0". It contains several configuration sections:

- Set the openBIS URL (this is current default)**: A text field containing "https://bs-lamp09.ethz.ch:8443/openbis" with a dropdown arrow. Below it is a list box showing the same URL and "https://openbis-scu.ethz.ch/openbis". To the right are buttons for "...", "+", "-", "▲", and "▼".
- Select the acquisition station or type**: A text field containing "BD Biosciences Cell Analyzers and Sorters" with a dropdown arrow.
- BD LSRFortessa and FACSAria III (FCS 3.0/3.1 exports from BD FACSDiva™ Software 6/7)**: A section header.
- Set user data directory**: A text field containing "D:\user".
- Set Datamover incoming directory**: A text field containing "D:\toOpenBIS\incoming".

At the bottom, there is a note: "It is highly recommended to set both folders on the same file system." and two buttons: "Save" and "Close".

# [Admin] Annotation Tool Admin

Select the acquisition station or type



openBIS Importer Toolset :: Annotation Tool Admin v0.5.0

- Set the openBIS URL (this is current default)  
 [Dropdown] [Buttons: ..., +, -, ▲, ▼]
- Accept self-signed SSL certificates when logging in to openBIS  
 [Dropdown]
- Select the acquisition station or type  
 [Dropdown]  
BD Biosciences Cell Analyzers and Sorters  
Generic light microscopes
- Set user data directory
- Set Datamover incoming directory

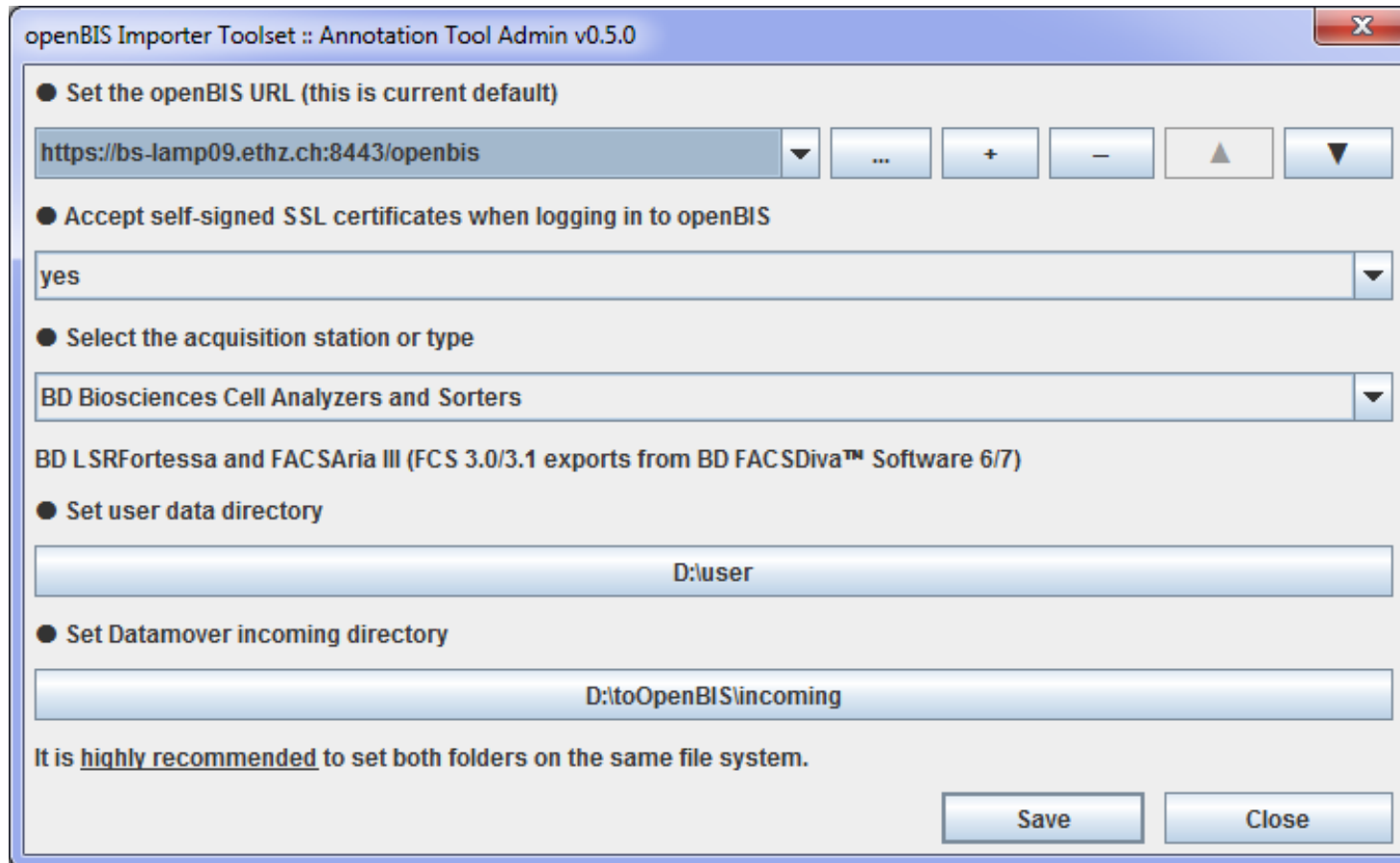
It is highly recommended to set both folders on the same file system.

[Save] [Close]



# [Admin] Annotation Tool Admin

Set the local working directories



openBIS Importer Toolset :: Annotation Tool Admin v0.5.0

- Set the openBIS URL (this is current default)  
 ... + - ▲ ▼
- Accept self-signed SSL certificates when logging in to openBIS  
 ▼
- Select the acquisition station or type  
 ▼

BD LSRFortessa and FACSAria III (FCS 3.0/3.1 exports from BD FACSDiva™ Software 6/7)

- Set user data directory
- Set Datamover incoming directory

It is highly recommended to set both folders on the same file system.

