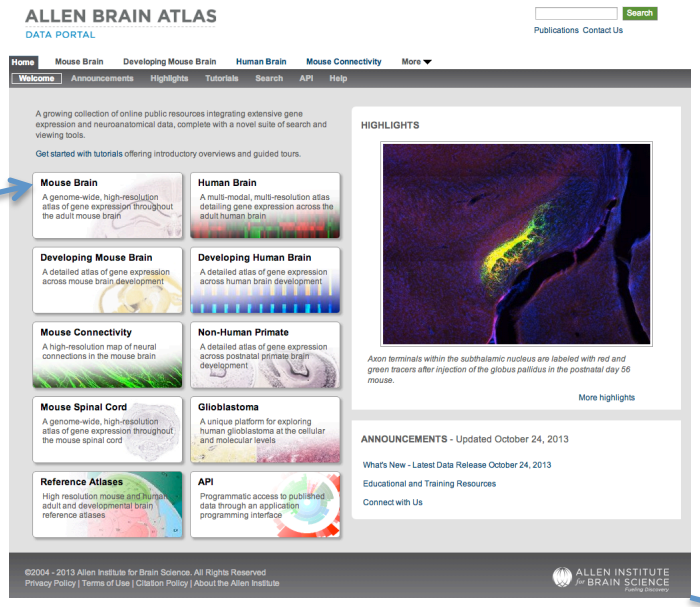
How to use the Allen Brain Atlas

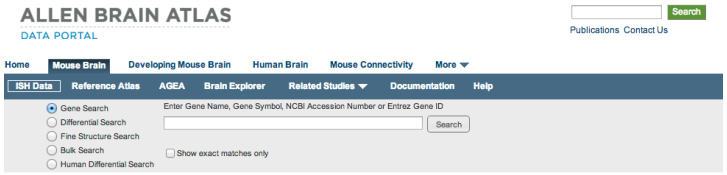
Allen Brain Atlas Overview - Project of the Allen Institute for Brain Science

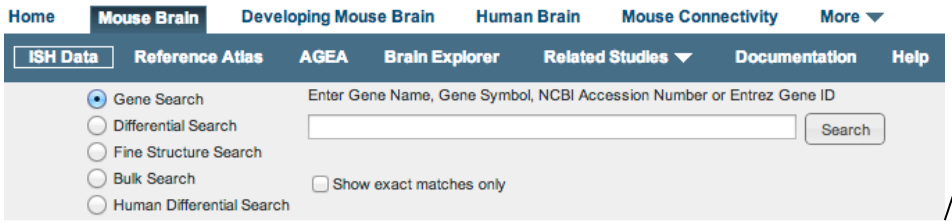
- Objective to "fuel discovery" by creating free atlases.
- Initiated in 2003 with a $100 million donation from Microsoft co-founder Paul Allen
- First public atlas available in 2006, and by 2012 there were seven atlases published:
  mouse, human, developing mouse, developing human, mouse connectivity, non-human primate, mouse spinal cord
- There are three related projects with databanks:
  Glioblastoma, Mouse diversity, Sleep
- Techniques for creating atlases:
  Mainly in situ hybridization of postmortem brains, and "scanning technology"
- The Brain Explorer
  Downloadable 3-D interactive brain explorer

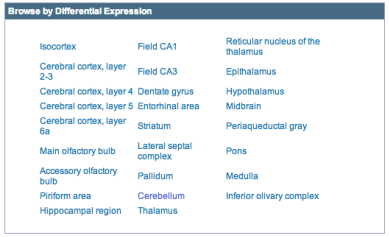
- Note that at the bottom of the Allen Brain Atlas Wikipedia page is a link to:
  List of neuroscience databases
    23 databases shown
  EMAGE
    A UK funded mouse brain atlas using in situ hybridization, IHC, and reporters

