Web-based display of 3D data with the Interactive Embryo Viewer (IEV)
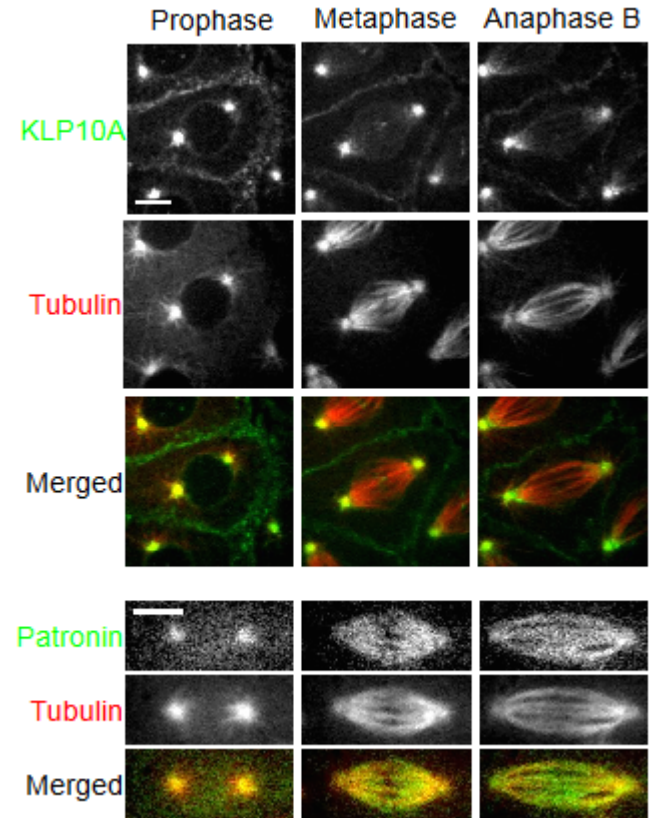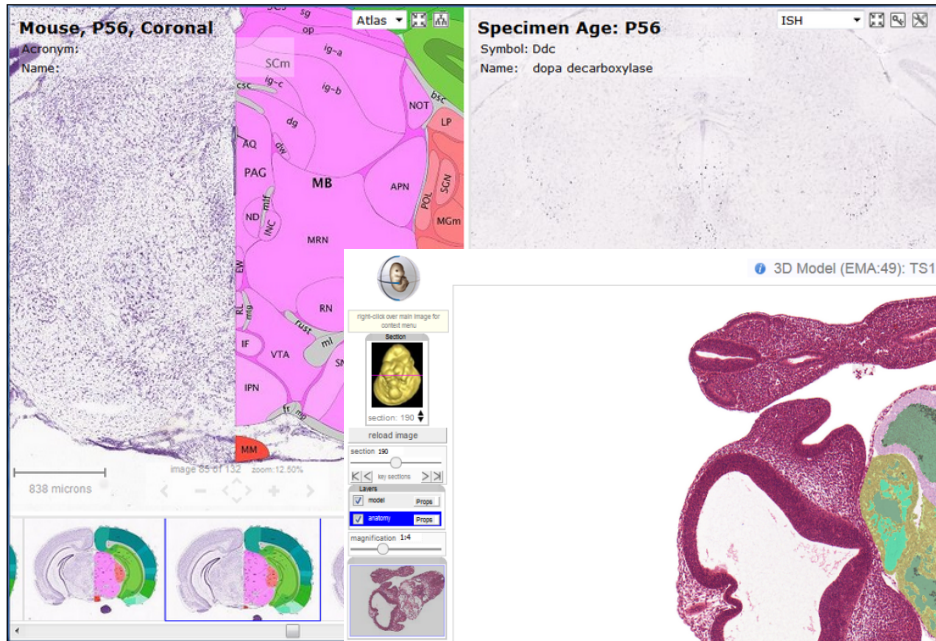
OMERO User Meeting, Dundee, Scotland

May 31st 2016

Henrik Westerberg, Team Leader, Systems Imaging Group
James Brown
Neil Horner
Jennifer Vibert

