

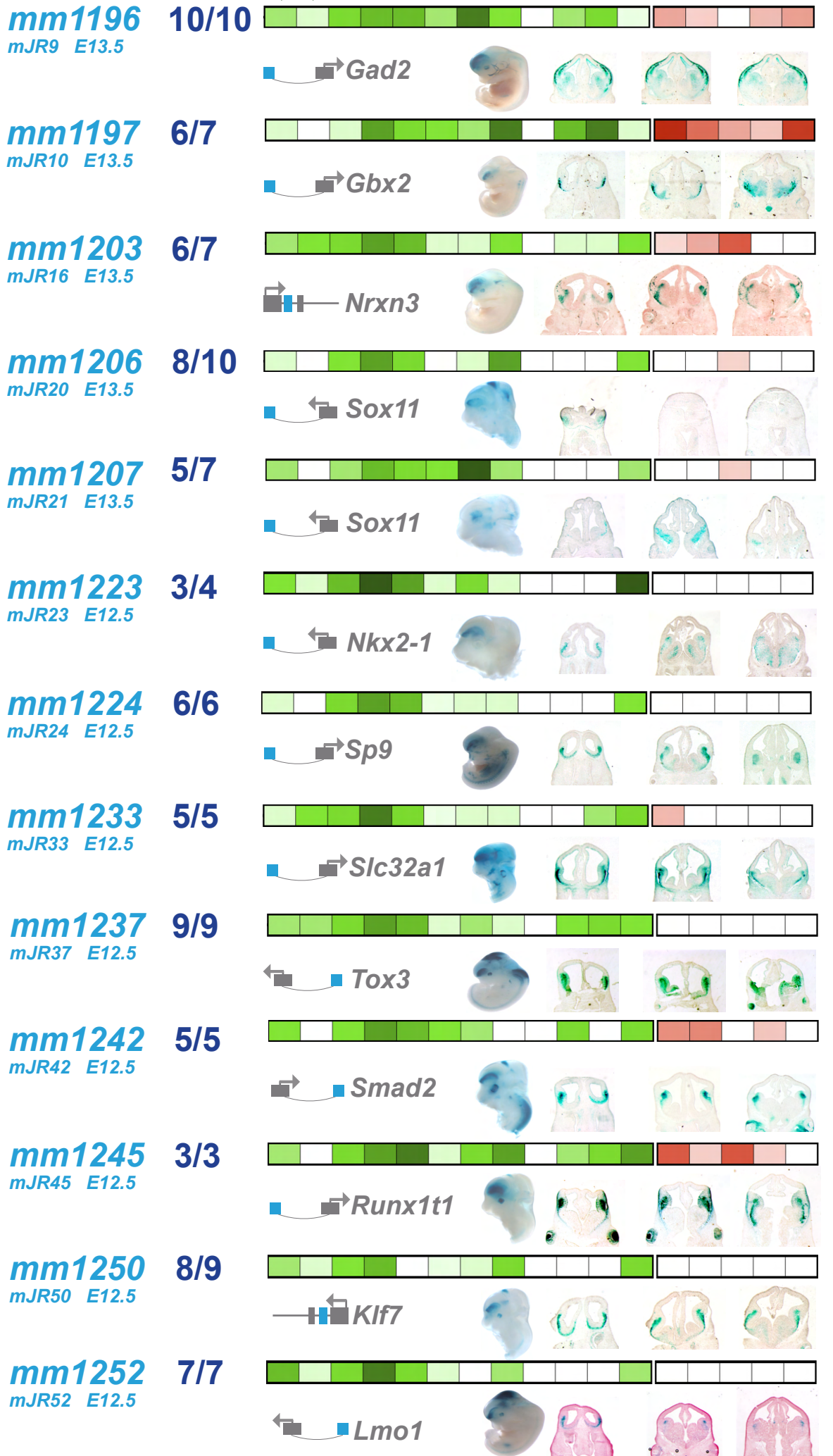
Supplementary Figure S4

Summary of results for 84 pREs characterized here via transgenic mouse assays.

