

QA protocol: P2A_C3H_M5

Johannes Müller^{1,2,†}, Theresa Suckert^{1,3,†}, Elke Beyreuther^{1, 4}, Moritz Schneider¹, Marc Boucsein⁵, Elisabeth Bodenstein^{1, 2}, Liane Stolz-Kieslich^{1, 2}, Mechthild Krause^{1,2,3, 6, 7}, Cläre von Neubeck^{1, 3, 8}, Robert Haase⁹, Armin Lühr^{1, 2, 3, 10 #}, and Antje Dietrich^{1,3,*,#}

¹*OncoRay - National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, 01309, Germany*

²*Helmholtz-Zentrum Dresden-Rossendorf, Institute of Radiooncology - OncoRay, Dresden, 01309, Germany*

³*German Cancer Consortium (DKTK), Partner Site Dresden, and German Cancer Research Center (DKFZ), Heidelberg, 69120, Germany*

⁴*Helmholtz - Zentrum Dresden - Rossendorf, Institute of Radiation Physics, Dresden, 01328, Germany*

⁵*Clinical Cooperation Unit Radiation Oncology, German Cancer Research Center (DKFZ), and Department of Radiation Oncology, Heidelberg University Hospital, Heidelberg, 69120, Germany*

⁶*Department of Radiotherapy and Radiation Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Dresden, Germany*

⁷*National Center for Tumor Diseases (NCT) Dresden, Dresden, 01307, Germany*

⁸*Department of Particle Therapy, University Hospital Essen, University of Duisburg-Essen, Essen, Germany*