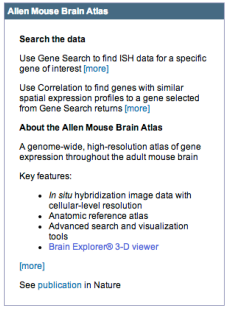
www.brain-map.org

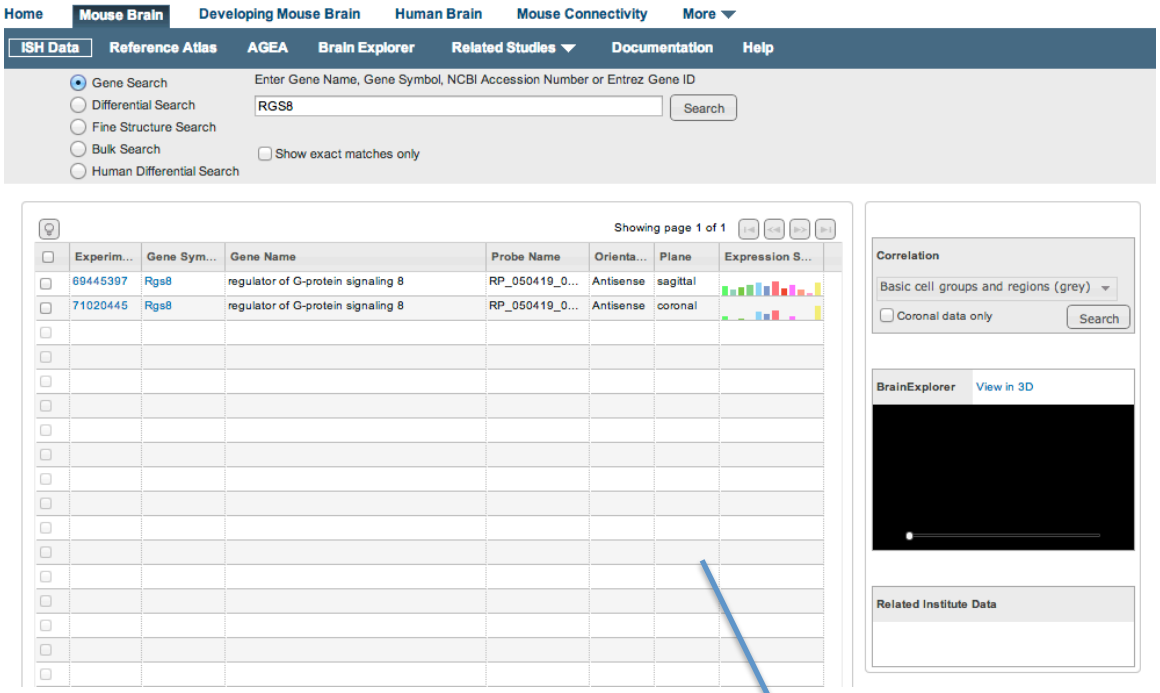








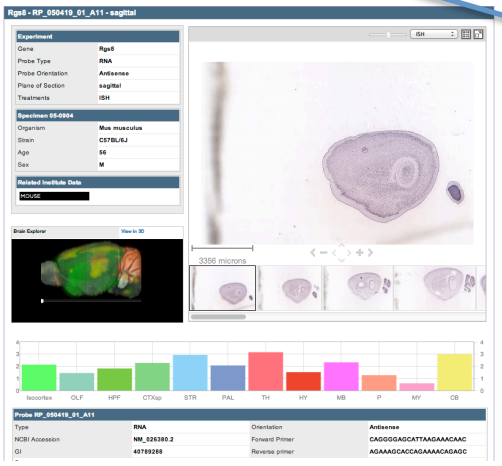




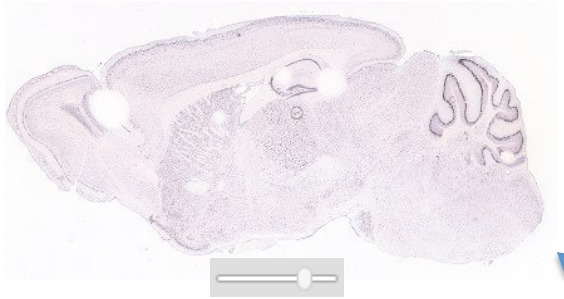
Can click on “3D” to enter Brain Explorer, but you would have to download the stand-alone app

Click on one, 3-d data are revealed

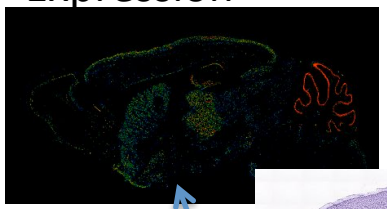
Click here on the experiment to view ISH data



Contrast Slider



Expression



Nissl

Thumbnails

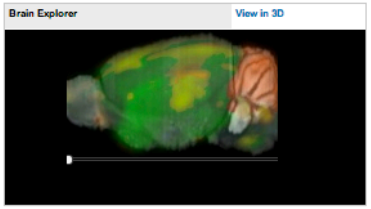
Rgs8 - RP_050419_01_A11 - sagittal

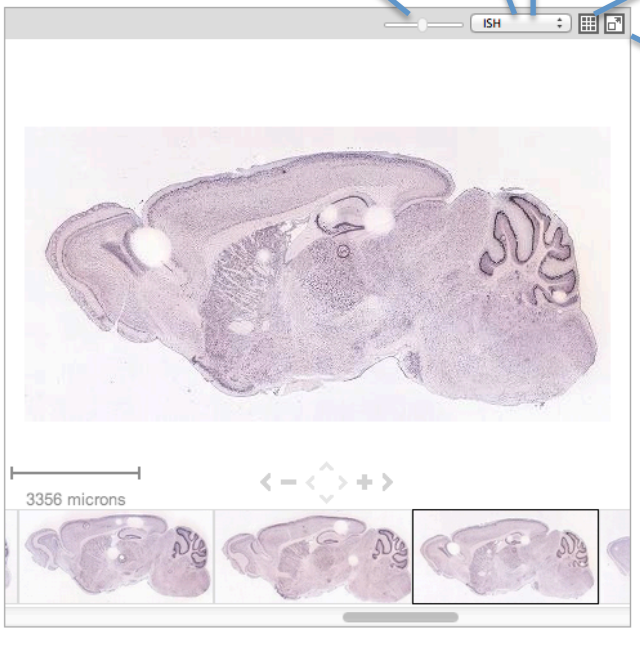
Experiment	
Gene	Rgs8
Probe Type	RNA
Probe Orientation	Antisense
Plane of Section	sagittal
Treatments	ISH