Save Close

# BD BIOSCIENCES CELL ANALYZERS AND SORTERS

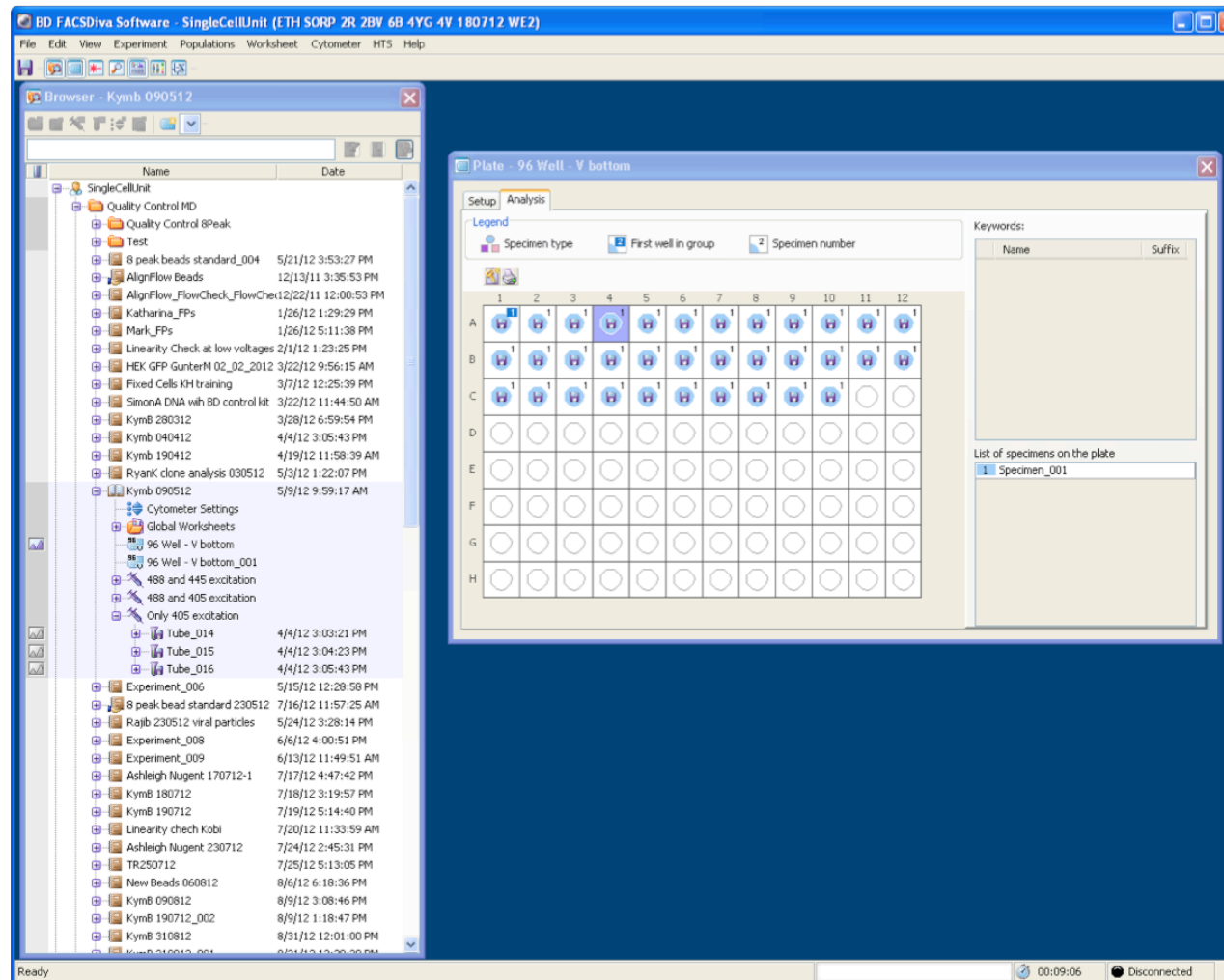
## **BD** LSRFortessa cell analyzer

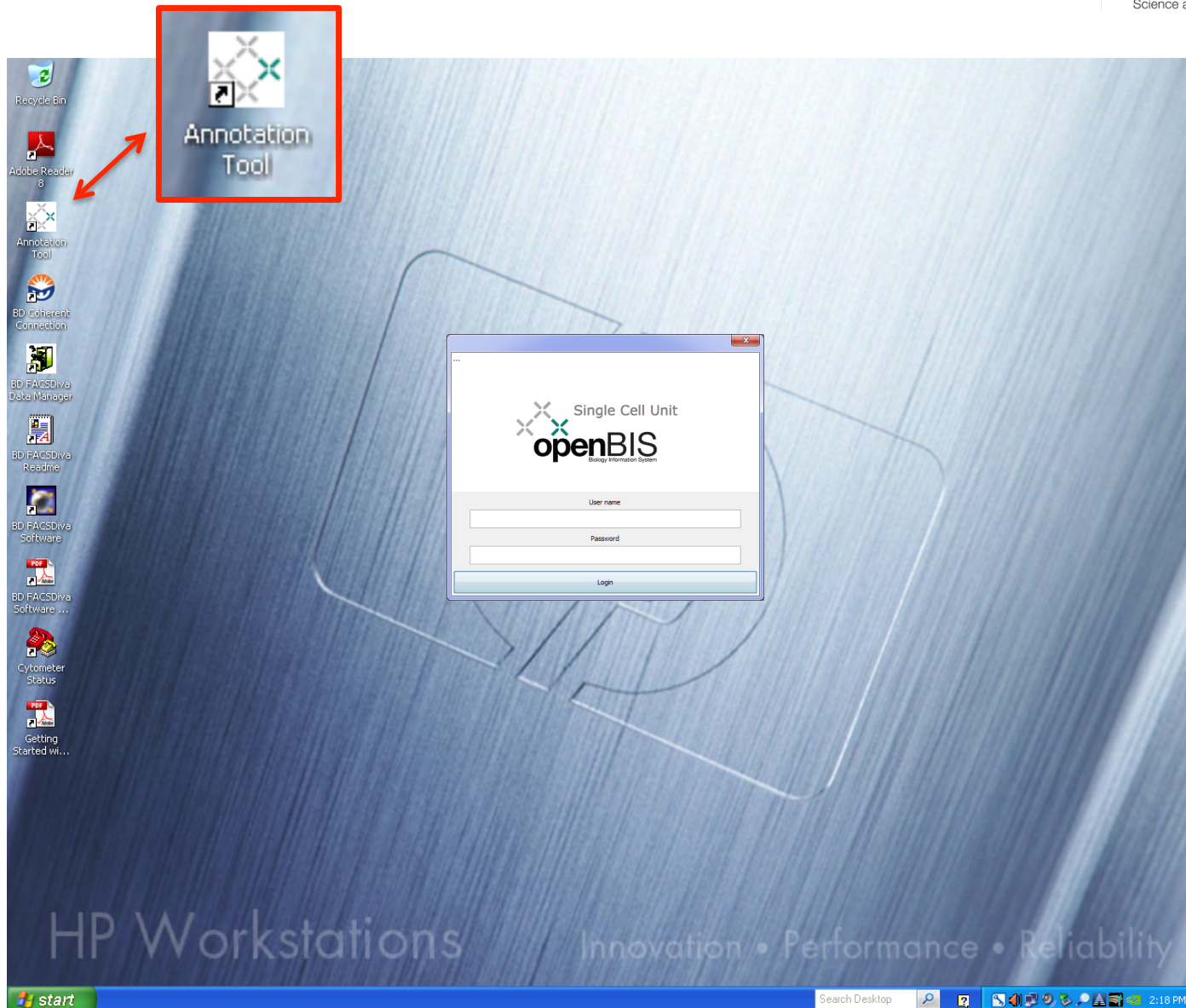