⁹*DFG Cluster of Excellence Physics of Life, TU Dresden*

¹⁰*TU Dortmund, Dortmund, Germany*

[†]*these authors share first-authorship*

[#]*these authors share last-authorship*

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1 CBCT image data

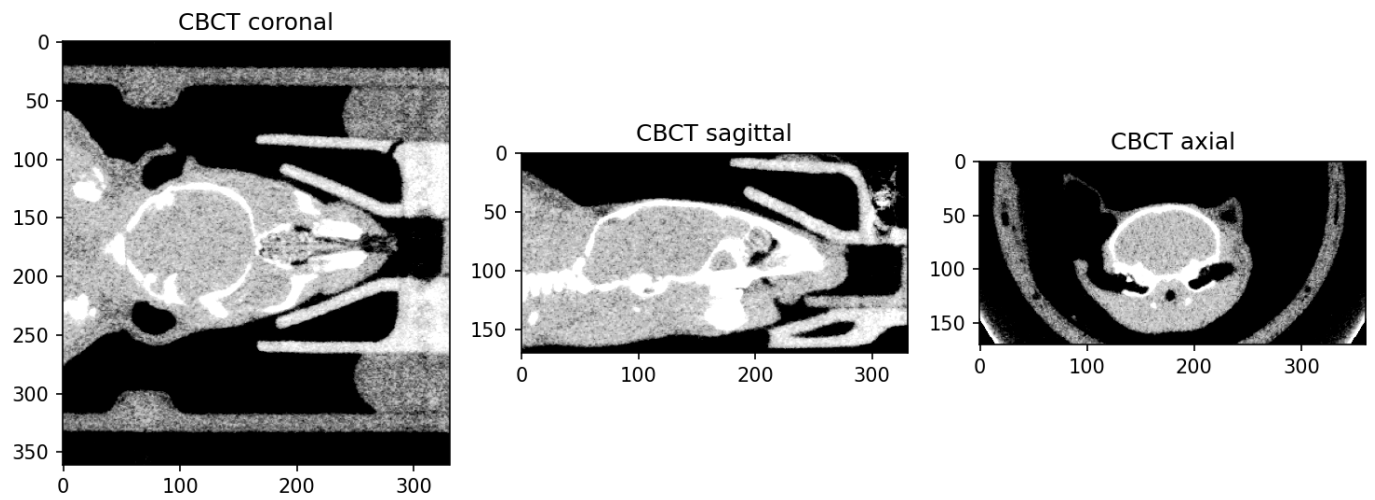


Figure 1.1: Multi-view cutplanes of CBCT serving as anatomical reference

2 Simulation image data

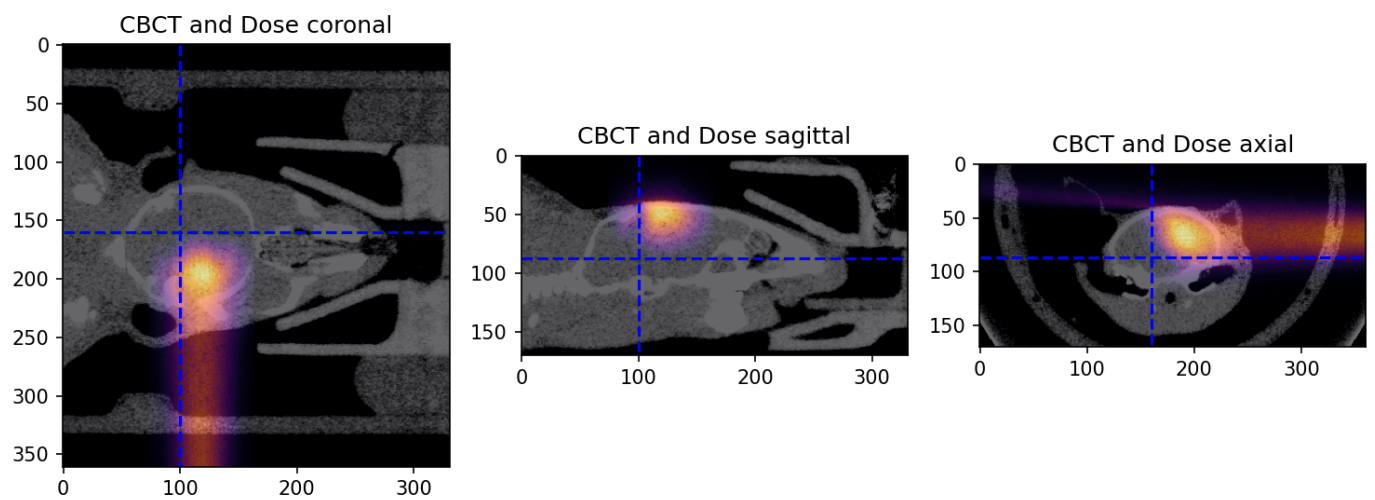


Figure 2.1: Overlay of CBCT and simulated dose distribution

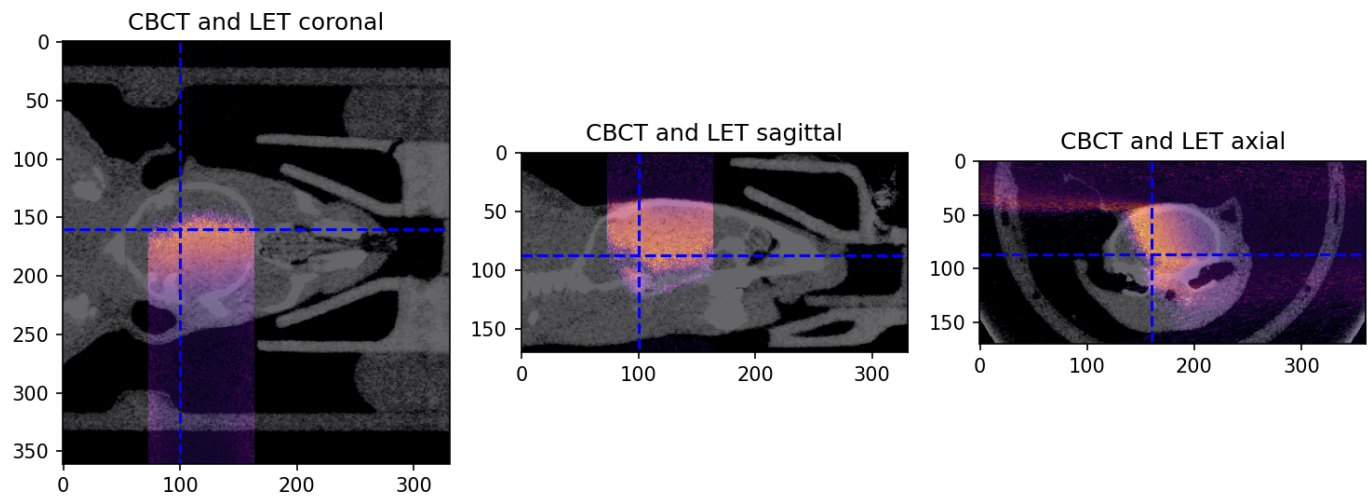


