Theme: Anatomy, Physiology and Atlases

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"..tissue, organ and whole organism level spatial relationships and inter-linking of function are critical (for biological understanding) and atlases of many forms have been developed provide an underlying spatio-temporal reference framework for such spatially-organised data."

http://bivi.co/

Spatial Data Types

- Anatomy - multi-modality
- Histology & Pathology
- Tissue models, Physiology & Electro-Physiology
- Gene Expression - mRNA & protein abundancy *
- Cellular Processes - division, migration, apoptosis
- Epigenetic state - differentiation, disease
- Phenotype - congenital abnormalities *
- Somatic mutation - ageing, cancer etc
- Variability - wild-type variation & mutants
- Deformation - mapping information
- Connectivity - tractography, cardiovascular etc
- …

* genomic-scale data

Current Tools & Visualisations

Home Visualisations Challenges Themes Resources About Us Committee

All | Anatomy, Physiology and Atlases, (24) | Cells and Organisms, (28) | Genome, (52) | Molecular, (40) | Pathway, (15) | Phylogenetics, (10) | Populations, (18)

eHistology Atlas
Anatomy, Physiology and Atlases, Cells and Organisms

Vaa3D
Anatomy, Physiology and Atlases, Cells and Organisms, Molecular

eXamine
Anatomy, Physiology and Atlases

OpenWalnut
Anatomy, Physiology and Atlases

Physioillustration
Anatomy, Physiology and Atlases, Molecular

CompuCell3D
Anatomy, Physiology and Atlases, Cells and Organisms

Real-time Neuron Viz
Anatomy, Physiology and Atlases

INCIDE
Anatomy, Physiology and Atlases

ZigCell3D
Anatomy, Physiology and Atlases, Molecular, Pathway

VisNEST
Anatomy, Physiology and Atlases, Pathway, Populations

neuroMAI
Anatomy, Physiolog
Atlases, Cells and Or

Resource | System | Atlas | Data | Reference

Plate 33b from 'The Atlas of Mouse Development' by Matt Kaufman

Virtual Fly Brain: Adult Brain Stack

Front

Left

C3-T3

NIMR SID1491

Wnt3D Analysis Parallel Coords: Intersection data for EMA:118, anatomy type Anatomy, column normalisation

Hide Ticks | Dark | Shadows | Opacity: 60%

An interactive visualization of the EMA:53 (TS17) Wnt3D gene expression data. For information on parallel coordinates, read this tutorial.

