SUPPORTING INFORMATION

Automatic Registration of Mass Spectrometry Imaging Datasets to the Allen Brain Atlas

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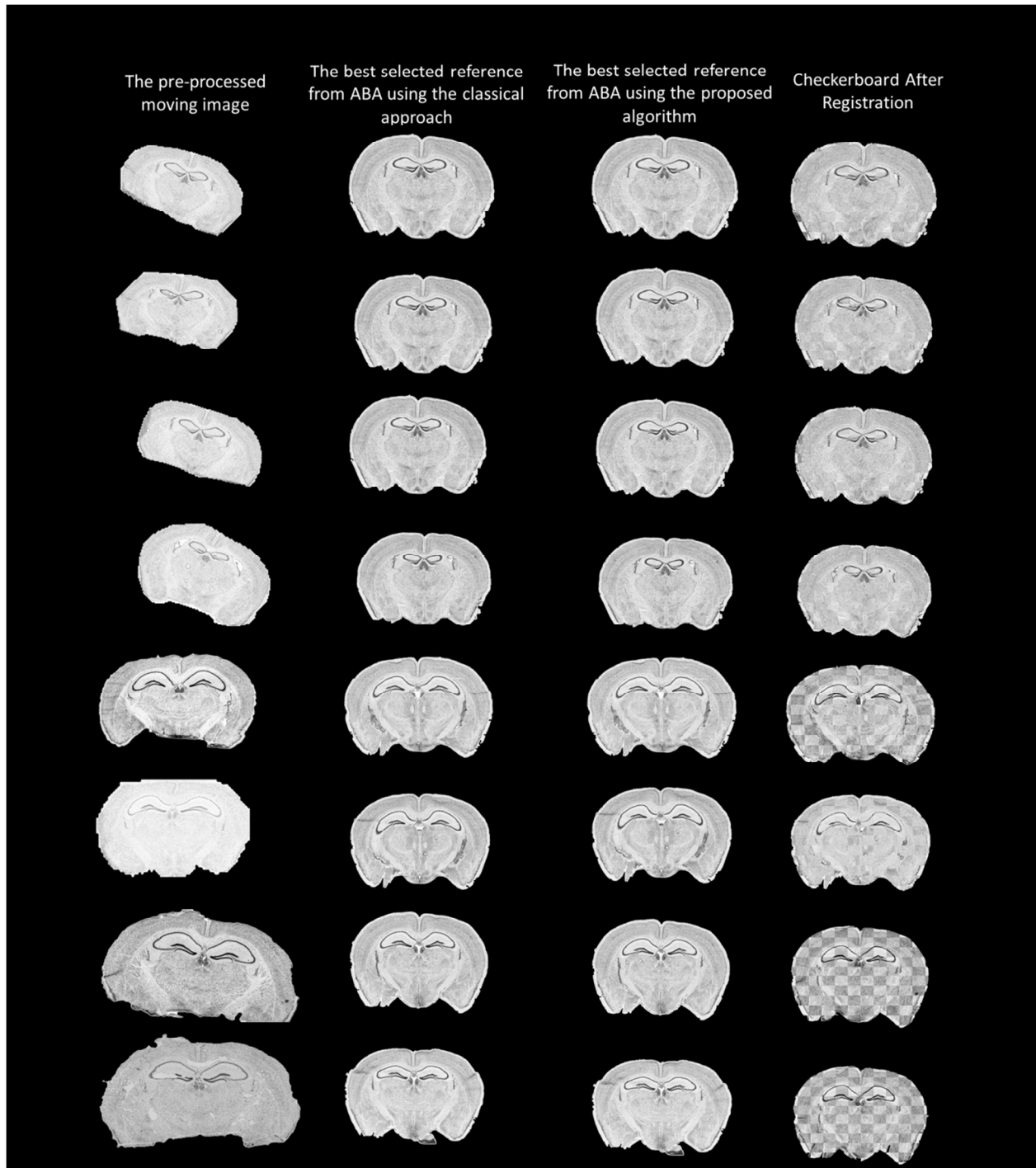
Table of contents