Ann-Marie Mallon, BioComputing, MRC Harwell

IMPC

Dissemination of 3D image data on the web

International Mouse Phenotyping Consortium (IMPC)
www.mousephenotype.org

We are building the first truly comprehensive, functional catalogue of a mammalian genome.
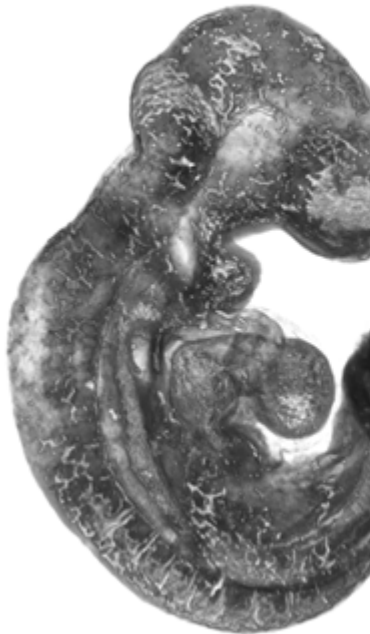
IMPReSS

Genes
- Find genes
- 3154 Genes analy
- Stay Connected

News an
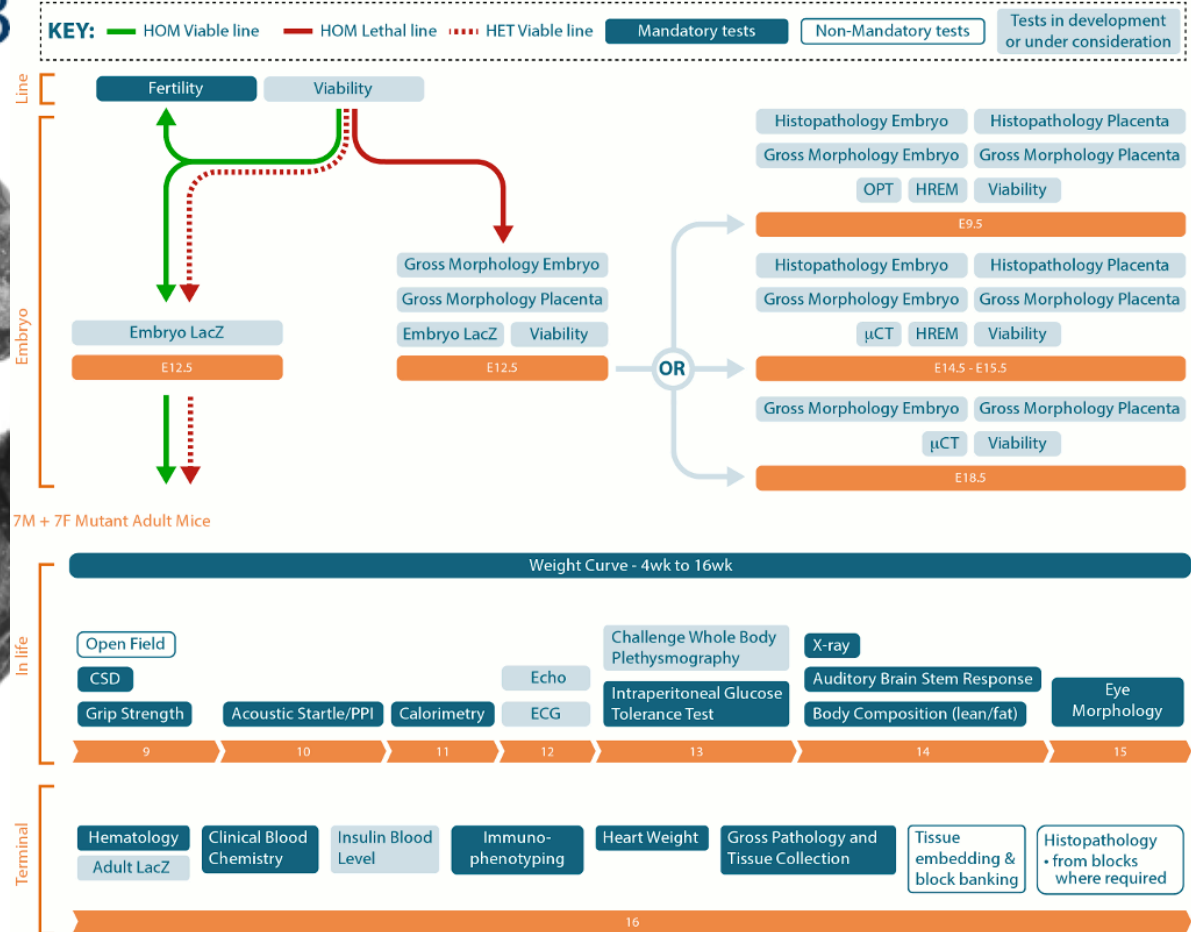
October 29, 2015
IMPC in G7 report a