Selected 119 rows | Keep | Remove | Export

Gene Types | Total Selected

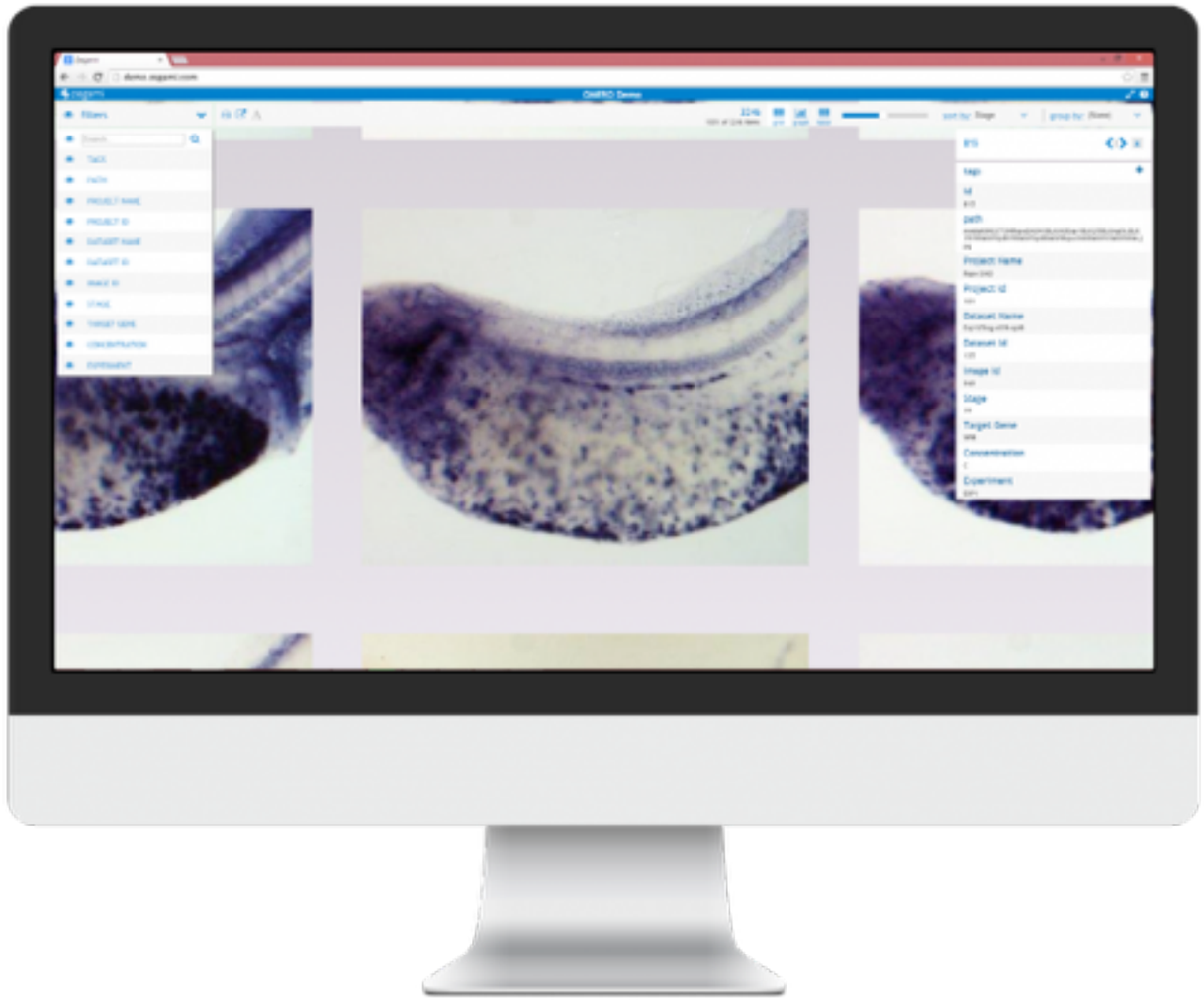
Wnt | Fzd | Misc | Sfrp | Tcf_Lef | Anatomy | Forelimb_Compartment | Readout | Wnt_High_Expression | Wnt_Occupancy

type-val, diencephalon, embryo, external, eye, forelimb_L, forelimb_R, heart, hindlimb_L, hindlimb_R, hyoid, liver, mandibular, maxillary, mesencephalon, metencephalon, neural, olfactory, otic, rathke, somite, tail, telencephalon

gene	geneType	type-val	diencep...	embryo	external	eye	forelimb_L	forelimb...	heart	hindlim...	hindlim...	hyoid	liver	man
dienceph...	Anatomy	.55	1.000000	0.025368	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0
dienceph...	Anatomy	.55	1.000000	0.001203	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0
embryo	Anatomy	.55	0.925824	1.000000	0.991335	0.999949	0.997581	0.997670	0.999993	0.997917	0.999582	0.994437	1.000000	0.9
external g...	Anatomy	.55	0.000000	0.002529	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0
eye	Anatomy	.55	0.000000	0.004039	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0
forelimb_L	Anatomy	.55	0.000000	0.017867	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0
forelimb_...	Forelimb_...	.66	0.000000	0.000337	0.000000	0.000000	0.018862	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0
forelimb_...	Forelimb_...	.66	0.000000	0.001267	0.000000	0.000000	0.070780	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.0

MRC | Unit

Additions - ZEGAMI



A web based, high throughput image visualisation and metadata analysis tool
Stephen Taylor & Roger Noble