Specimen 05-0904	
Organism	Mus musculus
Strain	C57BL/6J
Age	56
Sex	M

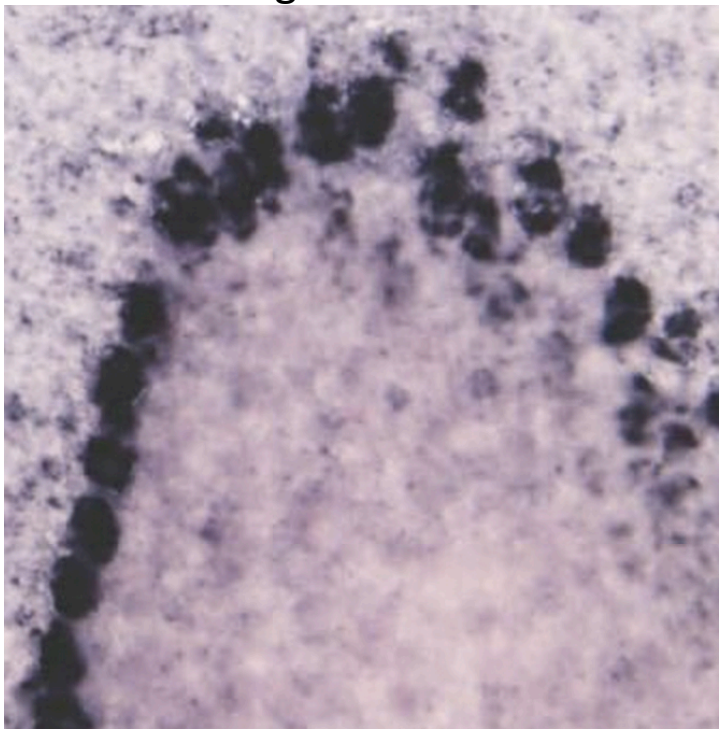
Related Institute Data

MOUSE





Large window zoom



Franz Nissl

From Wikipedia, the free encyclopedia
(Redirected from Nissl)

Franz Nissl (9 September 1860, Frankenthal – 11 August 1919, Munich) was a German medical researcher. He was a noted neuropathologist.

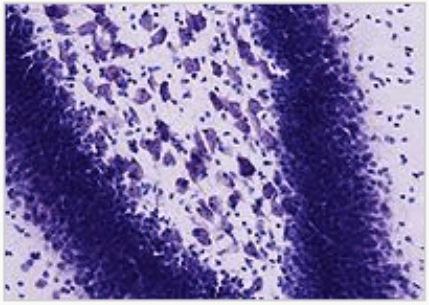
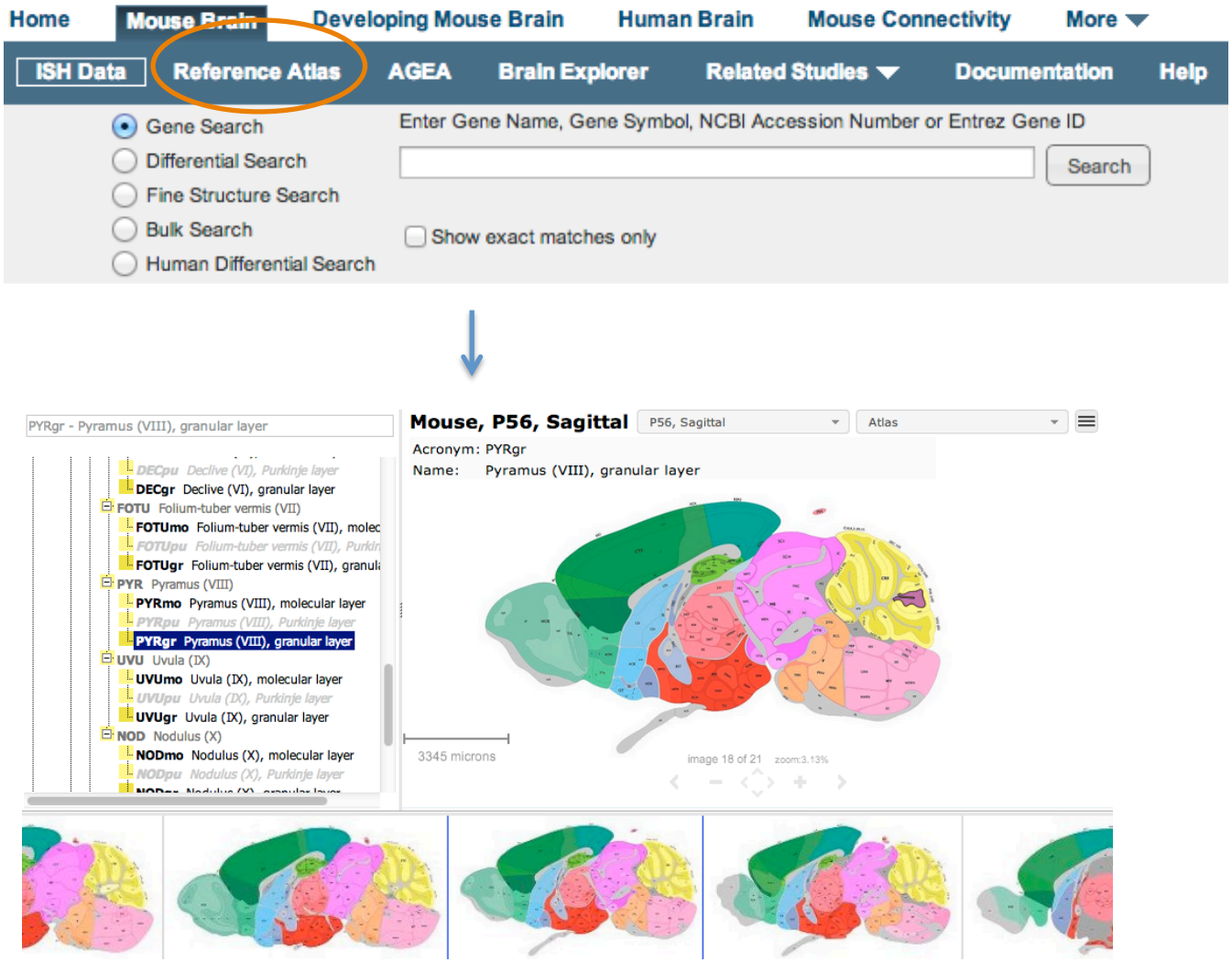


