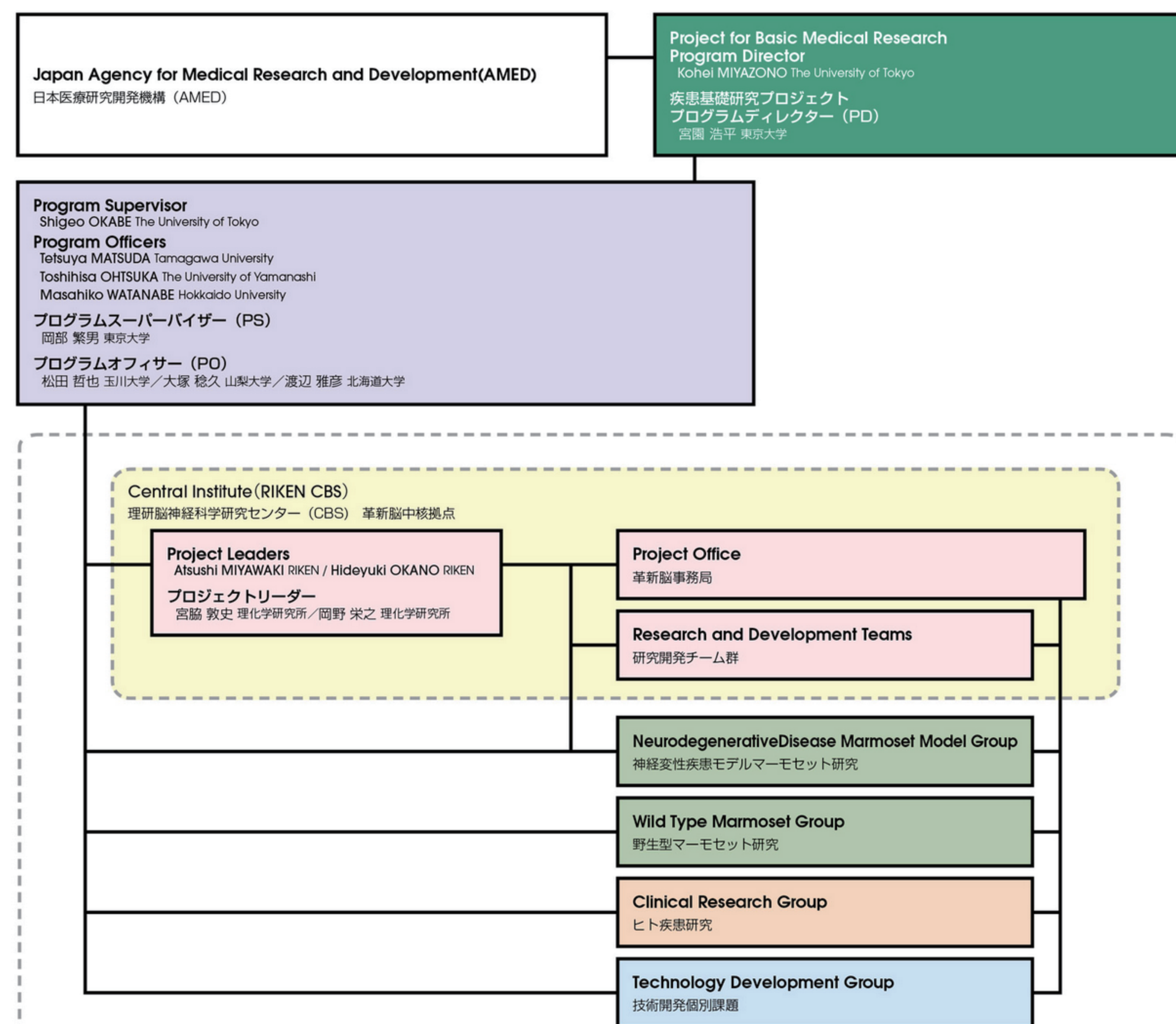# Brain/MINDS Data Portal

Brain/MINDS Project Overview

The Brain/MINDS project was launched in 2014. The aims of this project are overcoming human mental and neurological disorders and advancing information processing technology.