VISTA enhancer name (*mmXXXX*) is written in light blue to the left, below is internal enhancer name (*mJRXX*) as well as age of the stained and sectioned embryos. The success ratio is listed in dark blue to the right of the name (6/7 depicts 6 embryos with forebrain activity out of 7 embryos tested in total). Green and red bars show the normalized ChIP-seq signal of TFs in either BG (green, E13.5) or from cortex (CX, red, E12.5) TF ChIP-seq¹. Darker color represents a stronger ChIP-Seq peak. The specific TF used in the ChIP-Seq experiments are shown at the top. Below each bar is a schema showing the tested enhancer location in light blue relative to the regulated gene, generally defined via H3K4me3 PLAC-seq interaction. The grey arrow depicts the orientation of target gene transcription. To the right of the gene schema is a wholemount (WM) of a representative of the *LacZ* expression, next to the WM are three sections of the specific WM shown. Only the WM are shown for pREs not having clearly reproducible *LacZ* activity in the forebrain. The pREs are listed based on their cluster number (bold numbers to the left, i.e., 1_D first, 2_D second, etc.) and within each cluster number the enhancers are sorted by activity: exclusively subpallium first (light green bar to the right), subpallium+pallium second (purple bar to the right), and exclusively pallium last (dark pink bar to the right). pREs marked with an * were not included in further studies due to a positive rate below 30%. *mm1199*, *mm1276*, *mm1422*, *mm1423*, *mm1437*, *mm1787*, *mm1788*, *mm1804*, *mm1814*, *mm1816*, *mm1819* are published in ¹; *mm1196* is published in ²; *mm1203* is published in ³; *mm1428* and *mm1429* are published in ⁴. Full transgenic enhancer assay results available at <https://enhancer.lbl.gov>.

1. Ypsilanti, A. R. *et al.* Transcriptional network orchestrating regional patterning of cortical progenitors. *Proc. Natl. Acad. Sci.* **118**, e2024795118 (2021).
2. Pla, R. *et al.* Dlx1 and Dlx2 Promote Interneuron GABA Synthesis, Synaptogenesis, and Dendritogenesis. *Cereb. Cortex* **28**, 3797–3815 (2018).
3. Lindtner, S. *et al.* Genomic Resolution of DLX-Orchestrated Transcriptional Circuits Driving Development of Forebrain GABAergic Neurons. *Cell Rep.* **28**, 2048-2063.e8 (2019).
4. Sandberg, M. *et al.* Transcriptional Networks Controlled by NKX2-1 in the Development of Forebrain GABAergic Neurons. *Neuron* **91**, 1260–1275 (2016).

1_D

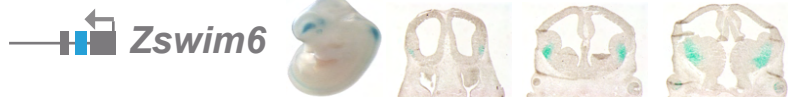


Subpallium

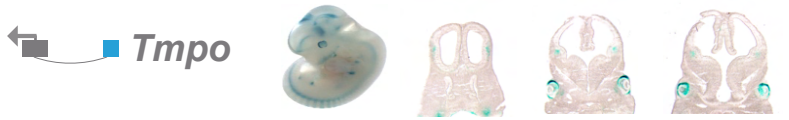
1_D

mm1253 3/3
mJR53 E12.5

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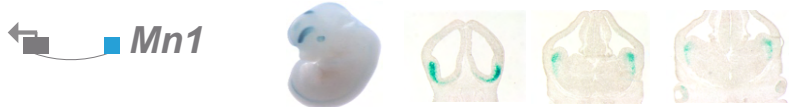
mm1257 4/10
mJR57 E12.5