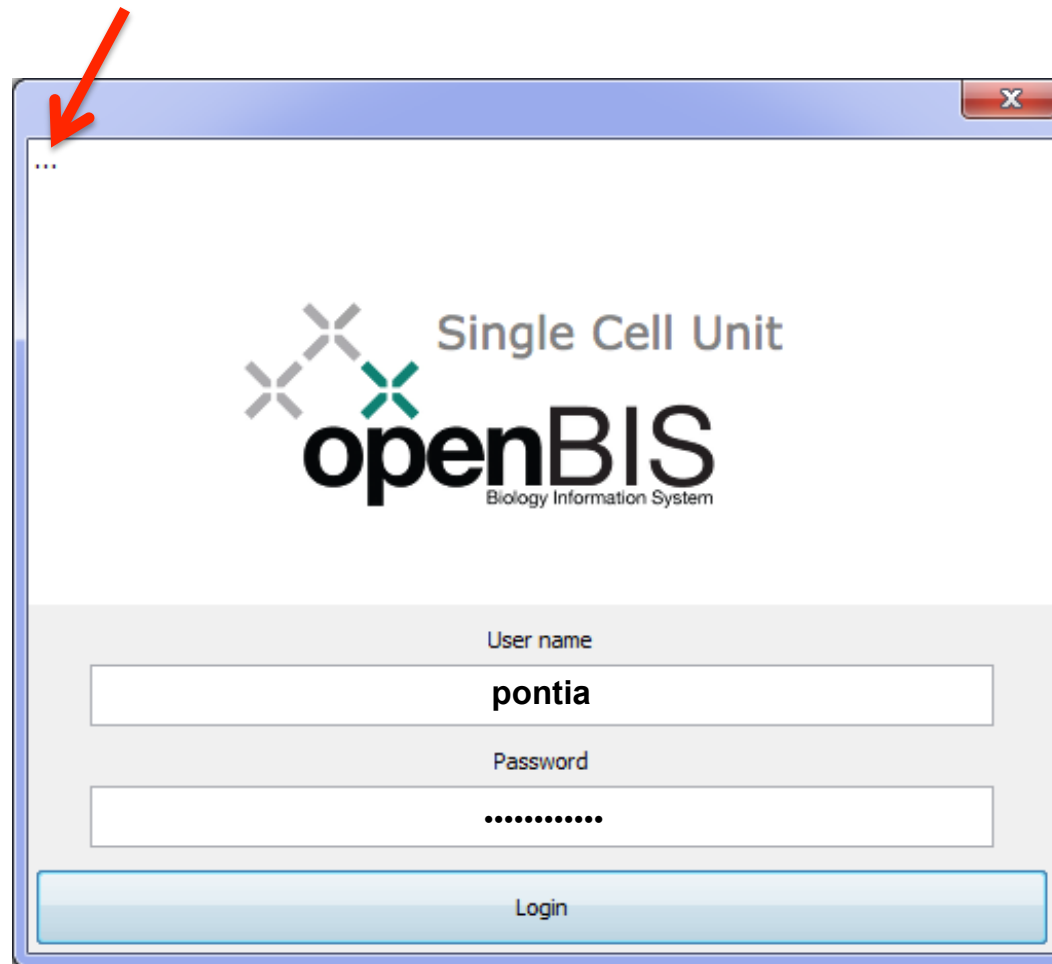
<http://www.bdbiosciences.com/instruments/lsr/index.jsp>

# [User] Example: BD LSR Fortessa

Export to  
user folder







...