Image of a Nissl-stained histological section through the rodent hippocampus showing various classes of neurons.

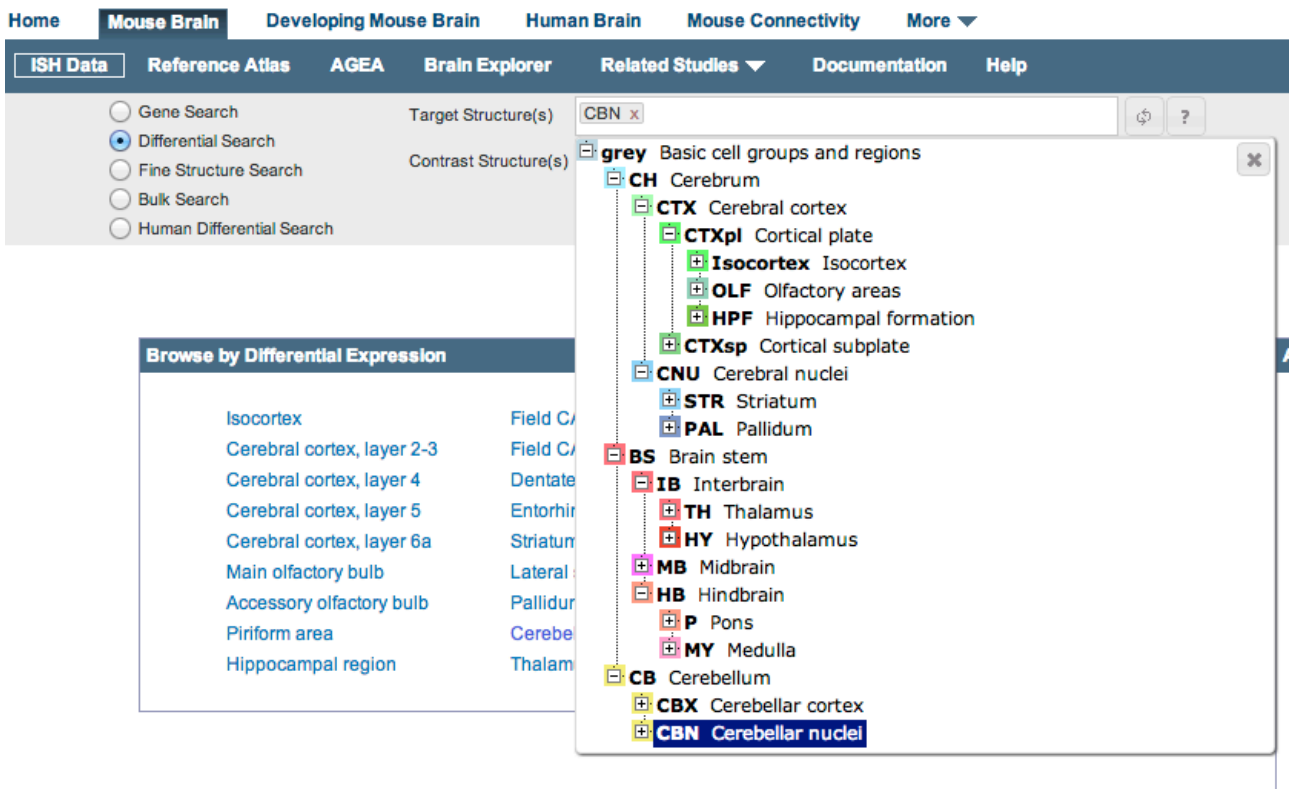
Named histology concepts [edit]

The **Nissl method** refers to staining of the cell body, and in particular endoplasmic reticulum. This is done by using various basic dyes (e.g. aniline, thionine, or cresyl violet) to stain the negatively charged RNA blue, and is used to highlight important structural features of neurons. The **Nissl substance** (rough endoplasmic reticulum) appears dark blue due to the staining of ribosomal RNA, giving the cytoplasm a mottled appearance. Individual granules of extranuclear RNA are named **Nissl granules** (ribosomes). DNA present in the nucleus stains a similar color.