The Brain/MINDS project is working primarily with small monkeys, called common marmosets, to elucidate the neural circuits responsible for higher brain functions in primates. Common marmosets are evolutionarily closer to humans than to other mammals such as mice and rats, and have a well-developed frontal lobe, which is responsible for higher brain functions, and a brain structure and function similar to humans. Therefore, it is possible to study disease-related neural circuits in detail in the common marmoset, which is expected to contribute to a more detailed understanding of the mechanisms of human diseases and the development of new treatment methods.

In addition, the structural and functional data of the marmoset brain obtained through this project will be made public and shared with researchers around the world, contributing to the development of data-driven science and the advancement of information processing technology.
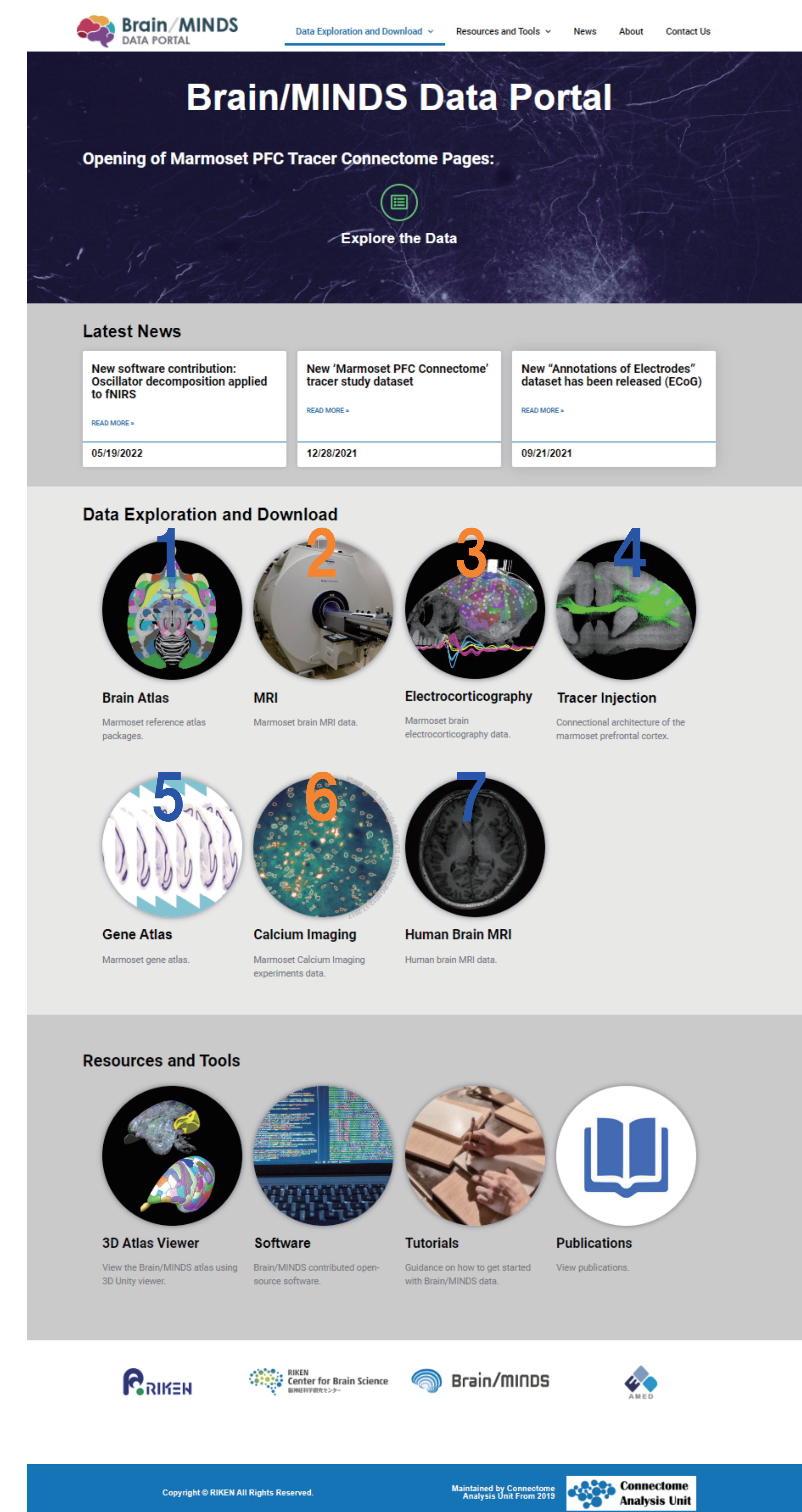
Organization

as of Jun. 1, 2022

Brain/MINDS Data Portal Overview

The Brain/MINDS Data Portal has been launched for sharing the data and knowledge being produced in the Brain/MINDS project. The portal aims to provide integrated knowledge for public use and original data for open research and collaboration.