Single Cell Unit

**openBIS**  
Biology Information System

User name

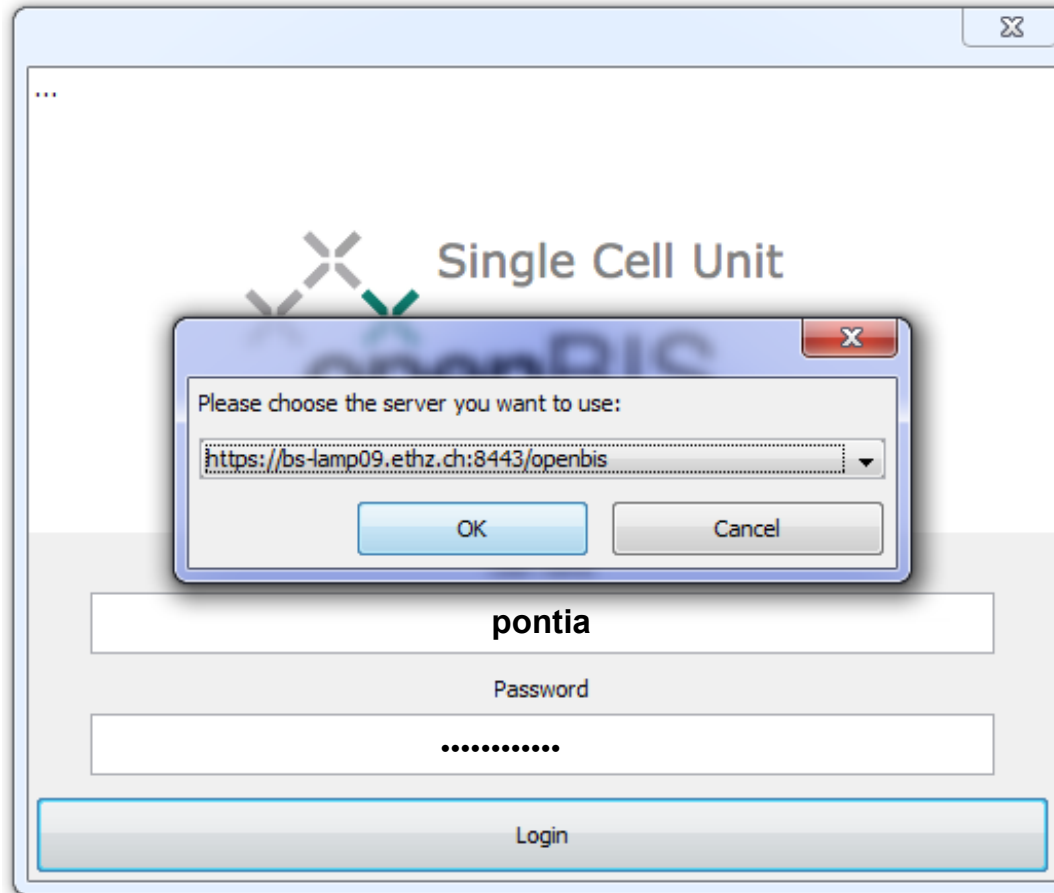
**pontia**

Password

.....

Login





Single Cell Unit

Please choose the server you want to use:

<https://bs-lamp09.ethz.ch:8443/openbis>

OK Cancel

Username

**pontia**

Password

.....

Login

openBIS Importer Toolset :: Annotation Tool v0.5.0

**Data viewer**

- /pontia
  - 8\_peak\_bead\_LotAD04\_\_110313
  - Andre\_test
  - Eva\_Spore\_Counting\_190612
  - 8\_peak\_beads\_standard\_004
  - AlignFlow\_Beads
  - AlignFlow\_FlowCheck\_FlowCheckPolysciences
  - HTS\_8\_peak\_bead\_LotAD04**
  - 96 Well - U bottom\_001
    - Specimen\_001
      - A01
        - Specimen\_001\_A1\_A01.fcs
  - Lot\_AD04
  - settings\_Bakterien
  - KymB\_090812\_002
  - TaniaYFP

**Metadata editor**

/pontia

HTS\_8\_peak\_bead\_LotAD04

Experiment description

Calibration protocol.

Plate geometry

96 Well - U bottom\_001 96\_WELLS\_8X12

Target openBIS project

LSR\_FORTESSA/TEST

**openBIS viewer**

Create new project

4

5

**Metadata viewer**

Name	Value
acq_hardware	BD LSR Fortessa
acq_software	BD FACSDiva Software Version 6.1.3
date	12-JUN-2013
owner_name	SingleCellUnit
relativePath	pontia/Quality Control MD/Quality C...

**Invalid datasets**

File or folder	Issue
pontia/Quality Control MD/Quality C...	Unknown file format
pontia/Quality Control MD/Quality C...	Unknown file format
04-12-2013 09:21:49	...
04-12-2013 09:21:49	...
04-12-2013 09:21:49	...

04-12-2013 09:21:49: Error: Please fix the invalid datasets to continue!

6

Send to openBIS

Scan

User folder

Datamover Incoming

XML

Handshake icon



```
D:\toOpenBIS\incoming\qjb7t2vf37ut6qb9i9e252rvsv\pontia\8 peak bead_LotAD04_110313\8_peak_bead_LotAD04_110313_properties.oix (p1celmarisConnector) - Sublime Text

File Edit Selection Find View Goto Tools Project Preferences Help

8_peak_bead_LotAD04_110313_properties.oix x
1 <?xml version="1.0" encoding="UTF-8" standalone="no"?>
2 <obitXML version="1">
3   <Experiment acq_hardware="BD LSR Fortessa" acq_software="BD FACSDiva Software Version 6.1.3" date="25-
4     MAR-2013" description="Calibration protocol." name="8_peak_bead_LotAD04_110313" openBISIdentifier="/
5     PANTAZIS_GROUP/NAMI/8_PEAK_BEAD_LOTAD04_110313" openBISSpaceIdentifier="/PANTAZIS_GROUP" owner_name="
6     SingleCellUnit" relativePath="pontia/8 peak bead_LotAD04_110313">
7     <Specimen name="Lot_AD04" openBISExperimentIdentifier="/PANTAZIS_GROUP/
8       NAMI/8_PEAK_BEAD_LOTAD04_110313" openBISSpaceIdentifier="/PANTAZIS_GROUP">
9       <Tube dataFilename="Lot_AD04_8 peak beads_001.fcs" indexSort="false" name="8 peak beads_001"
10        openBISExperimentIdentifier="/PANTAZIS_GROUP/NAMI/8_PEAK_BEAD_LOTAD04_110313"
11        openBISSpaceIdentifier="/PANTAZIS_GROUP">
12        <FCSFile name="Lot_AD04_8 peak beads_001.fcs" openBISExperimentIdentifier="/PANTAZIS_GROUP/
13          NAMI/8_PEAK_BEAD_LOTAD04_110313" relativeFileName="pontia/8 peak bead_LotAD04_110313/
14          Lot_AD04_8 peak beads_001.fcs"/>
15        </Tube>
16        <Tube dataFilename="Lot_AD04_8 peak beads_002.fcs" indexSort="false" name="8 peak beads_002"
17        openBISExperimentIdentifier="/PANTAZIS_GROUP/NAMI/8_PEAK_BEAD_LOTAD04_110313"
18        openBISSpaceIdentifier="/PANTAZIS_GROUP">
19        <FCSFile name="Lot_AD04_8 peak beads_002.fcs" openBISExperimentIdentifier="/PANTAZIS_GROUP/
20          NAMI/8_PEAK_BEAD_LOTAD04_110313" relativeFileName="pontia/8 peak bead_LotAD04_110313/
21          Lot_AD04_8 peak beads_002.fcs"/>
22        </Tube>
23        <Tube dataFilename="Lot_AD04_8 peak beads_003.fcs" indexSort="false" name="8 peak beads_003"
24        openBISExperimentIdentifier="/PANTAZIS_GROUP/NAMI/8_PEAK_BEAD_LOTAD04_110313"
25        openBISSpaceIdentifier="/PANTAZIS_GROUP">
26        <FCSFile name="Lot_AD04_8 peak beads_003.fcs" openBISExperimentIdentifier="/PANTAZIS_GROUP/
27          NAMI/8_PEAK_BEAD_LOTAD04_110313" relativeFileName="pontia/8 peak bead_LotAD04_110313/
28          Lot_AD04_8 peak beads_003.fcs"/>
29        </Tube>
30        <Tube dataFilename="Lot_AD04_8 peak beads_004.fcs" indexSort="false" name="8 peak beads_004"
31        openBISExperimentIdentifier="/PANTAZIS_GROUP/NAMI/8_PEAK_BEAD_LOTAD04_110313"
32        openBISSpaceIdentifier="/PANTAZIS_GROUP">
33        <FCSFile name="Lot_AD04_8 peak beads_004.fcs" openBISExperimentIdentifier="/PANTAZIS_GROUP/
34          NAMI/8_PEAK_BEAD_LOTAD04_110313" relativeFileName="pontia/8 peak bead_LotAD04_110313/
35          Lot_AD04_8 peak beads_004.fcs"/>
36        </Tube>
37        <Tube dataFilename="Lot_AD04_8 peak beads_005.fcs" indexSort="false" name="8 peak beads_005"
38        openBISExperimentIdentifier="/PANTAZIS_GROUP/NAMI/8_PEAK_BEAD_LOTAD04_110313"
39        openBISSpaceIdentifier="/PANTAZIS_GROUP">
40        <FCSFile name="Lot_AD04_8 peak beads_005.fcs" openBISExperimentIdentifier="/PANTAZIS_GROUP/
41          NAMI/8_PEAK_BEAD_LOTAD04_110313" relativeFileName="pontia/8 peak bead_LotAD04_110313/
42          Lot_AD04_8 peak beads_005.fcs"/>
43        </Tube>
44        <Tube dataFilename="Lot_AD04_8 peak beads_006.fcs" indexSort="false" name="8 peak beads_006"
45        openBISExperimentIdentifier="/PANTAZIS_GROUP/NAMI/8_PEAK_BEAD_LOTAD04_110313"
46        openBISSpaceIdentifier="/PANTAZIS_GROUP">
47        <FCSFile name="Lot_AD04_8 peak beads_006.fcs" openBISExperimentIdentifier="/PANTAZIS_GROUP/
48          NAMI/8_PEAK_BEAD_LOTAD04_110313" relativeFileName="pontia/8 peak bead_LotAD04_110313/
49          Lot_AD04_8 peak beads_006.fcs"/>
50        </Tube>
51      </Specimen>
52    </Experiment>
53  </obitXML>
54</pre>
```