Figure 2.2: Overlay of CBCT and simulated LET distribution

3 Atlas image data

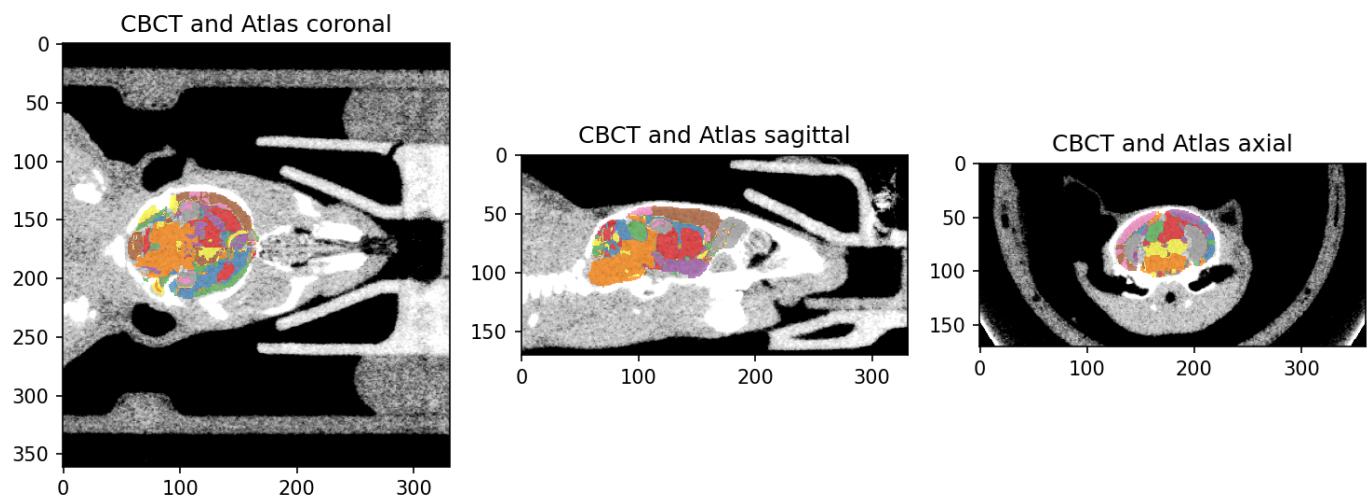


Figure 3.1: Overlay of CBCT and registered DSURQE brain atlas

4 MRI image data

4.1 Denoising

4.1.1 Sequence type: T1

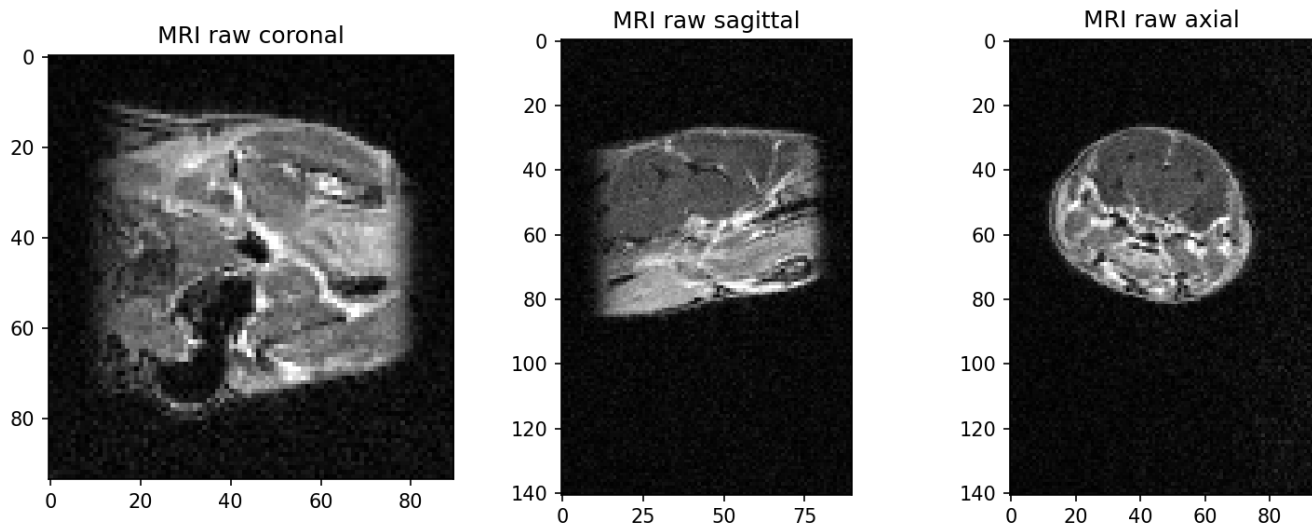