mm1262 3/4
mJR62 E12.5



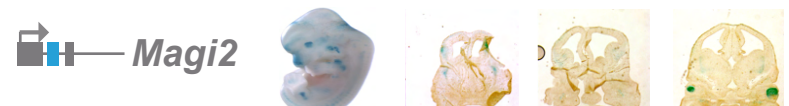
mm1263 8/9
mJR63 E12.5



mm1266 5/5
mJR66 E12.5



mm1272 3/6
mJR72 E12.5



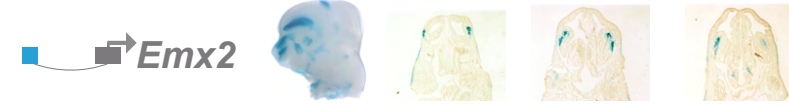
mm1428 3/3
mJR122 E12.5



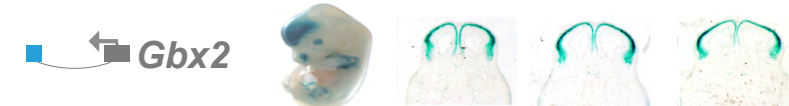
mm1793 3/3
mJR128 E12.5



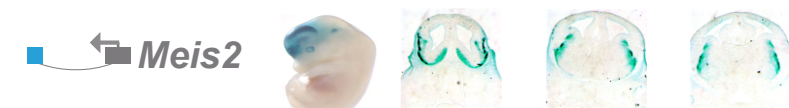
mm1816 5/8
mJR115 E12.5



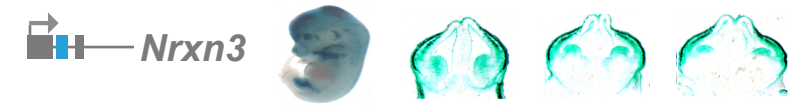
mm1198 2/5
mJR11 E13.5



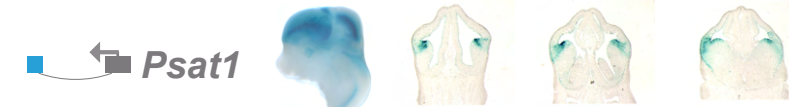
mm1200 7/8
mJR13 E13.5



mm1202 2/3
mJR15 E13.5



mm1230 2/5
mJR30 E12.5



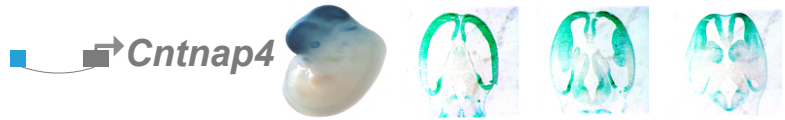
Subpallium

Subpallium + Pallium

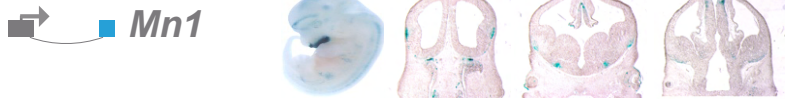
1_D

mm1234 3/3
mJR34 E12.5

ARX ASCL1 DLX1 DLX2 DLX5 GSX2 LHX6 NKX2-1 NR2F1 OTX2 PBX1 SP9 **EMX2** **LHX2** **NR2F1** **PAX6** **PBX1**