Reference Atlas



Differential Gene Search – an actual application of the atlas



Home | Mouse Brain | Developing Mouse Brain | Human Brain | Mouse Connectivity | More

ISH Data | Reference Atlas | AGEA | Brain Explorer | Related Studies | Documentation | Help

Gene Search
Differential Search
Fine Structure Search
Bulk Search
Human Differential Search

Target Structure(s): CBN x
Contrast Structure(s): grey x
Search

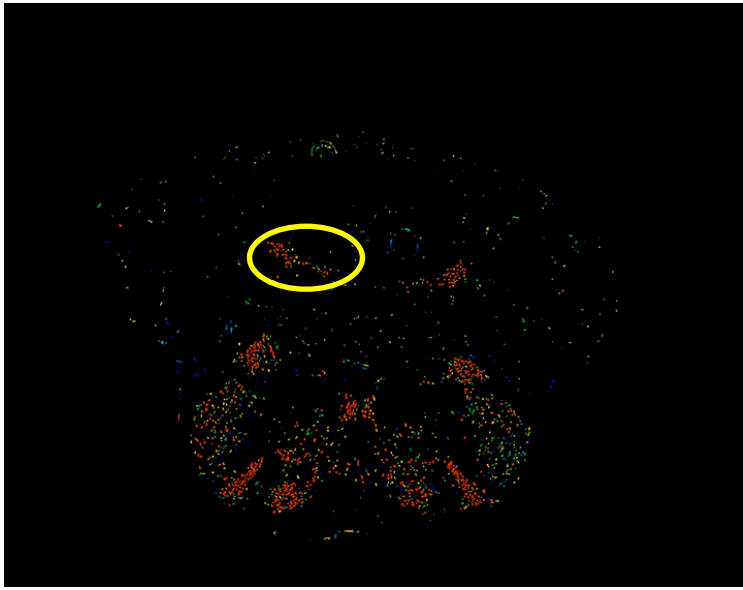
Coronal data only:
Expression threshold (4.7):

Showing page 1 of 110

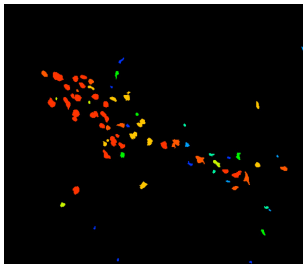
	Fold Ch...	Experi...	Gene Sy...	Gene Name	Probe Name	Orient...	Plane	Expression S...
	9.441	73930835	Cabp7	calcium binding protein 7	RP_051214_0...	Antisense	coronal	
	9.077	69672198	F5	coagulation factor V	RP_050428_0...	Antisense	sagittal	
	7.359	71280670	Esrrg	estrogen-related receptor gamma	RP_050818_0...	Antisense	sagittal	
	5.780	70301275	Sgpp2	sphingosine-1-phosphate phosphotase 2	RP_050309_0...	Antisense	coronal	
	5.722	73521000	Nxph4	neurexophilin 4	RP_051101_0...	Antisense	coronal	
	5.577	70436740	Spp1	secreted phosphoprotein 1	RP_050310_0...	Antisense	coronal	
	5.446	75651185	Spp1	secreted phosphoprotein 1	RP_060518_0...	Antisense	coronal	
	5.288	71670697	Steap2	six transmembrane epithelial antigen of pro...	RP_050512_0...	Antisense	coronal	
	5.157	74743257	Nrg1	neuregulin 1	RP_060220_0...	Antisense	coronal	
	5.114	71717686	Sh3bgrl2	SH3 domain binding glutamic acid-rich prot...	RP_050808_0...	Antisense	coronal	
	5.081	72081560	Kcng4	potassium voltage-gated channel, subfamil...	RP_051017_0...	Antisense	coronal	
	4.964	70303534	Acyp2	acylphosphatase 2, muscle type	RP_050609_0...	Antisense	sagittal	
	4.811	70813924	Kctd9	potassium channel tetramerisation domain ...	RP_050725_0...	Antisense	coronal	
	4.681	68632172	Ttr	transthyretin	RP_050125_0...	Antisense	sagittal	
	4.639	72081416	Acadl	acyl-Coenzyme A dehydrogenase, long-chain	RP_051017_0...	Antisense	coronal	
	4.322	70305592	Cabp7	calcium binding protein 7	RP_050609_0...	Antisense	sagittal	
	4.293	68667079	Slc4a2	solute carrier family 4 (anion exchanger), m...	RP_050201_0...	Antisense	sagittal	
	4.278	73930836	Emb	embigin	RP_051214_0...	Antisense	coronal	
	4.018	68845825	Kcng4	potassium voltage-gated channel, subfamil...	RP_050224_0...	Antisense	sagittal	
	3.986	79762548	S100b	S100 protein, beta polypeptide, neural	RP_071204_0...	Antisense	sagittal	
	3.972	71064290	Il16	interleukin 16	RP_050808_0...	Antisense	coronal	
	3.799	71610865	Elovl5	ELOVL family member 5, elongation of lon...	RP_050927_0...	Antisense	sagittal	
	3.730	69015350	Spp1	secreted phosphoprotein 1	RP_050310_0...	Antisense	sagittal	
	3.651	74988616	Klk6	kallikrein related-peptidase 6	RP_060315_0...	Antisense	coronal	
	3.581	69887331	Steap2	six transmembrane epithelial antigen of pro...	RP_050512_0...	Antisense	sagittal	
☑	3.496	72128747	Ankrd34b	ankyrin repeat domain 34B	RP_051017_0...	Antisense	coronal	
	3.491	73512185	Hcn2	hyperpolarization-activated, cyclic nucleotid...	RP_050705_0...	Antisense	coronal	
	3.475	74511967	Serpinb1c	serine (or cysteine) peptidase inhibitor, clad...	RP_060220_0...	Antisense	coronal	
	3.459	71668992	Panx2	pannexin 2	RP_050607_0...	Antisense	sagittal	
	3.332	75081396	Plcl1	phospholipase C-like 1	RP_060315_0...	Antisense	coronal	
	3.313	72472765	Cerk	ceramide kinase	RP_051101_0...	Antisense	coronal	