Figure 4.1: Raw MRI image, Timepoint:Week_00, Sequence type: T1

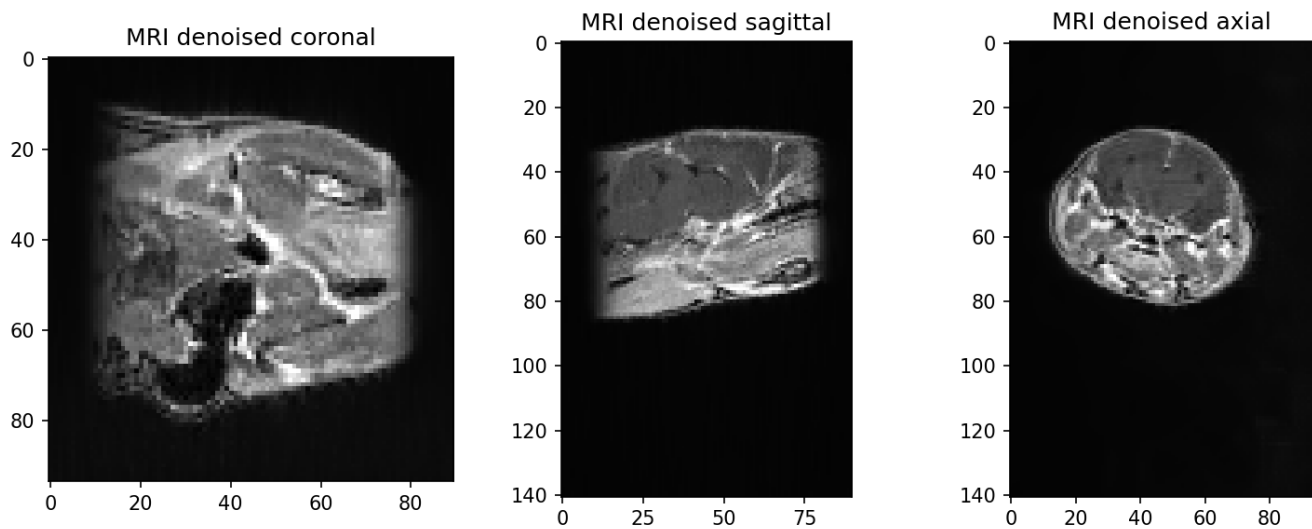


Figure 4.2: Denoised MRI image, Timepoint:Week_00, Sequence type: T1

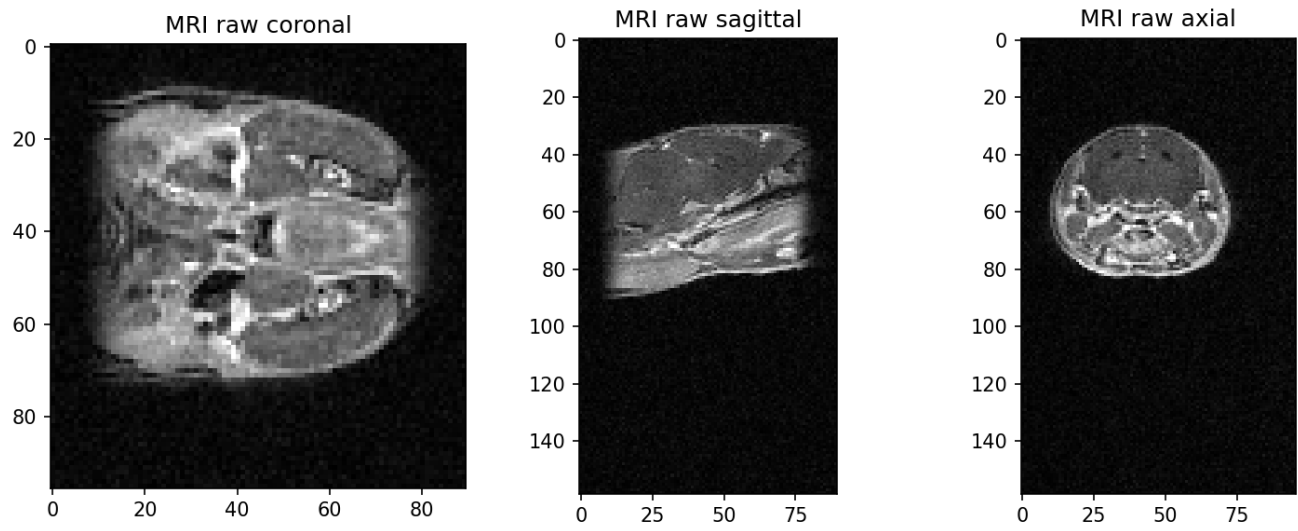