Presentation 10:00 Thursday 3rd Dec

Additions - eHistology & MARender

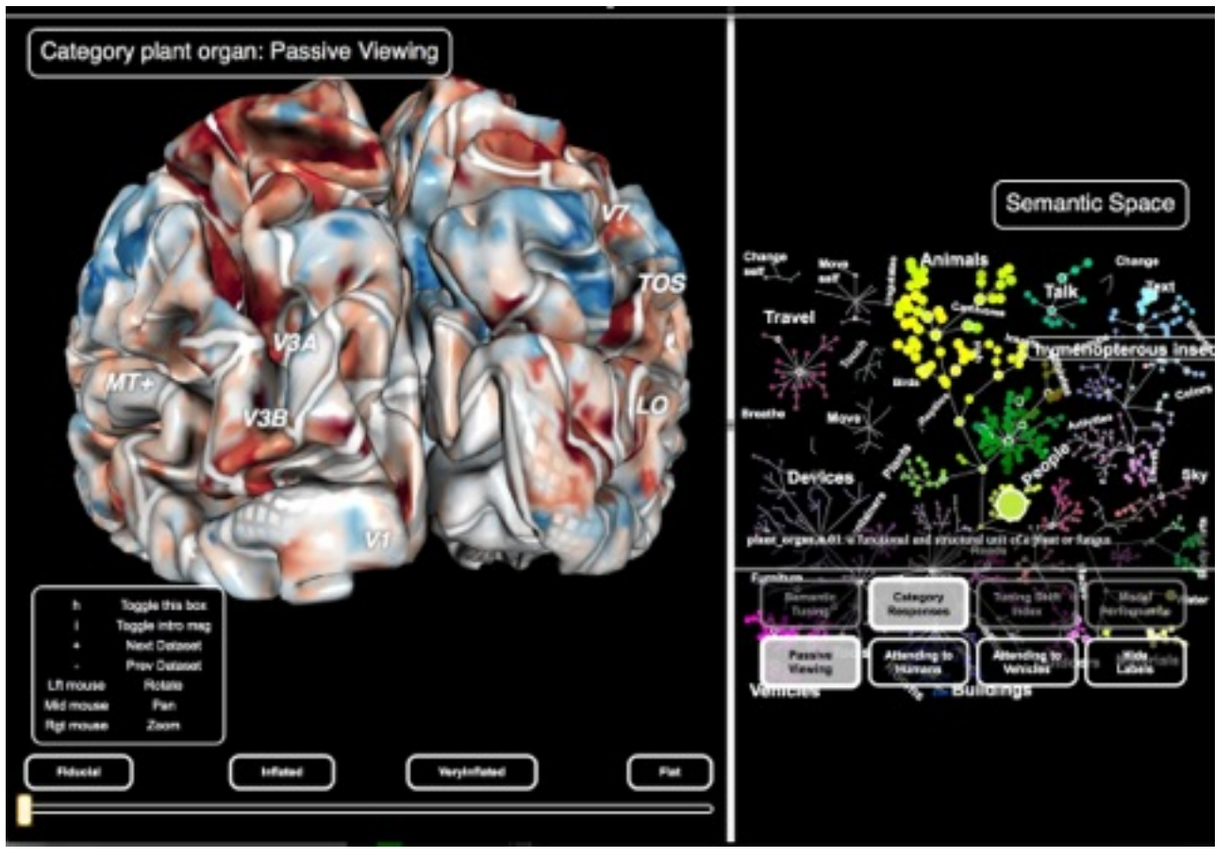
Visualisation of histology sections with point annotations of anatomy