Experiment KYMB\_090512\_1

https://openbis-scu.ethz.ch/openbis/#entity=EXPERIMENT&permId=20130130171607865-7592

Browse ▾ New ▾ Import ▾ Utilities ▾

Experiment KYMB\_090512\_133001171607855999

LSR\_FORTESSA » LSR\_FORTESSA\_ALTERNATIVE\_PROJECT » Experiment KYMB\_090512\_133001171607855999 [LSR\_FORTESSA\_EXPERIMENT]

Experiment viewer

LSR\_FORTESSA\_ALTERNATIVE\_PROJECT

directly connected Overview

Code	Data Set Type	Sample Identifier	Sample Type	Project	Registrar
<a href="#">20130130171607997-7595</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1203</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608064-7597</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1204</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608133-7599</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1205</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608200-7601</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1206</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608272-7603</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1207</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608338-7605</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1208</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608405-7607</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1209</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608470-7609</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1210</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608537-7611</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1211</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608603-7613</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1212</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608667-7615</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1213</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608734-7617</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1214</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608800-7619</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1215</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608871-7621</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1216</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171608936-7623</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1217</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609000-7625</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1218</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609069-7627</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1219</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609139-7629</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1220</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609202-7631</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1221</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609267-7633</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1222</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609336-7635</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1223</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609400-7637</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1224</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609464-7639</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1225</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609531-7641</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1226</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609597-7643</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1227</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609660-7645</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1228</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609729-7647</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1229</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
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<a href="#">20130130171609858-7651</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1231</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609924-7653</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1232</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171609990-7655</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1233</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171610055-7657</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1234</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171610120-7659</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1235</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171610183-7661</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1202:LSR_W1236</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	
<a href="#">20130130171610300-7664</a>	LSR_FORTESSA_FCSFILE	<a href="#">/LSR_FORTESSA/LSR_P1237:LSR_W1238</a>	LSR_FORTESSA_WELL	<a href="#">LSR_FORTESSA_ALTERNATIVE_PROJECT</a>	