Figure 4.3: Raw MRI image, Timepoint:Week.03, Sequence type: T1

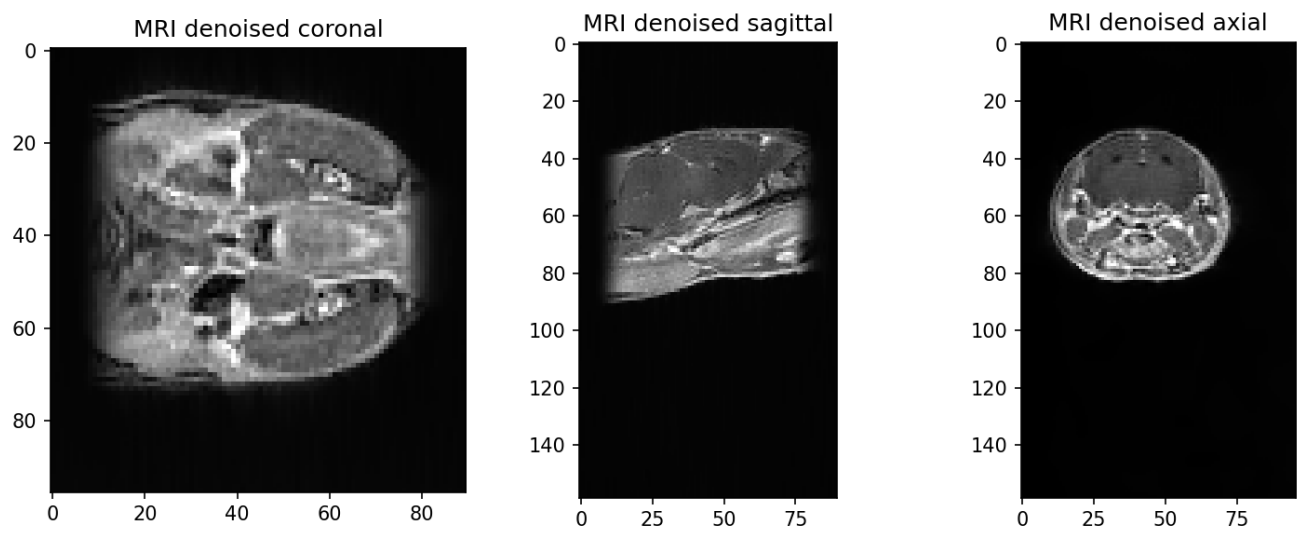


Figure 4.4: Denoised MRI image, Timepoint:Week.03, Sequence type: T1

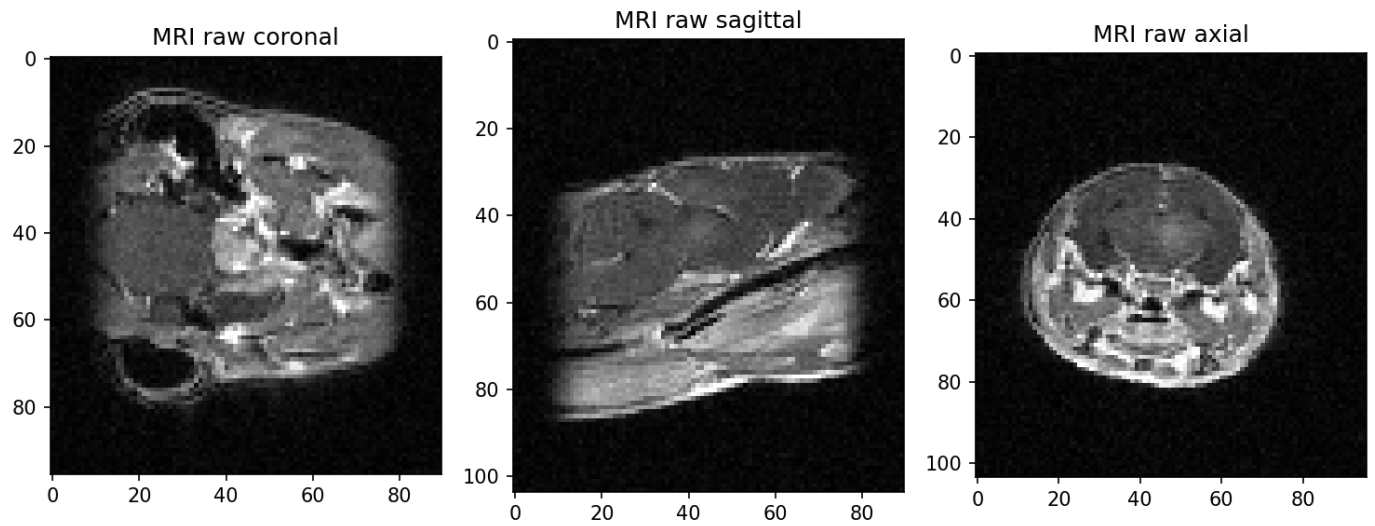


Figure 4.5: Raw MRI image, Timepoint:Week.05, Sequence type: T1