MARender: A Simple JavaScript Library for Biomedical Visualisation

Richard Baldock & Bill Hill

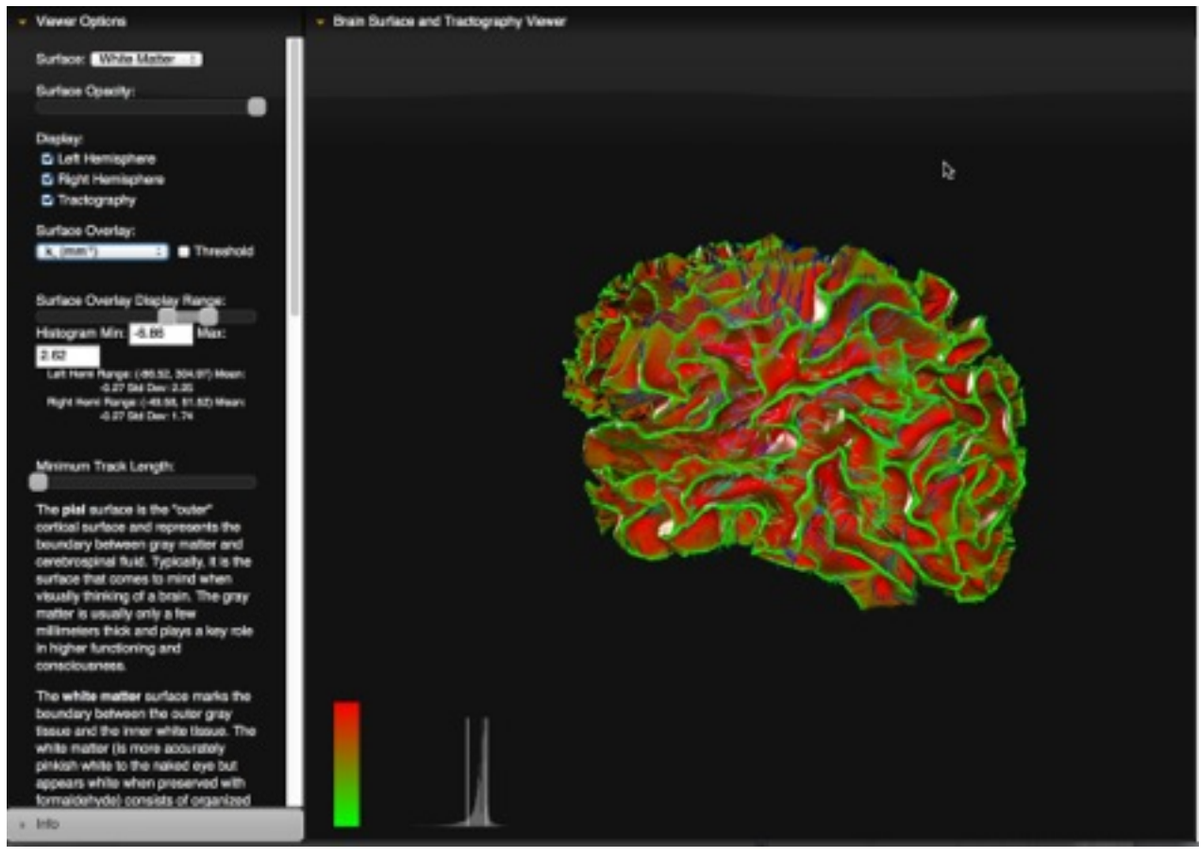
Richard Baldock, Bill Hill & Nick Burton

Some to capture - Brain Viewers



Semantic Annotated Functional Brain Data - original 3D to full flat-map

http://gallantlab.org/brainviewer/cukuretal2013/



Brain Surface and Tractography

http://www.nmr.mgh.harvard.edu/~rudolph/webgl/brain_viewer/brain_viewer.html

Apinatomy & Physiology - Bernard de Bono

Open Physiology

Home

Connections | Simulation | Proteins | Search

Large Intestine	Jejuno Ileum	Liver Pancreas Duodenum	Stomach	Esophagus	Mouth Throat
Genitals Gonads	Vascular Caudal	Vascular Abdominal	Vascular Cardiac	Vascular Cephalic	Lungs
Urinary Tract	Nervous Caudal	Nervous Lower Spinal	Nervous Upper Spinal	Nervous Cephalic	Nasopharynx Conjunctiva
Lower Limb	Pelvis	Abdomen	Thorax	Neck Upper Limb	Head

javascript:voi

http://open-physiology.org/

Frontiers in Physiology. 24 February 2015; doi: 10.3389/fphys.2015.00024

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