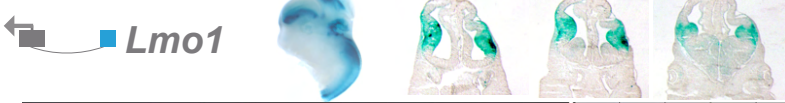
mm1264* 2/12
mJR64 E12.5



mm1273 4/5
mJR73 E12.5



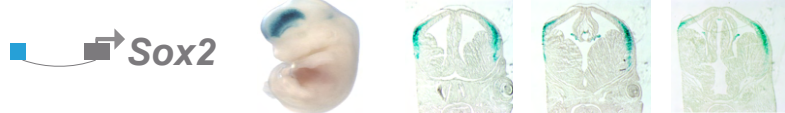
mm1788 5/6
mJR91 E12.5



mm1801* 2/10
mJR136 E12.5



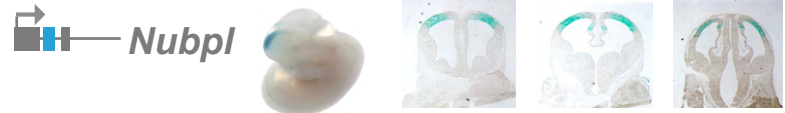
mm1208 13/13
mJR22 E13.5



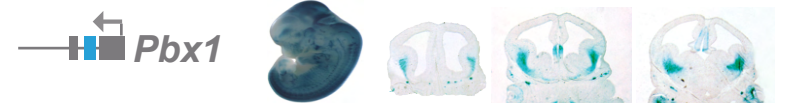
mm1244 5/5
mJR44 E12.5



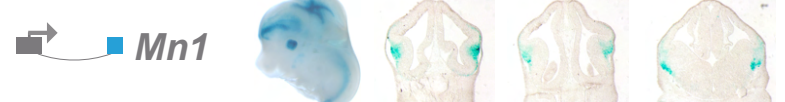
mm1256 4/5
mJR56 E12.5



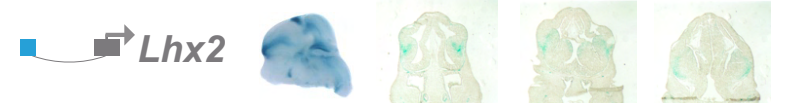
mm1226 5/8
mJR26 E12.5



mm1249 4/5
mJR49 E12.5



mm1422 4/12
mJR104 E12.5



mm1429 15/15
mJR123 E12.5



2_D

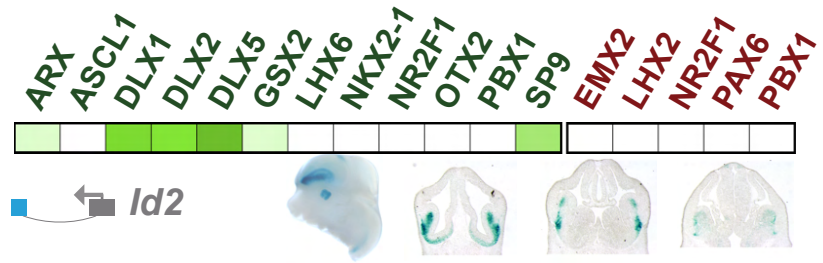
Subpallium + Pallium

Pallium

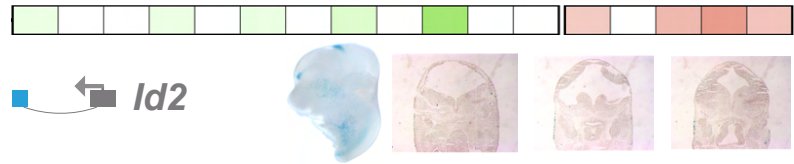
Subpallium

2D

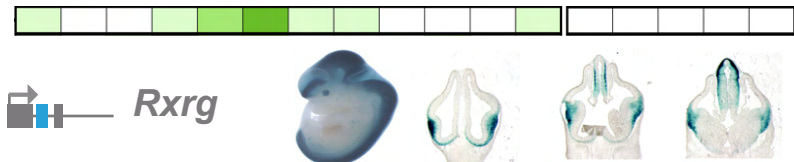