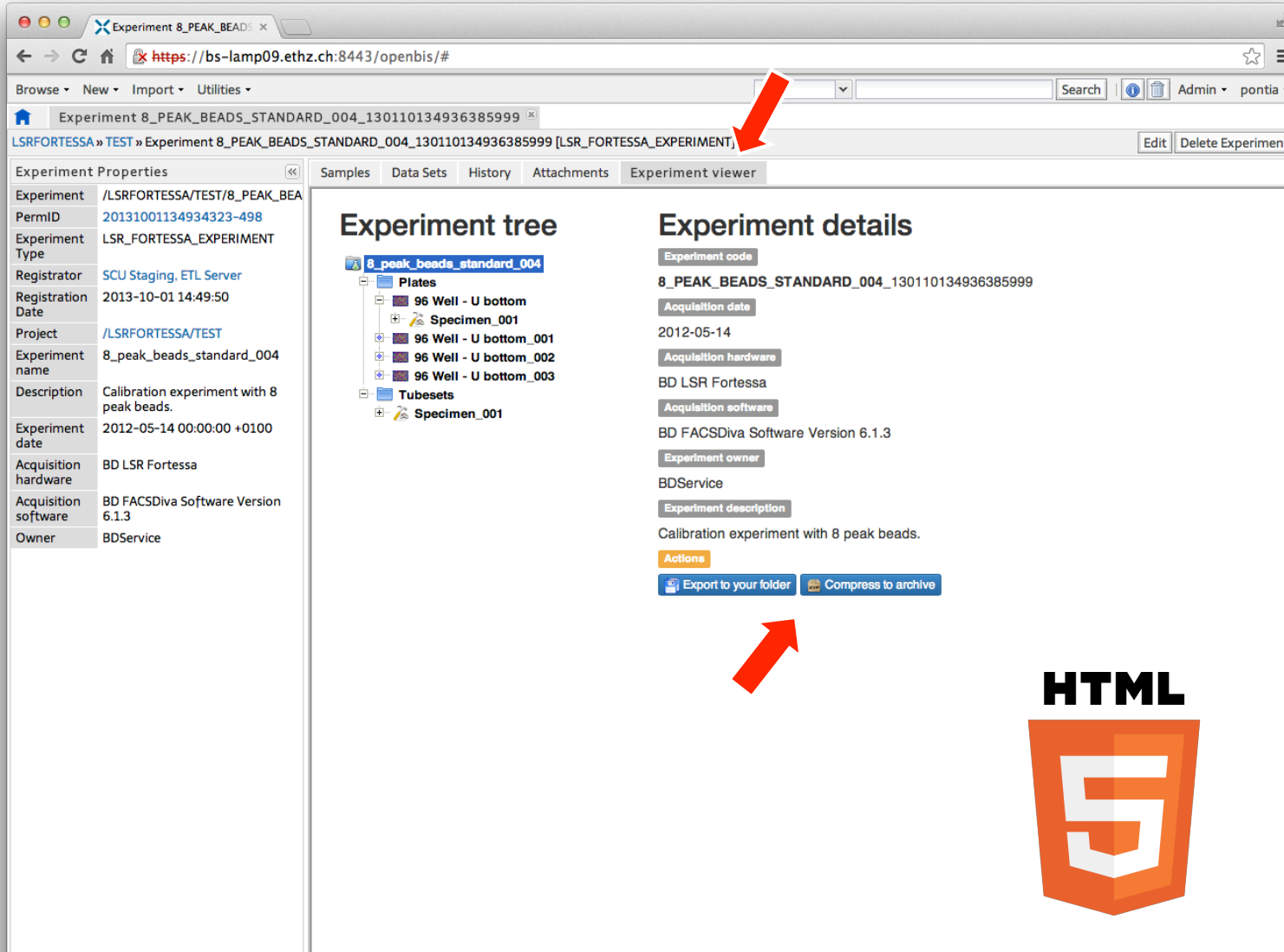
Page 1 of 2

Displaying 1 - 50 of 68

Table: Filters Settings Refresh Export

Entity: Show Details Edit Tag Untag Delete All Export Data

# Custom views



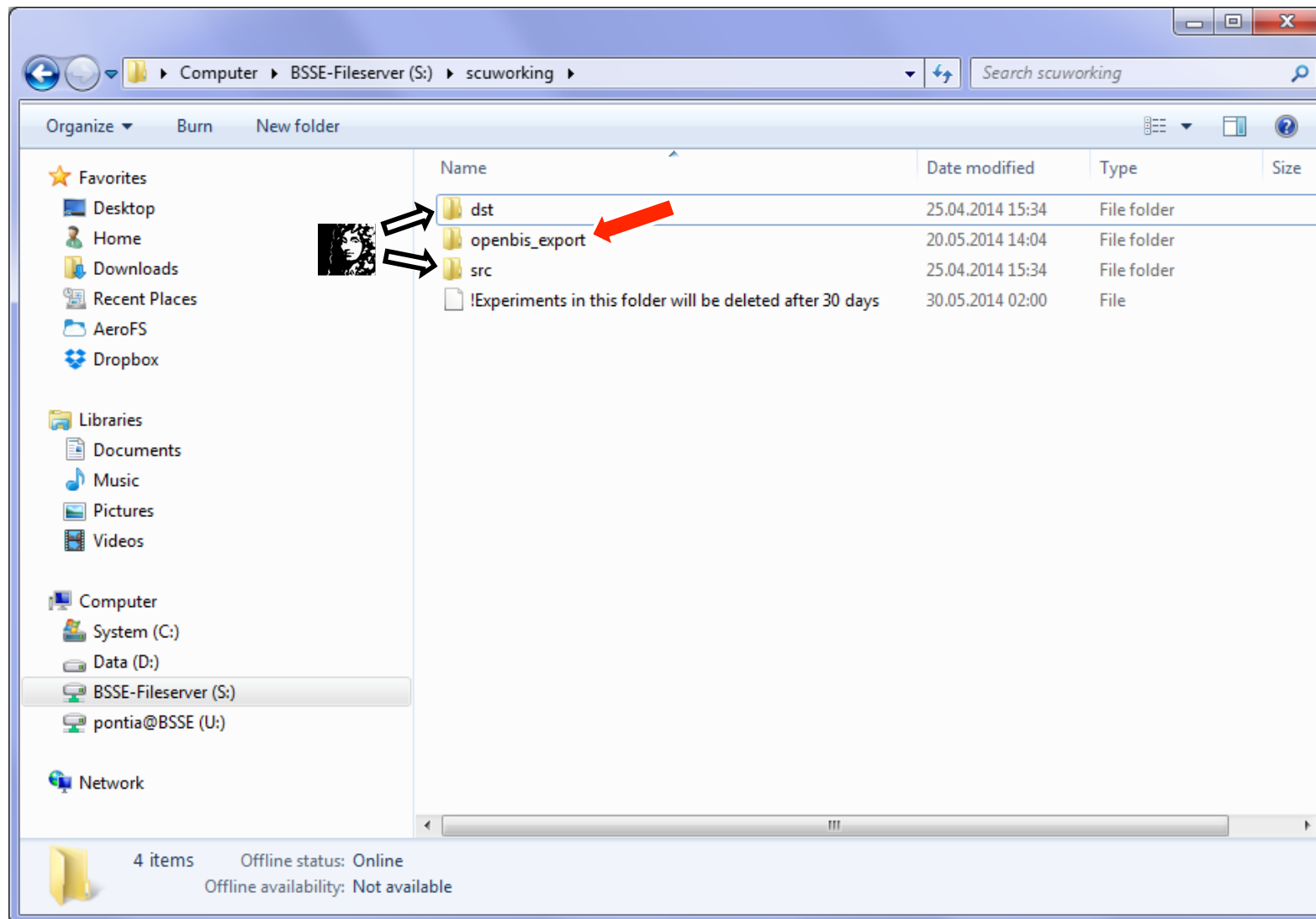
The screenshot displays the OpenBIS web interface for an experiment. The browser address bar shows the URL `https://bs-lamp09.ethz.ch:8443/openbis/#`. The page title is "Experiment 8\_PEAK\_BEADS\_STANDARD\_004\_130110134936385999". The left sidebar shows the "Experiment Properties" for the experiment, including the PermID, Experiment Type, Registrator, Registration Date, Project, Experiment name, Description, Experiment date, Acquisition hardware, Acquisition software, and Owner.