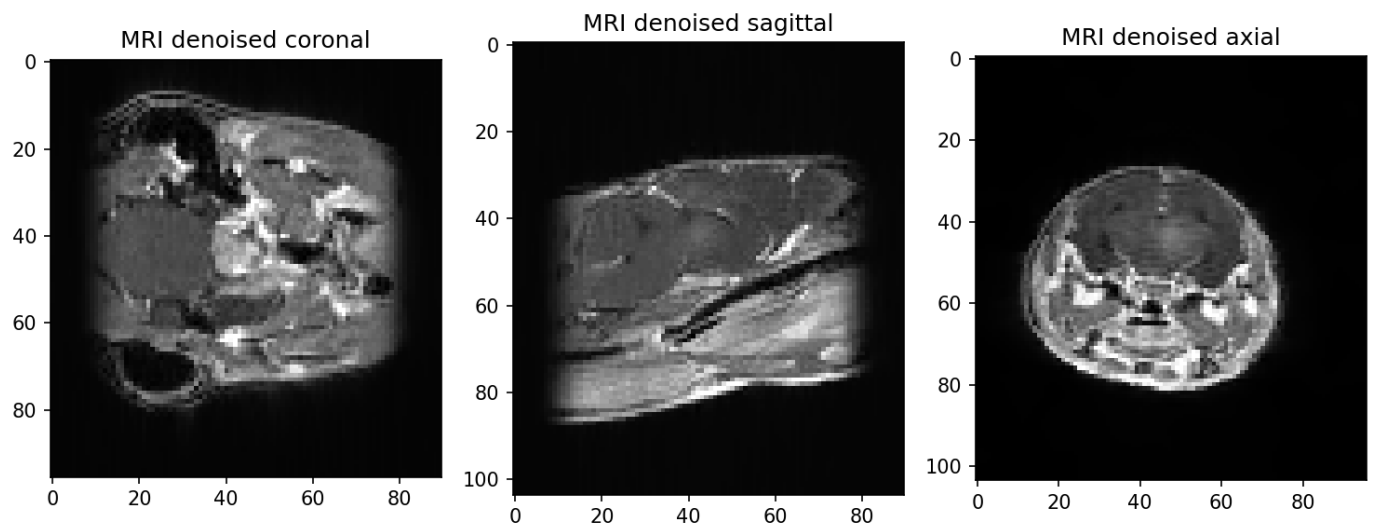


Figure 4.6: Denoised MRI image, Timepoint:Week.05, Sequence type: T1

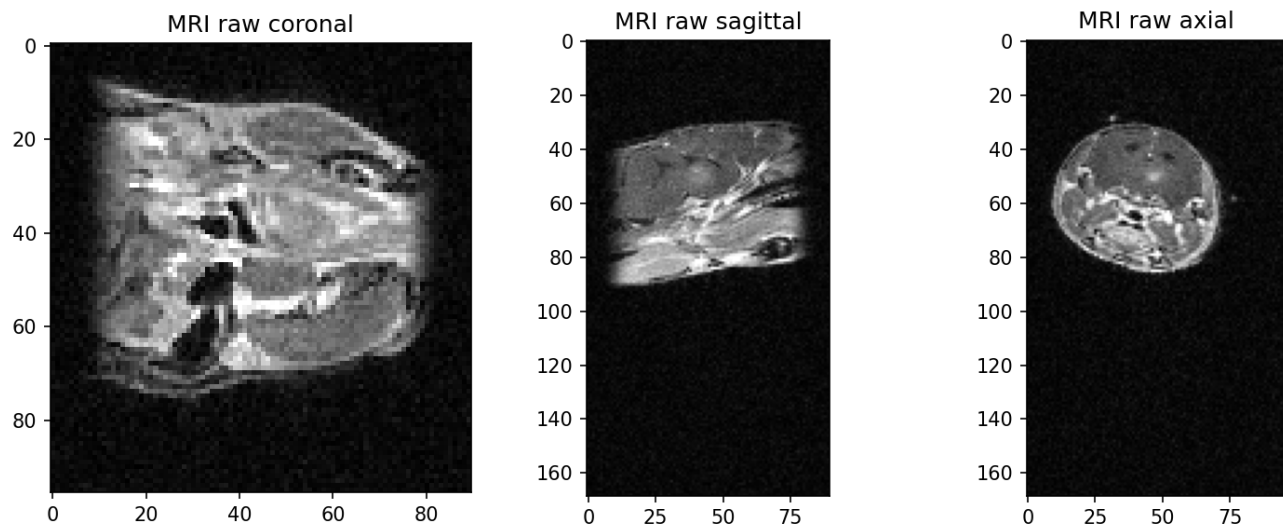


Figure 4.7: Raw MRI image, Timepoint:Week.09, Sequence type: T1

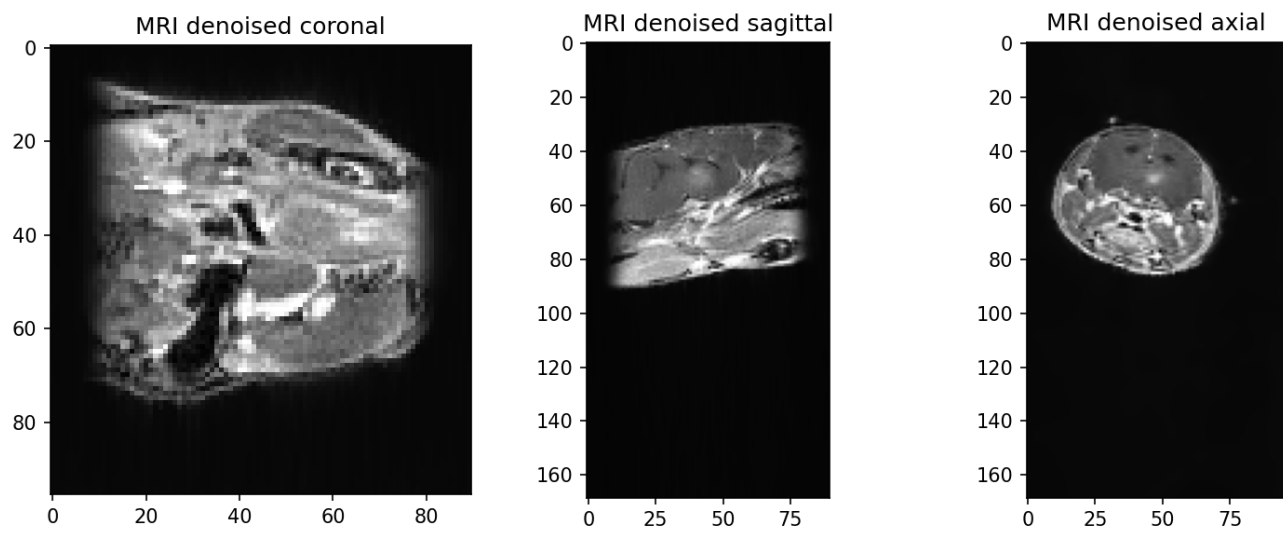