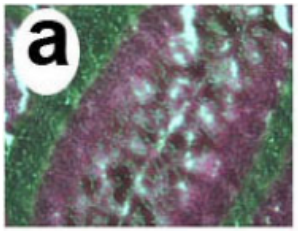
View Selections (1) | Clear Selections

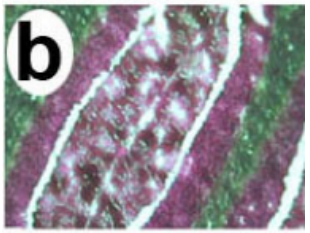
This data is also available as XML



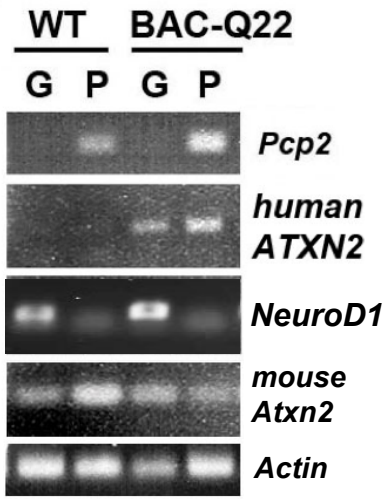
Ssp1 ISH



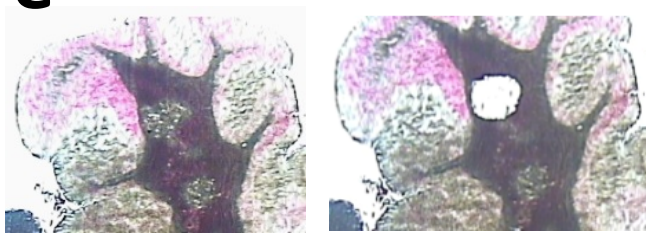




d

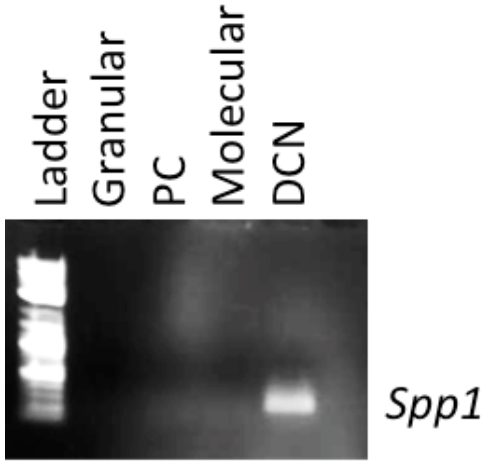


e



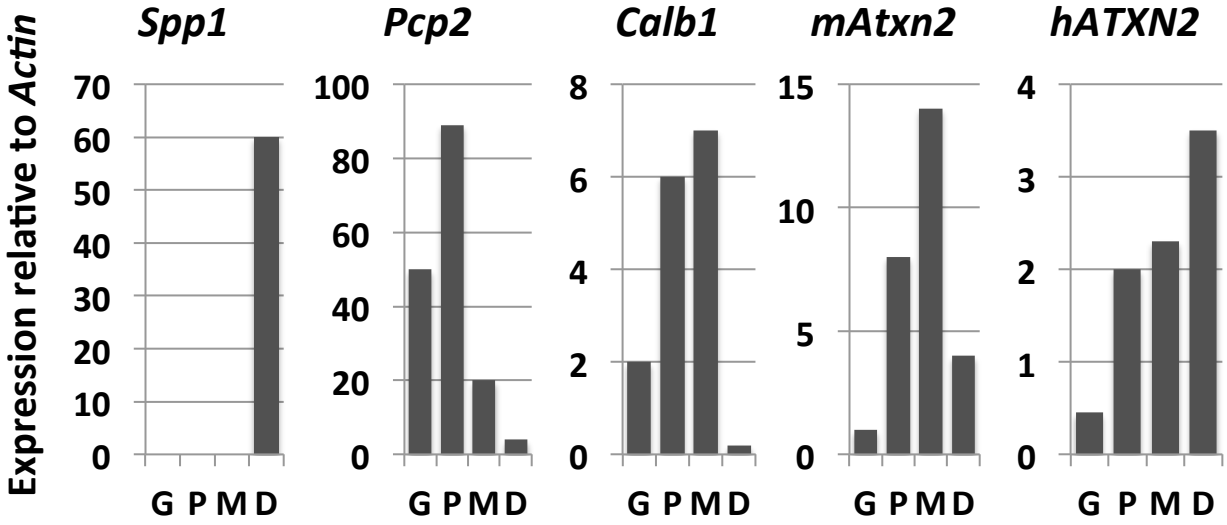
DCN Before & After LCM

f



Spp1 DCN Marker (PCR)