mm1795 4/6
mJR130 E12.5



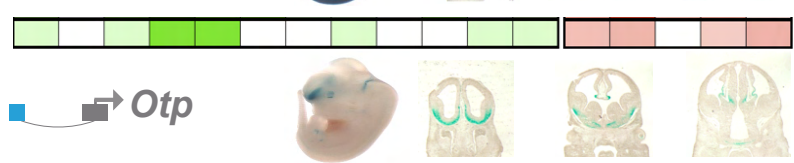
mm1796 1/3
mJR131 E12.5



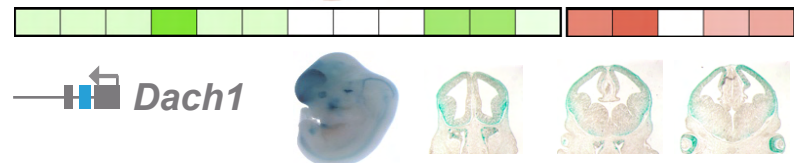
mm1239 7/11
mJR39 E12.5



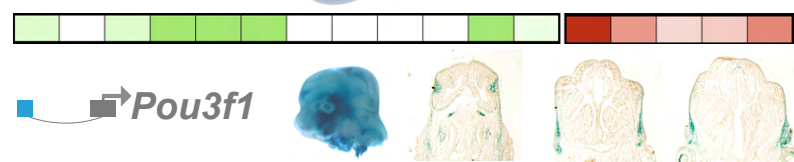
mm1275 7/8
mJR75 E12.5



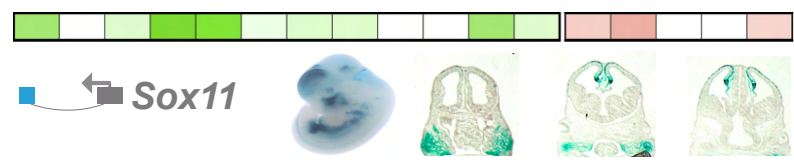
mm1276 6/6
mJR76 E12.5



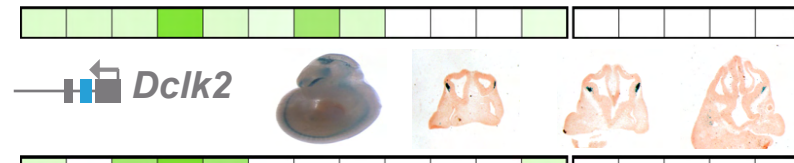
mm1804 3/6
mJR140 E12.5



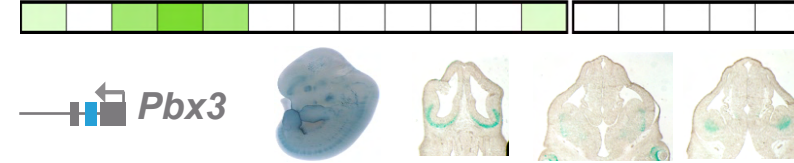
mm1280 5/5
mJR80 E12.5



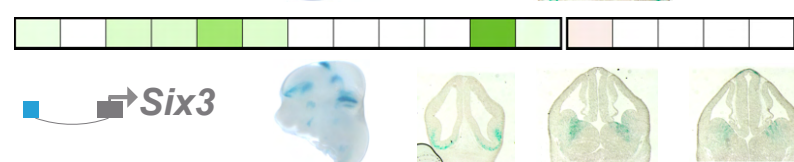
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mJR6 E11.5



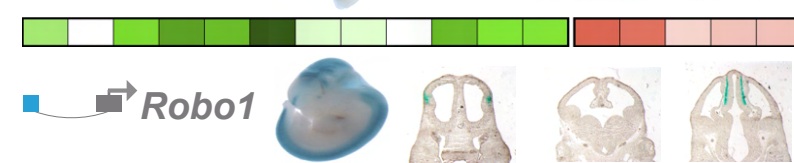
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mJR27 E12.5



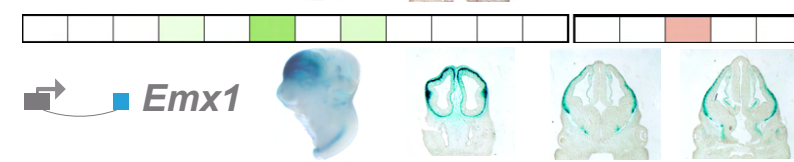
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mJR141 E12.5