October 28, 2015
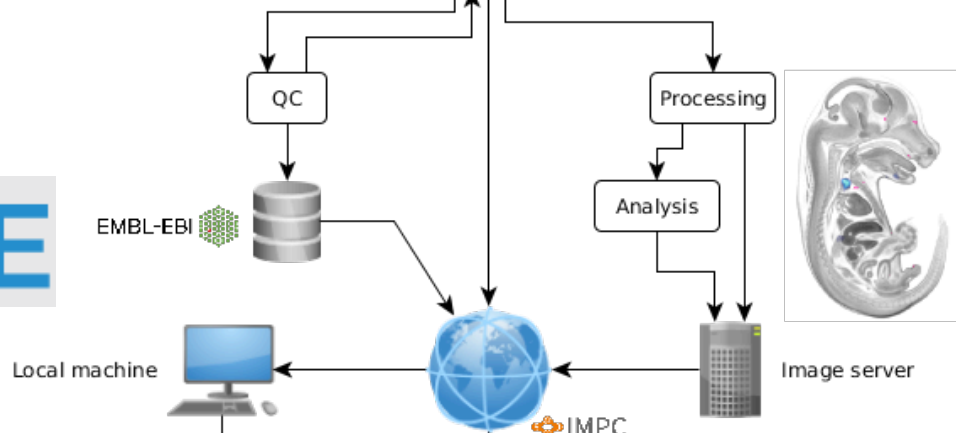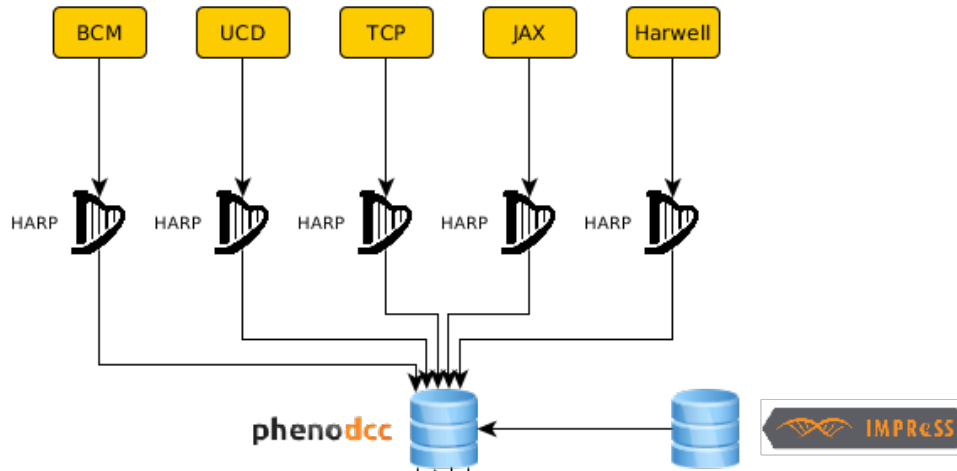Training Course: Pr

August 14, 2015
Phenoview: a new

Internatio

The goal of the
discover functi
phenotyping 2

3D I

KEY: — HOM Viable line — HOM Lethal line ···· HET Viable line | Mandatory tests | Non-Mandatory tests | Tests in development or under consideration

Line
- Fertility
- Viability

Embryo

| Histopathology Embryo | Histopathology Placenta |
| Gross Morphology Embryo | Gross Morphology Placenta |

OPT | HREM | Viability

E9.5

| Histopathology Embryo | Histopathology Placenta |
| Gross Morphology Embryo | Gross Morphology Placenta |

μCT | HREM | Viability

Gross Morphology Embryo
Gross Morphology Placenta
Embryo LacZ | Viability
E12.5

Embryo LacZ
E12.5

OR

E14.5 - E15.5

| Gross Morphology Embryo | Gross Morphology Placenta |

μCT | Viability

E18.5

7M + 7F Mutant Adult Mice

E9.5 OPT

In life

Weight Curve - 4wk to 16wk

- Open Field
- CSD
- Grip Strength
- Acoustic Startle/PPI
- Calorimetry
- ECG
- Echo
- Challenge Whole Body Plethysmography
- Intraperitoneal Glucose Tolerance Test
- X-ray
- Auditory Brain Stem Response
- Body Composition (lean/fat)
- Eye Morphology