1. Marmoset Brain Atlas

These atlases use different brain shapes as their bases, which we term 'brain spaces'. (1) BMA2017 Ex Vivo : Covers over 200 cortical and subcortical regions. Cellular-level anatomical data and MRI data are placed in the same space. (2) BMA2019 Ex Vivo : An update that includes a cortical flat map space for 2D visualizations. In addition, 3D transformation is possible to move back.

2. Marmoset Brain MRI

Macro-level structural and functional mapping of marmoset neural circuitry using an ultra high field MRI machine. The following two datasets are available. (1) Age-Specific Averaged Image Dataset and (2) Developmental Age-Specific Brain Templates Dataset.

3. Electrocorticography (EcoG)

Measurement of extracellular potentials with up to 96 channels per individual marmoset, large scale and highly sensitive recording. The following two ECoG datasets are available. (1) response data to optogenetic stimuli and (2) auditory response.
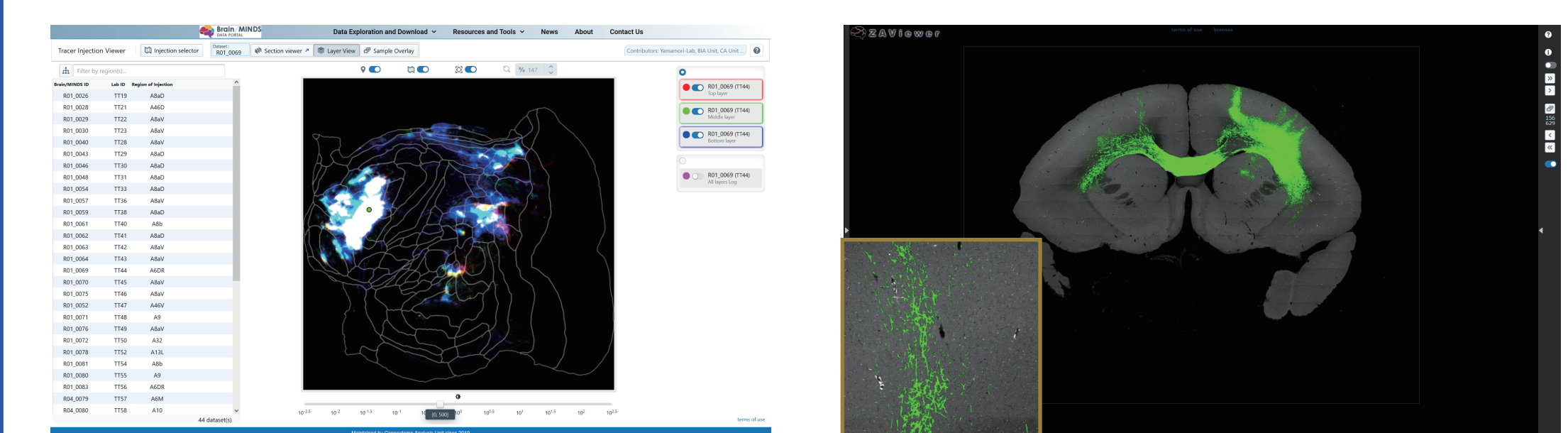
4. PFC Tracer injection Data

Brain-wide, connectomics mapping of the marmoset PFC projections using serial two-photon tomography imaging. PFC tracer injection data from 44 locations are available.