The main content area is divided into two sections: "Experiment tree" and "Experiment details". The "Experiment tree" shows a hierarchy of data sets, including "Plates" (96 Well - U bottom) and "Tubesets" (Specimen\_001). The "Experiment details" section displays the experiment code, acquisition date, acquisition hardware, acquisition software, experiment owner, and experiment description. Below the details, there is an "Actions" section with two buttons: "Export to your folder" and "Compress to archive". A red arrow points to the "Export to your folder" button.





# User scratch folder




# LIGHT MICROSCOPES

An alternative to OMERO?



# [Admin] Annotation Tool Admin

Select the acquisition station or type



openBIS Importer Toolset :: Annotation Tool Admin v0.5.0

- Set the openBIS URL (this is current default)  
 [dropdown] [button "..."] [button "+"] [button "-"] [button "▲"] [button "▼"]
- Accept self-signed SSL certificates when logging in to openBIS  
 [dropdown]
- Select the acquisition station or type  
 [dropdown]  
Generic light microscopes (LOCI bio-formats compatible)
- Set user data directory
- Set Datamover incoming directory

It is highly recommended to set both folders on the same file system.

[button "Save"] [button "Close"]

openBIS Importer Toolset :: Annotation Tool v0.5.0

**Data viewer**

- /pontia
  - Experiment\_1
    - a341.lsm
  - Experiment\_2
    - aaron\_3Ch.nd2
      - aaron\_Drosoph\_multiple-xy\_2Ch\_5z.nd2
        - series\_0
        - series\_1
        - series\_2
        - series\_3
        - series\_4
        - series\_5
        - series\_6
        - series\_7
        - series\_8
      - Captured for 4.nd2
        - series\_0
      - Test001.nd2
        - series\_0

Scan

**Metadata editor**

Experiment\_2

Description

2D, multi-channel acquisition. M = 10x, NA = 0.3.

Target openBIS project

/SCU/QUALITY\_CONTROL

OME

Send to openBIS

**openBIS viewer**

pontia

- PANTAZIS\_GROUP
- BEERENWINKEL\_GROUP
- KHAMMASH\_GROUP
- IBER\_GROUP
- SCHROEDER\_GROUP
- QGF
- TAY\_GROUP
- PARO\_GROUP
- MUELLER\_GROUP
- FUSSENEGGER\_GROUP
- PANKE\_GROUP
- OTHER\_INSTITUTES
- REDDY\_GROUP
- BENENSON\_GROUP
- STELLING\_GROUP
- SCU
- LSR\_FORTESSA

Scan

**Metadata viewer**

Name	Value
acquisitionDate	2014-01-10T00:18:07
channelColor0	0.0, 255.0, 255.0, 255.0
channelColor1	0.0, 255.0, 0.0, 255.0
channelColor2	255.0, 0.0, 0.0, 255.0
channelColor3	128.0, 0.0, 255.0, 255.0
channelColor4	255.0, 255.0, 255.0, 255.0
channelName0	DAPI
channelName1	Fluorescein goat anti-mouse IgG a...
channelName2	Cy3 dye-labeled IgG antibody/pH ...
channelName3	DIR

Invalid datasets

File or folder	Issue
----------------	-------

28-05-2014 11:59:46: Scanning user data folder completed.  
 28-05-2014 11:59:55: Scanning metadata from aaron\_Drosoph\_multiple-xy\_2Ch\_5z.nd2 completed.  
 28-05-2014 11:59:57: Scanning metadata from Test001.nd2 completed.  
 28-05-2014 12:00:59: Scanning metadata from Captured for 4.nd2 completed.

Experiment EXPERIMENT\_2

https://bs-lamp09.ethz.ch:8443/openbis/#

Experiment EXPERIMENT\_2\_142605112545480999

MICROSCOPY » TEST\_DROPBOX » Experiment EXPERIMENT\_2\_142605112545480999 [MICROSCOPY\_EXPERIMENT]

**Experiment Properties**

Experiment	/MICROSCOPY/TEST_DROPBOX/EXPERIMENT_2
PermID	20140526112545488-5216
Experiment Type	MICROSCOPY_EXPERIMENT
Registrator	SCU Staging, ETL Server
Registration Date	2014-05-26 12:26:19
Project	/MICROSCOPY/TEST_DROPBOX
Experiment name	Experiment_2
Description	Test colors.

