Regarding the stereotaxic coordinates in developing brain

While developmental age-specific brain templates were constructed based on the space of the population-averaged template¹, morphological differences between adult brain and brain in early development exist. To address it, stereotaxic coordinates for the developing brain at the age of 12 months, 6 months, 3 months, and 1 month were defined. The template was constructed based on the age-specific stereotaxic space.

1. Acquisition of in vivo MR images

The parameters were as follows:

T1WI: using an optimized magnetization-prepared rapidly acquired gradient-echo sequence: repetition time/echo time: 14/35 ms; inversion time: 1500 ms; time to decay: 3450 ms; 50 \times 50 \times 32.4 mm field of view on a 192 \times 192 \times 120 matrix; flip angle: 30°; number of segments: 2; and number of averages: 1; plane resolution; 0.26 mm \times 0.26 mm, slice thickness; 0.27 mm.

T2WI: using a rapid acquisition with relaxation enhancement sequence:

repetition time/echo time echo = 6500/48.0 ms;, $50 \times 50 \times 32.4$ mm field of view on a 256 x 256 x 54 matrix; number of averages; 3, RARE factor; 8, plane resolution; 0.2 mm x 0.2mm, and slice thickness; 0.6 mm.

2. Stereotaxic coordinates

The animals were placed on a stereotaxic frame (SR-6C-HT, Narishige Co., Ltd., Tokyo, Japan). A horizontal carbon lead (0.5 mm in diameter; 4HB; PILOT-JAPAN Co., Ltd Tokyo, Japan) was inserted caudorostrally 2 mm to the left of the mid-sagittal plane and 10 mm superior to the ear bar carefully using the manipulator (Thorlabs Japan,Inc., Tokyo, Japan).

3. Acquisition of post-mortem MR images

T2WI: using a rapid acquisition with relaxation enhancement sequence: repetition time/echo time echo; 13000/20 ms, $42 \times 30 \times 28$ mm field of view on a 210 x 150 x 140 matrix; number of averages; 10, RARE factor; 4, isotropic resolution of 0.2 mm³.

4. In vivo image registration to the stereotaxic brain

The *in vivo* MR images were registered to the postmortem MR image in stereotaxic coordinates using the script 'antsaffine.sh' with a rigid body model (Advanced Normalization Tools, version 2.1.0; http://stnava.github.io/ANTs/).

¹Hikishima K, Quallo MM, Komaki Y, Yamada M, Kawai K, Momoshima S, Okano HJ, Sasaki E, Tamaoki N, Lemon RN, Iriki A, Okano H. Population-averaged standard template brain atlas for the common marmoset (Callithrix jacchus). Neuroimage, 54: 2741–2749, 2011.