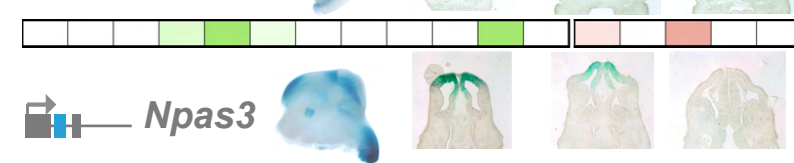
mm1228 3/7
mJR28 E12.5



mm1815 4/12
mJR112 E12.5



mm1790* 1/7
mJR97 E12.5



Suppallium

Subpallium + Pallium

Pallium

Subpallium

Subpallium + Pallium

Pallium

3D

4_D

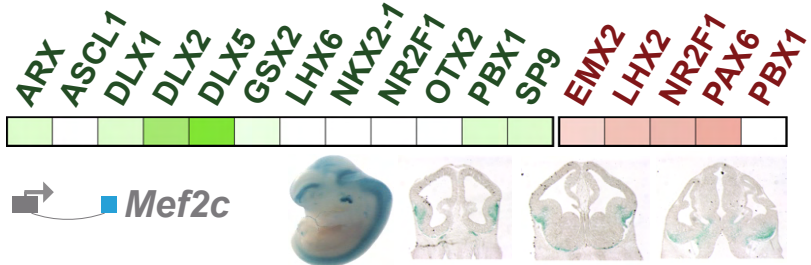
9_D

4_D + 15_D

2_P

mm1240 4/6

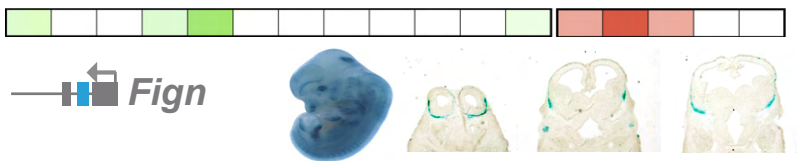
mJR40 E12.5



Subpallium

mm1281 4/5

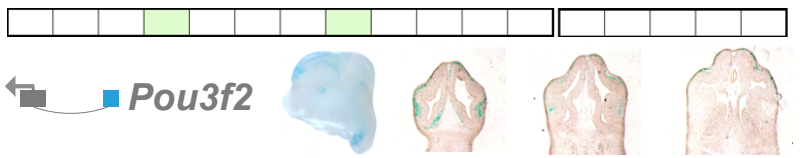
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Subpallium + Pallium

mm1803 1/3

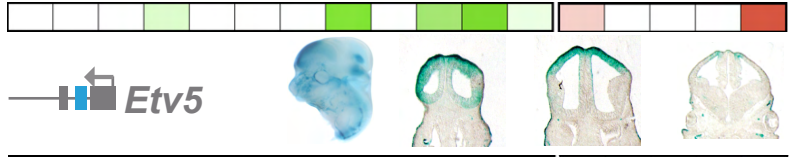
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Subpallium + Pallium

mm1787 4/4

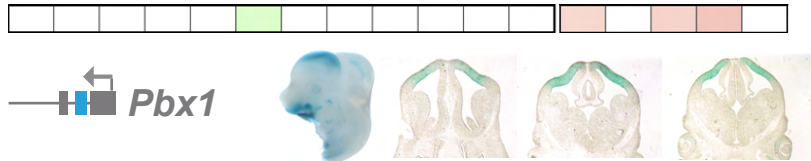
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Subpallium + Pallium

mm1820* 2/7

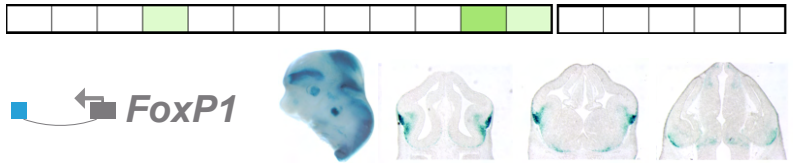
mJR120 E12.5



Pallium

mm1794* 1/8

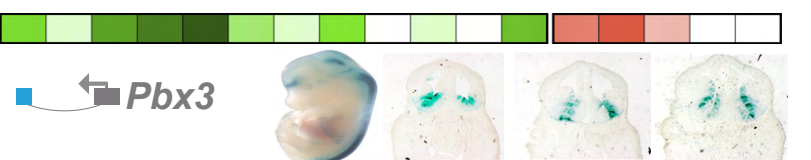
mJR129 E12.5



Subpallium + Pallium

mm1205* 2/10

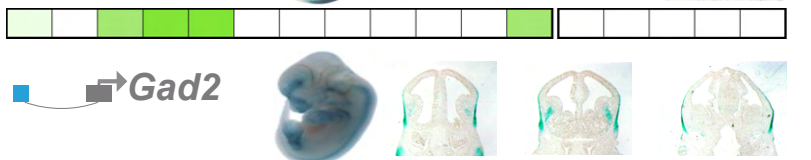
mJR18 E13.5



Subpallium

mm1235* 1/9

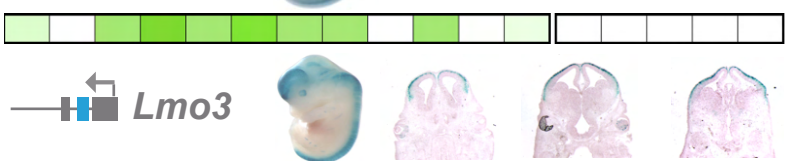
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Subpallium