g

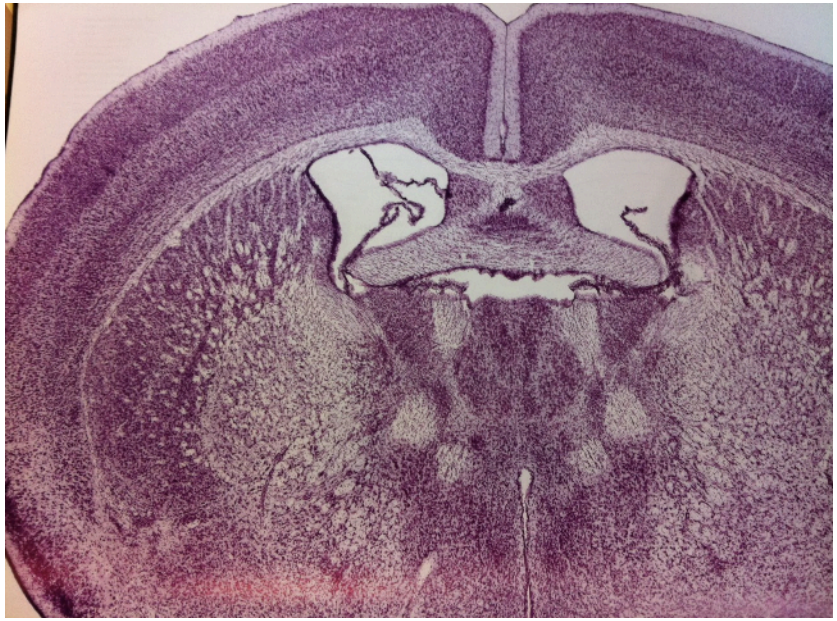


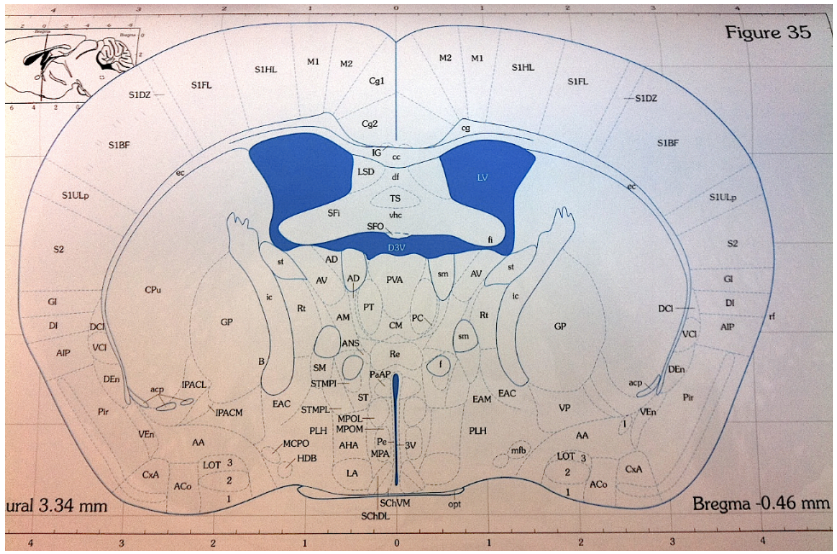
Stereotaxic Coordinates

Franklin and Paxinos

The Mouse Brain in Stereotaxic Coordinates

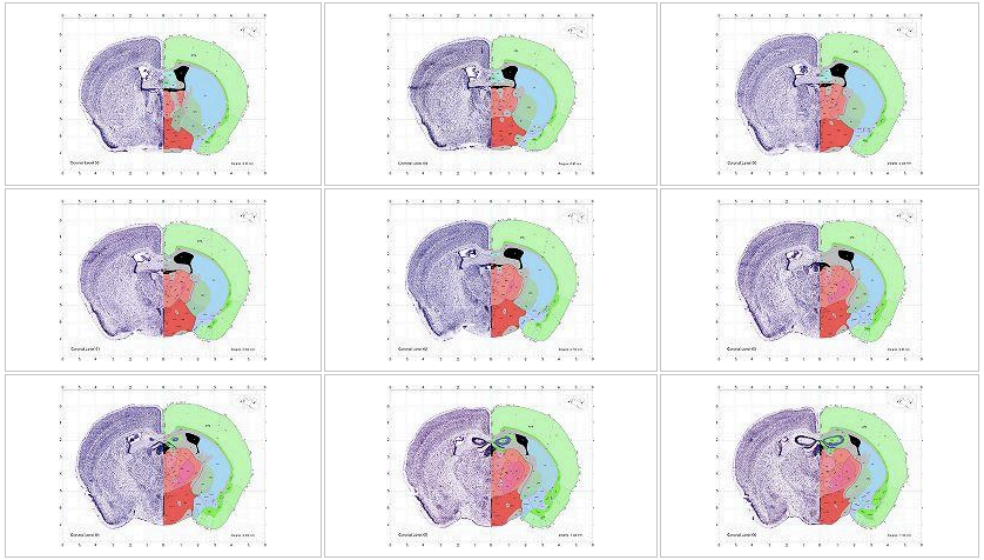
-0.46 x 1 x 2.5

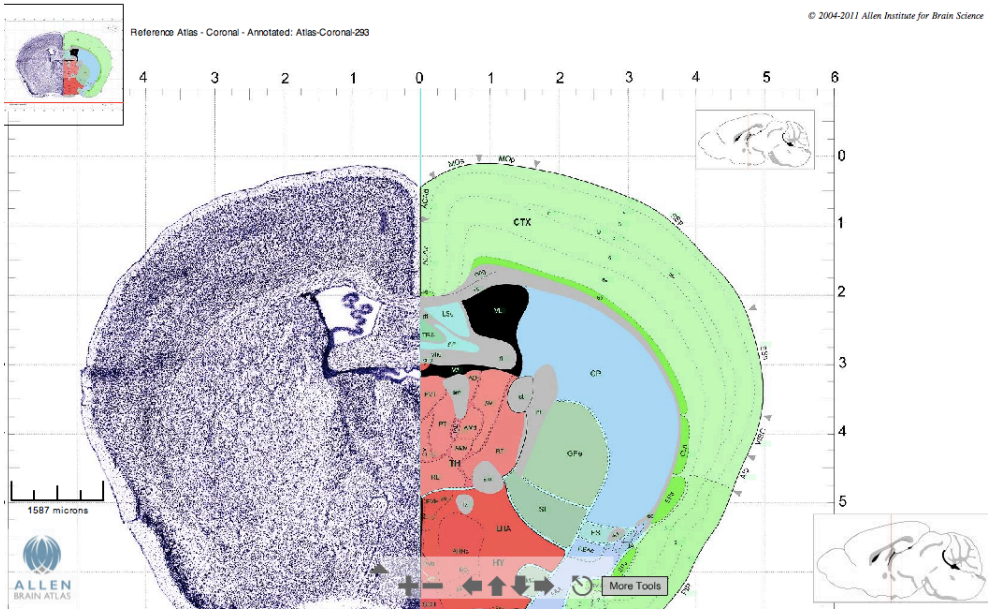




Allen Atlas

-0.48 x 1 x 2.5





http://help.brain-map.org/download/attachments/2818171/InjectionSites_and_StereotaxicCoordinates.pdf?version=1&modificationDate=1382469912361

ALLEN **Mouse Brain Connectivity Atlas**

TECHNICAL WHITE PAPER:
INJECTION SITES AND STEREOTAXIC COORDINATES

Table 1. Stereotaxic coordinates used for axonal projection mapping study.

Brain region (primary structure infected by rAAV)	Reference atlas acronym	Mouse strain	Experiment ID	AP	ML	DV	Angle°
Abducens nucleus	VI	Chat-IRES-Cre	168616111	-5.52	0.50	3.75	0
Accessory olfactory bulb	AOB	C57BL/6J	120812686	3.20	1.00	1.40	0
Accessory olfactory bulb	AOB	Syt17-Cre_NO14	161178152	3.00	1.00	1.50	0
Accessory olfactory bulb	AOB	Cdhr1-Cre_KG66	182686228	3.08	1.00	1.75	0
Accessory olfactory bulb	AOB	Gad2-IRES-Cre-1210	266563321	3.08	1.00	1.75	0
Accessory olfactory bulb	AOB	Efr3a-Cre_NO108-31	267760731	2.80	1.25	1.30, 1.67	0
Accessory olfactory bulb	AOB	378-1882	272918345	3.70	1.50	0.40	0
Agranular insular area	AI	C57BL/6J	112596790	1.78	2.40, 2.80	2.24	0
Agranular insular area	AI	Htr2a-Cre_KM207-3446	262536037	1.78	2.40, 2.80	2.25	0
Agranular insular area, dorsal part	AId	Ntsr1-Cre_GN220	159322514	1.78	2.40, 2.80	2.24	0