**Flatmap Viewer**   **Zooming Viewer**

5. Marmoset Gene Atlas (MGA)

Mapping mRNA expression at the cellular level with ISH. Gene expression data of more than 2,000 newborn brains are available. The data of gene expression in adult brain will be released sequentially. Search tools are available as follows. (1) Expression analysis by specific brain region, (2) Search function from disease related genes. (3) Search function based on gene function.
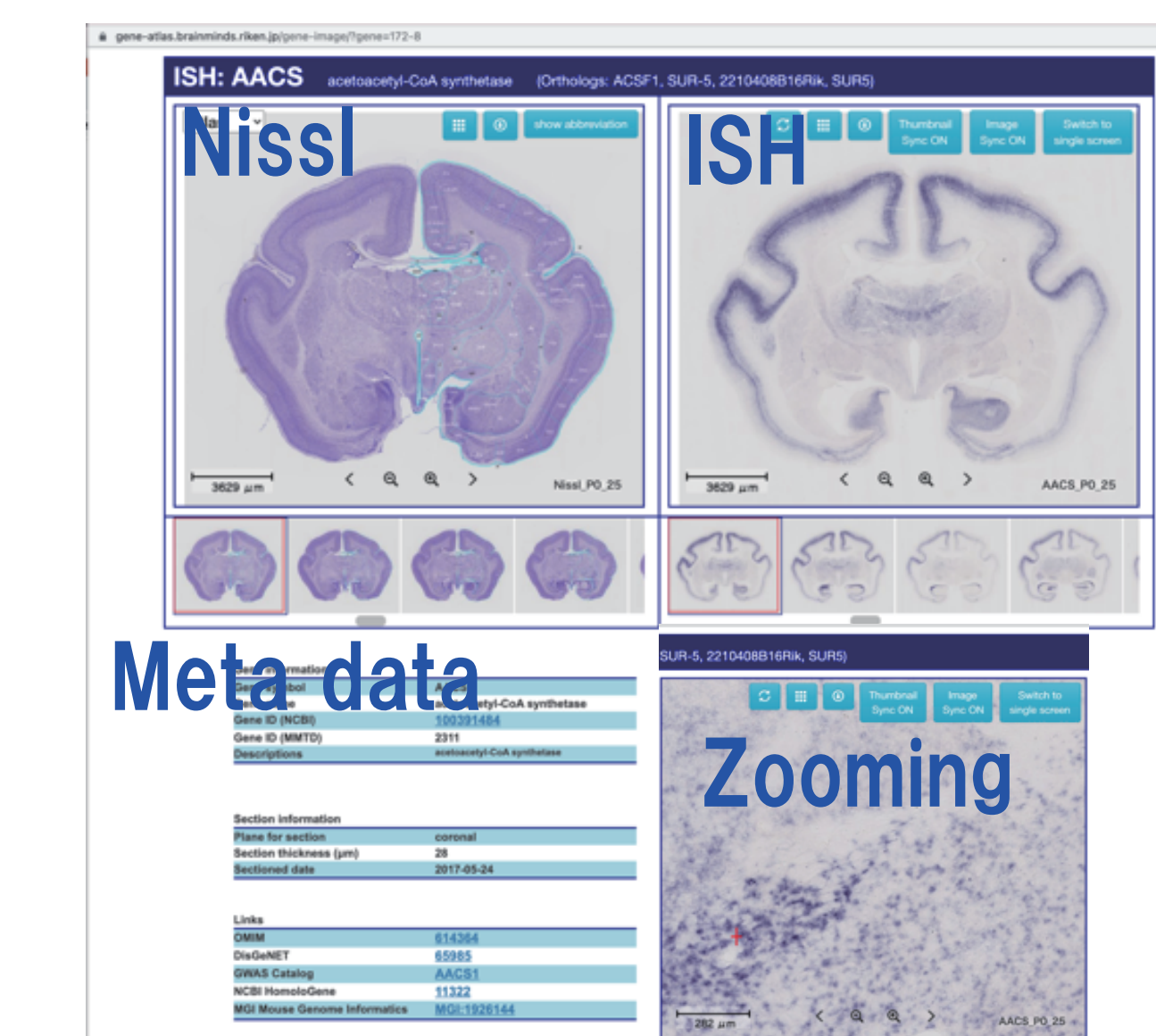
6. Calcium Imaging
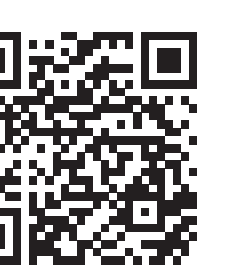
Neuronal population activity data recorded during naturalistic behavior of common marmosets. Calcium imaging data was collected with a miniature microscope in the motor cortex of two common marmosets.

7. Human Brain MRI

Human brain images obtained with 3T MRI. The dataset includes T1-weighted images of patients with schizophrenia, those with major depressive disorder, and those with bipolar disorder, as well as of healthy controls.

Structural data
Functional data

Brain/MINDS Data Portal
https://dataportal.brainminds.jp/