mm1199 7/8

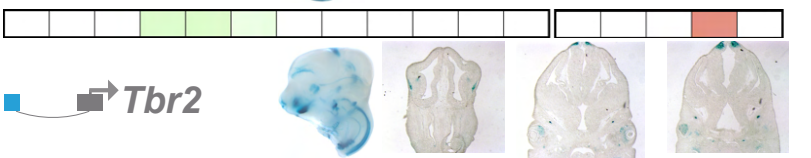
mJR12 E13.5



Subpallium + Pallium

mm1809 3/5

mJR87 E12.5



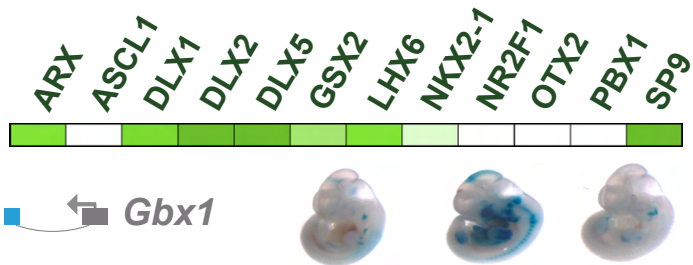
Subpallium + Pallium

ARX ASCL1 DLX1 DLX2 DLX5 GSX2 LHX6 NKX2-1 NR2F1 OTX2 PBX1 SP9 EMX2 LHX2 NR2F1 PAX6 PBX1

1_D

mm1191

mJR04 E11.5

**mm1194**

mJR07 E11.5

**mm1225**

mJR25 E12.5

**mm1255**

mJR55 E12.5

**mm1260**

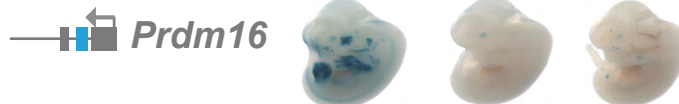
mJR60 E12.5

**mm1261**

mJR61 E12.5

**mm1270**

mJR70 E12.5

**mm1806**

mJR83 E12.5

**mm1241**

mJR41 E12.5

**mm1271**

mJR71 E12.5

**mm1274**

mJR74 E12.5

**mm1279**

mJR79 E12.5

**mm1437**

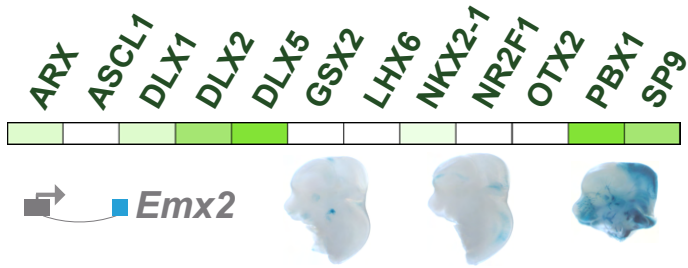
mJR110 E12.5



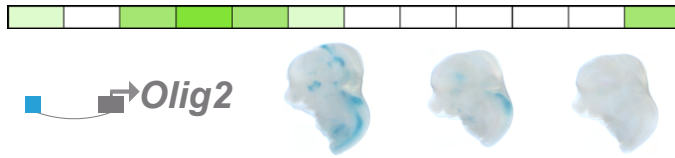
2_D

2_D

mm1792
mJR127 E12.5



mm1799
mJR134 E12.5

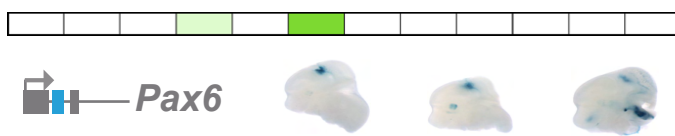


mm1800
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3_D

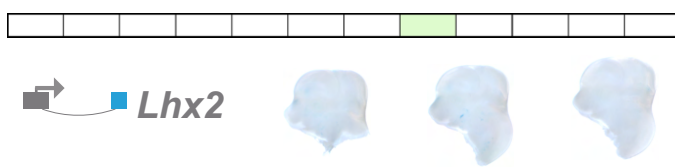
mm1423
mJR109 E12.5



mm1756
mJR114 E12.5



mm1814
mJR107 E12.5



7_D

mm1802
mJR138 E12.5



mm1808
mJR86 E12.5



9_D

mm1819
mJR119 E12.5



16_D

mm1791
mJR126 E12.5

