Open Microscopy Environment Developer’s Meeting

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OME Dundee

Jean-Marie Burel
Donald McDonald
Brian Loranger

Chris Allan
Josh Moore
David Whitehurst
Aleksandra Tarkowska
Andrew Patterson
Usable Image

Catriona Macaulay
Paula Forbes
Xinyi Jiang
David Sloan
Mitotic Chromosome Proteomics: LC-MS/MS of MCE/ TIGR Xenopus EST database

- Unknown
- Other
- Nuclear
- Other
- Cytoplasmic
- Sumoylation
- DNA Replication & Repair
- Chromatin Structure
- Cell Cycle Regulatory
- RNA Transcription
- Actin/ABPs
- MTs/MAPs
- Proteasome/Ubiquitination
- Translation
- Glycolysis
- Chaperones

Iain Porter
Jens Andersen
Live cell imaging - shRNA screen of unknowns

Scram  LRR

Bod1  TS1
Live cell analysis of Bod1$^{\text{siRNA}}$

- mCherry-tubulin
- CENP-B-GFP

Scrambled  Bod1$^{\text{RNAi}}$

Iain Porter
Links Between Mitosis & Neurogenesis

Chick Embryo Neural Tube
GFP-tubulin
3D Stack/7 mins
38 hours total

512 x 512 x 30 x 342

5GB

Arwen Wilcock
### The Scoreboard:

- **P** = Progenitor cell
- **N** = Neuron

<table>
<thead>
<tr>
<th></th>
<th>Parallel</th>
<th>Perpendicular</th>
<th>Cell cycle time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-30°</td>
<td>30-60°</td>
<td>60-90°</td>
</tr>
<tr>
<td><strong>P/P</strong></td>
<td>34: 6</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td><strong>P/N</strong></td>
<td>6 : 0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>P/P</strong></td>
<td>7 : 1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>P/N</strong></td>
<td>4 : 2</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

**Arwen Wilcock**

- **P/P** 74/86
  - < 18 hr 45 min
- **P/N** 5/5
  - >18 hr 45 min
Small molecule phenotypic characterization
Integrating LM and MS data

OMERO Strategic Goals

-- Enable use of multi-D imaging in a large facility
-- Provide data management facilities
-- Build a foundation for managing complex datasets
-- Usability
  clients
  client/server interactions
-- Remote access for data sharing
-- Bio-Formats
-- Drive OME Data Model updates
-- Diagnostic imaging

--> to user, OMERO is another reference desktop application
OMERO Process

-- trac.openmicroscopy.org.uk
    all activity, roadmaps, plans available
    maintaining
-- pre-release process
-- Usable Image
    all new functionality presented and tested through
    Catriona’s team

--> to user, OMERO is another reference desktop application
OMERO User Observations

- **Current Location: Swedlow Lab**
  - once a week, in the lab
  - audio and video recordings
  - paper prototyping
  - Developer/user sociology, feedback

- **Explore**
  - new features
  - aspects of work practice
  - Bugs and wishlists

- **Expansion**
  - Taster sessions with other Dundee labs, Inst Pasteur, Madison
  - Web-based survey
  - Across OME projects
OME & OMER0 Architecture

Diagram showing the architecture of OME and OMER0, including components such as Shoola, Marino, Apache, and a J2EE Application Server.
OMERO3.server-Beta1

-- JBOSS application
-- PostgreSQL (+MySQL and Oracle)
-- Data Model fork from OME
-- Hibernate
-- Rendering Engine and Defs
-- JavaRMI for OMERO clients
-- basis for GlencoeDME
OMERO.admin

-- simple group & user admin
-- Beta 1.2: problems with linux, Java1.6
-- removed as of Beta2
OMERO.importer

-- client-side importer
-- makes heavy use of Bio-Formats
-- easy multi-file selection
-- Beta1.1: DV, STK, TIFF
-- Beta1.2: Java1.6
-- Beta2: LSM510, TCS, STK + .nd, (OME-XML), + PD creation, local directory update, many fixes
OMERO.insight

-- data viz, management
-- server-side rendering
-- heavy input from UI
-- Beta1.2: Java1.6
-- Beta2: user groups, ownership, annotation by user, Viewer updates...
-- Beta2.1: ROIs (simple measurement, annotation, save)
OMERO3.server-Beta2 (May 21, 2007)

Beta2:
-- ICE for C++
-- Webadmin
-- numerous fixes
-- no rendering updates

Beta3… :
-- Delete
-- Tagging (from UI)
-- Indexing
-- workflow
-- distributed work
OME/OMERO User Meeting

-- Paris, Mar 29-30
-- 40 guests, all self-funded
-- commercial, biopharma, and academic
-- all on ome-users; none on ome-devel
-- Notes to go on openmicroscopy.org
-- Usability, implementation and integration for groups, facilities
-- Strong endorsement of OME-TIFF, Bio-Formats (wow!)
-- Integration with existing proven tools, workflows, facilities
-- “OME must come to me”
-- Many good suggestions for .importer, .insight
-- Import is a deal breaker (but sometimes what I want)
-- Anne Danckaert: “just make me this”
-- Analysis as an agent, blobs in many cases, but not all...
OMERO Server & Clients