9 | 10 | 11 | 12 | 13 | 14 | 15

Terminal

- Hematology
- Adult LacZ
- Clinical Blood Chemistry
- Insulin Blood Level
- Immuno-phenotyping
- Heart Weight
- Gross Pathology and Tissue Collection
- Tissue embedding & block banking
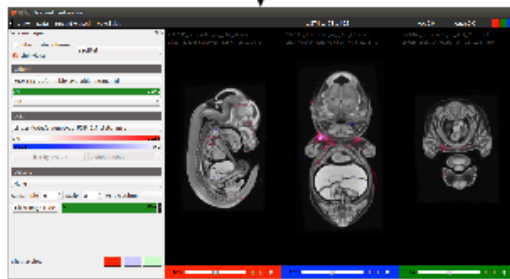- Histopathology • from blocks where required
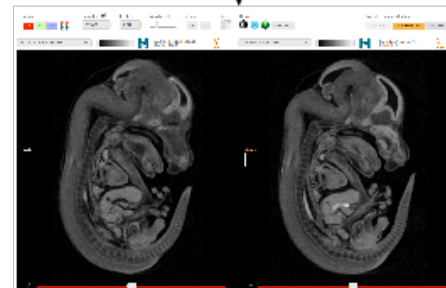
16

Bio-formats

2D

3D

MRC Harwell
Mysql database
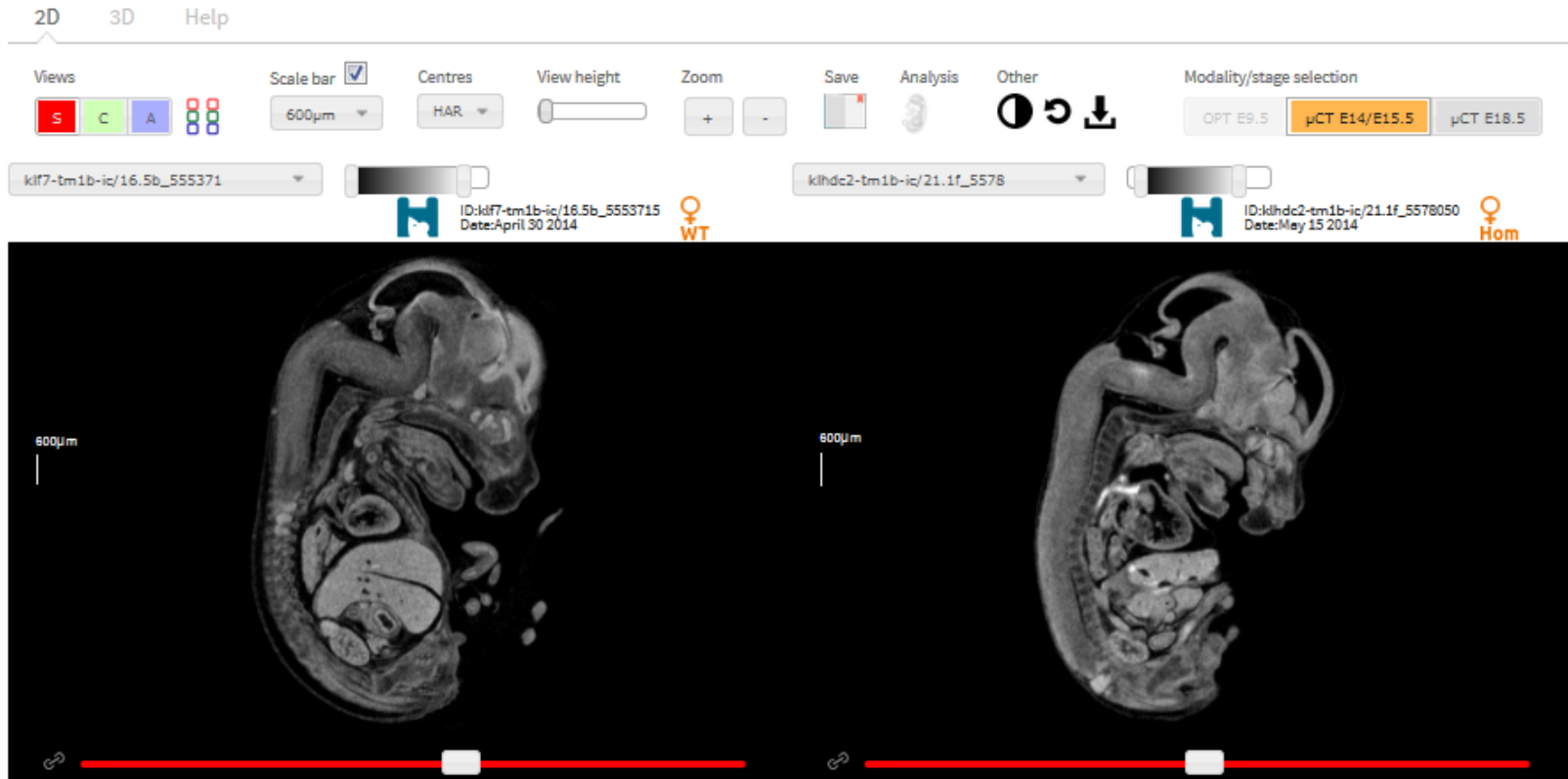defined directory
structure