**EXPERIMENT\_2** (EXPERIMENT\_2\_142605112545480999)

**Description**  
Test colors.

**Dataset sizes**

X	Y	Z	C	T	vX [μm]	vY [μm]	vZ [μm]
1024	512	5	2	1	0.62	0.62	6.1

**Actions**

View/Edit metadata Export to your folder Download Send to HRM

**Data set**  
aaron\_Drosoph\_mulu...\_2Ch\_5z.nd2 (series 9)

**Channel**  
Merged Channels

☒ EGFP ☒ mCherry

**Filter**  
User defined

**EGFP**  
Rescale Reset

**mCherry**  
Rescale Reset

**Resolution**  
Default

**Time: 0 sec (1/1)**  
Show Buttons

**Depth: 2 (3/5)**  
Hide Buttons

delay: 100 ms

**HRM**

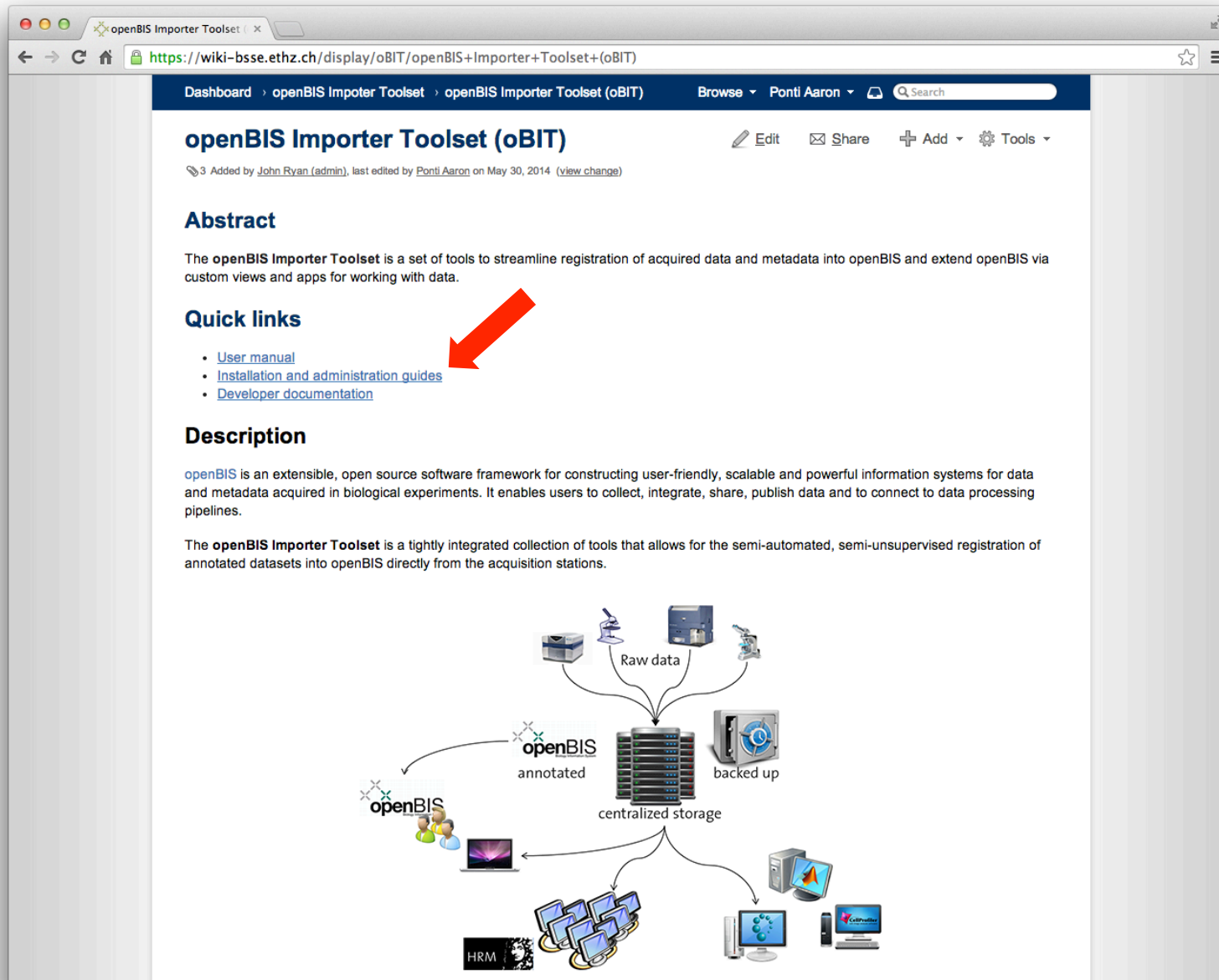
Microscopy image showing a cell with green fluorescence.



# openBIS – new technologies



<https://wiki-bsse.ethz.ch/display/oBIT>



The screenshot shows a web browser window displaying the 'openBIS Importer Toolset (oBIT)' page on the ETH Zurich wiki. The page has a blue header with navigation links and a search bar. The main content area includes an 'Abstract' section, a 'Quick links' section with a red arrow pointing to the 'Installation and administration guides' link, and a 'Description' section. At the bottom, there is a diagram illustrating the data flow from raw data acquisition to centralized storage and then to various user interfaces.

**openBIS Importer Toolset (oBIT)**

3 Added by John Ryan (admin), last edited by Ponti Aaron on May 30, 2014 (view change)

**Abstract**

The **openBIS Importer Toolset** is a set of tools to streamline registration of acquired data and metadata into openBIS and extend openBIS via custom views and apps for working with data.

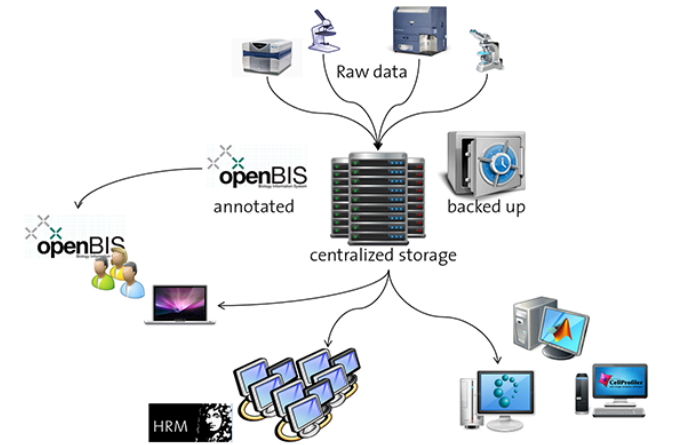
**Quick links**

- [User manual](#)
- [Installation and administration guides](#)
- [Developer documentation](#)

**Description**

openBIS is an extensible, open source software framework for constructing user-friendly, scalable and powerful information systems for data and metadata acquired in biological experiments. It enables users to collect, integrate, share, publish data and to connect to data processing pipelines.

The **openBIS Importer Toolset** is a tightly integrated collection of tools that allows for the semi-automated, semi-supervised registration of annotated datasets into openBIS directly from the acquisition stations.



The diagram illustrates the openBIS architecture. It shows 'Raw data' being acquired from various sources (represented by icons of a microscope, a server rack, and a computer) and being processed into 'openBIS annotated' data. This data is then stored in 'centralized storage' (represented by a server rack). The 'centralized storage' is also linked to a 'backed up' state (represented by a server rack with a backup icon). The 'centralized storage' is connected to various user interfaces and applications, including 'openBIS' (represented by a person icon), 'HRM' (represented by a person icon), and several desktop computers and laptops.

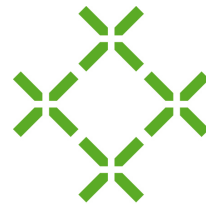
# Summary

- The openBIS/openBIS Importer Toolset synergy aims to:
  - offer a powerful and scalable data and metadata management system
  - streamline data registration directly from the acquisition machines
  - support multiple acquisition hardware classes
  - offer a reasonably simple way for third parties to add support for new hardware classes

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Science and Engineering

## ITSC

Simon Paul Diethelm  
John Ryan  
Andreas Jecklin



**openBIS**

<http://www.cisd.ethz.ch/software/openBIS>

**oBIT**

<https://wiki-bsse.ethz.ch/display/oBIT>

<http://www.scs2.net/next/index.php?id=150>

<https://github.com/aarpon>