Figure S-1: Evaluation of the best reference selection from the ABA's ROI. The evaluation of the proposed algorithm to select the best reference section from the extracted region of interest (ROI) from the Allen Brain Atlas was done by comparison to the classical computationally expensive approach. In the classical approach, the given experimental section is registered to each of those 14 images of the ROI and the image with the best similarity measure is selected as the best reference. As the entire search space of the ROI is considered in this approach, then the

best selected reference is considered as the ground truth, however, this is a computationally expensive method. To reduce the computational complexity of the classical approach, we proposed a novel algorithm (See section 3.1 in the manuscript) in which the search space was effectively reduced to 3 instead of 14 images. A test set of 8 coronal sections from 8 mice was used to test the algorithm. The results were promising since the accuracy achieved with the new algorithm was the same as with the classical approach but 4X faster.
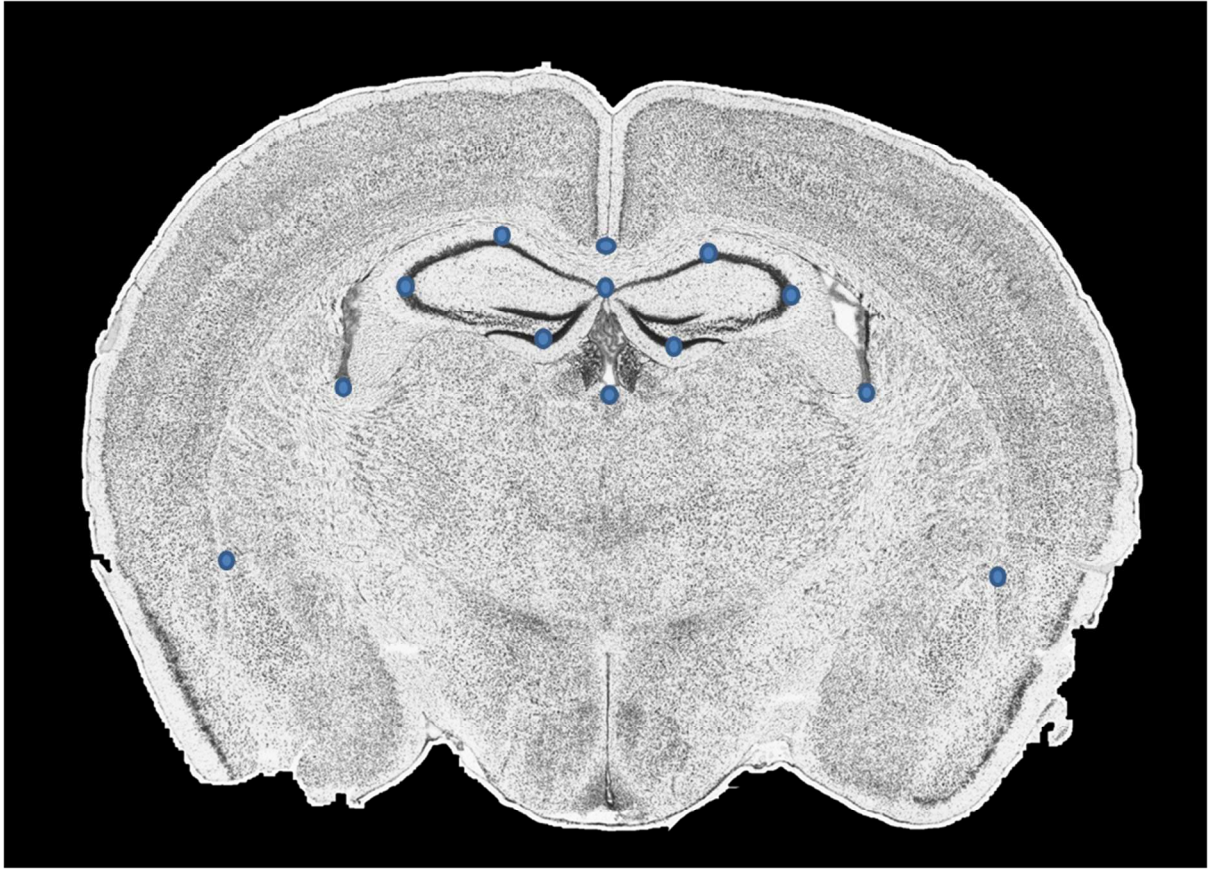
Figure S-2: Quantitative estimation of the performance of the registration process. A series of control points were used to calculate the Euclidian distances before and after registration.