Volumetric Phenotype Viewer

Interactive Embryo Viewer

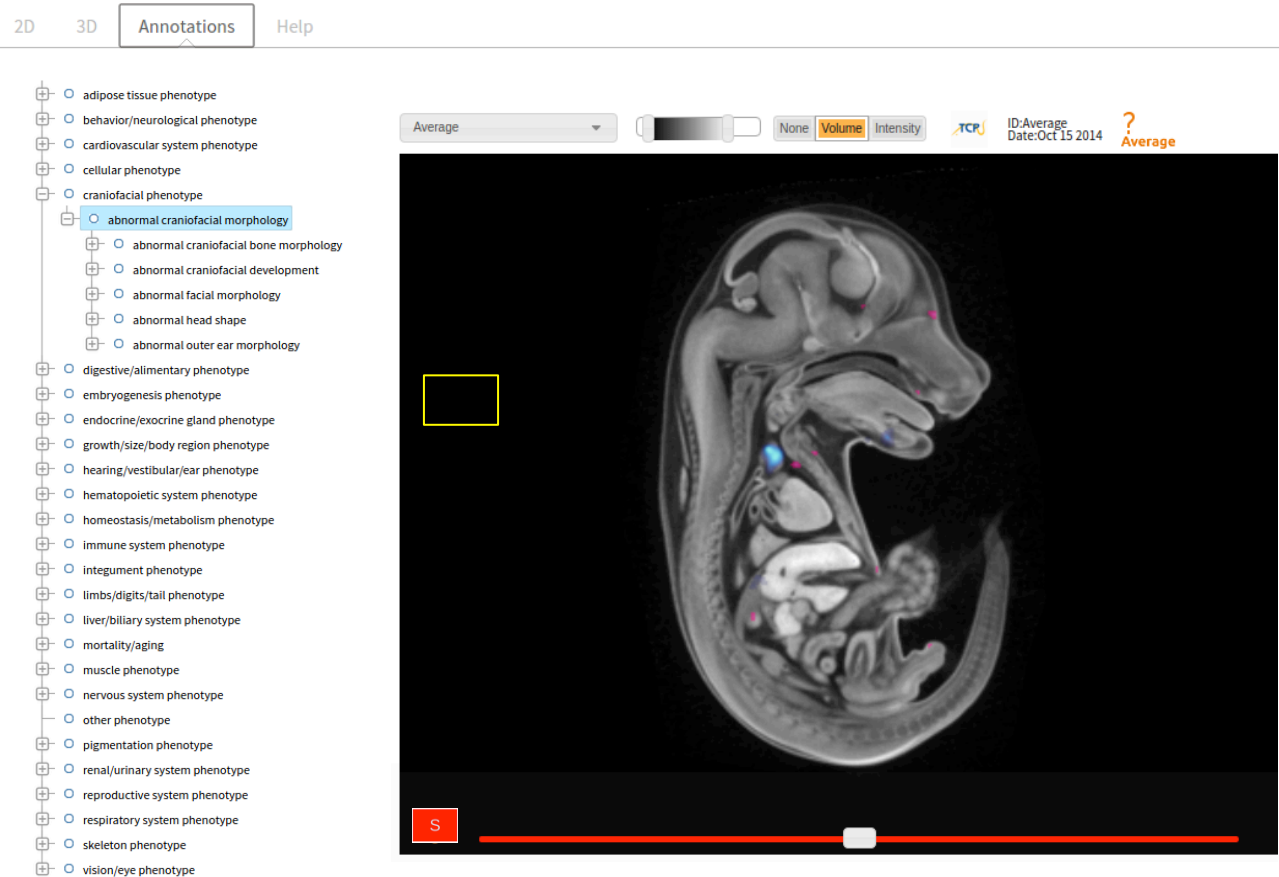# Interactive Embryo Viewer (IEV)

- Rapid and intuitive access into the data
- Developed in Javascript, 2D/3D support provided by XTK
- Integrate the display into OMERO

Annotations Mockup within IEV

- Links regions of interest to ontologies (EMAP-PATO)

- Found through a high throughput image analysis pipeline
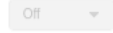
New: 3D mode released to live

http://www.mousephenotype.org/embryoviewer/?gene_symbol=Klf7&v=3d