Marmoset Gene Atlas

HELP

Viewing Gene Expression Data

The Marmoset gene Atlas offers the following ways for you to find gene expression data:

- Use Gene Search to locate a gene's data by name, symbol, NCBI accession number, or Entrez Gene ID. (2016 Apr)

Gene Search

Select age (neonate, 1-3 month, Young adult and Adult) of your interest. To search for a specific gene by name, symbol, NCBI accession number, or Entrez gene ID, type your query into the text box. As you type, genes that match your search string will be suggested to you. Select an item from the list and click the "Search ⬚ " icon. The results are displayed in a list that shows all genes with expression data that match your query.

Gene Classification

The gene classification box lists the names of several human brain diseases. When you select one of the diseases and click the search icon, it will display a list of ISH data of genes that have an association with the selected disease. The information for gene-association of human brain diseases is collected by using the Human–Mouse: Disease Connection (HMDC) in MGI (http://www.informatics.jax.org).

Dual Screen Image Viewer System

The experiment image viewer displays images for each selected ISH section in a viewer. You can zoom in by clicking (+) or by double clicking the location you want to observe higher magnification. To zoom out, click the (-) button or refresh ⬚ icon. To observe a different section, scroll the bar under the thumbnail images to the right to show more posterior sections and click the desired thumbnail image to display a high-resolution image in the viewer. To switch the screen to observe all sections, click the ⬚ icon to switch the screen. Once you select the image to show in the viewer, the corresponding Reference Atlas section will be displayed side-by-side. You can move the position of the section by dragging the image to the location you want to move to. The reference atlas is synchronized to zoom in, or move with any action you made on the ISH image. This view makes it easy to compare ISH data and the equivalent section of the Reference Atlas. You can also desynchronize the ISH image and the Reference Atlas to compare different sections or different

positions of sections by clicking the "Thumbnail Sync ON/OFF" icon and the "Image Sync ON/OFF" icon. You can download ISH images by clicking the

icon.   Select "current view" or "entire image" and download the image to your computer.

Quantitative Expression Analysis

To quantify the average expression level of mRNA in different regions of the neonate marmoset brain, tissues from 17 regions were manually dissected from 4 marmosets (7 regions from left/right hemisphere respectively (Fig), thalamus, midbrain and cerebellum). mRNA were isolated using an mRNA isolation kit with the manufacturer's protocol and applied to Next-Generation Sequencing (NGS) by Expression Analysis team (the Go lab).   Data obtained from each sample were analyzed and plotted by using RStudio software.
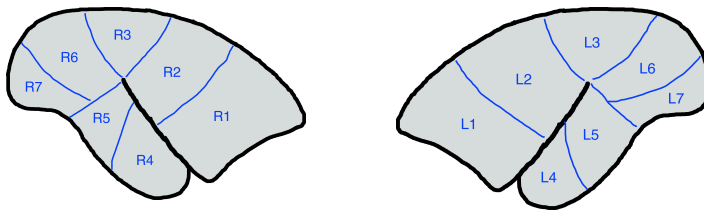

Fig. Approximate position of cortical region collected for NGS analysis.

Experimental Detail

Detailed information of each ISH experiment is shown in each window. The primer sequence to isolate the target sequence and the entire sequence used to generate the DIG-labeled probe is shown. The NCBI accession number is linked to the NCBI web site.