Figure 4.8: Denoised MRI image, Timepoint:Week.09, Sequence type: T1

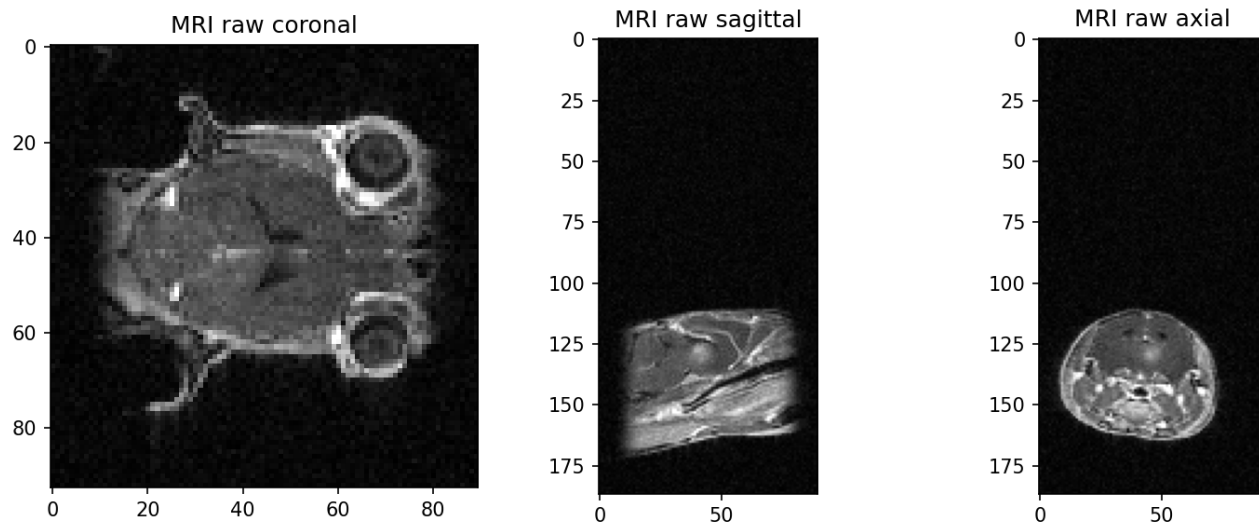


Figure 4.9: Raw MRI image, Timepoint:Week_11, Sequence type: T1

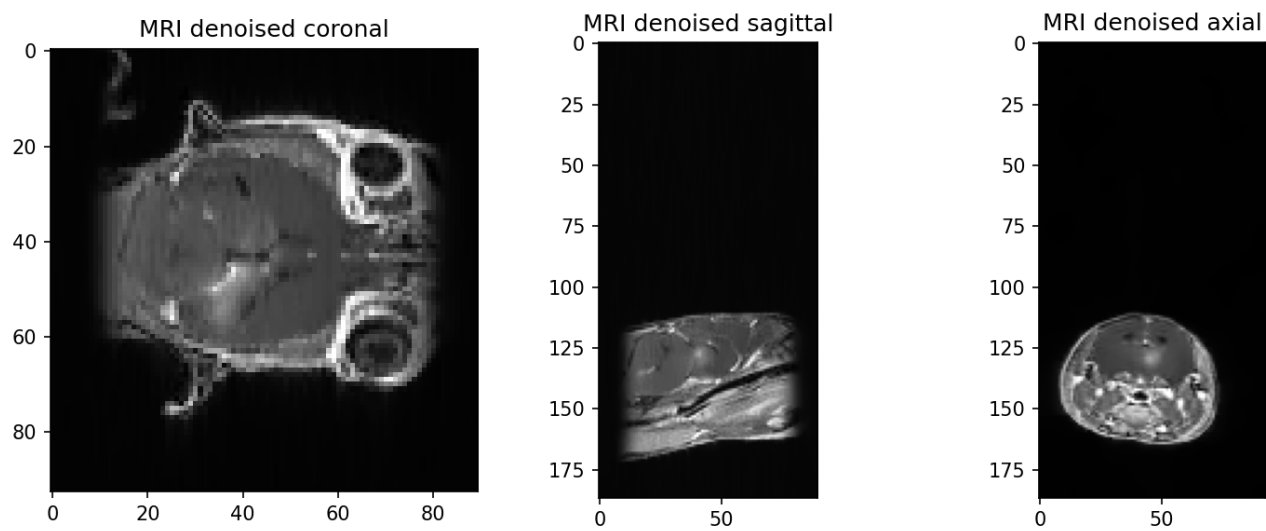


Figure 4.10: Denoised MRI image, Timepoint:Week_11, Sequence type: T1

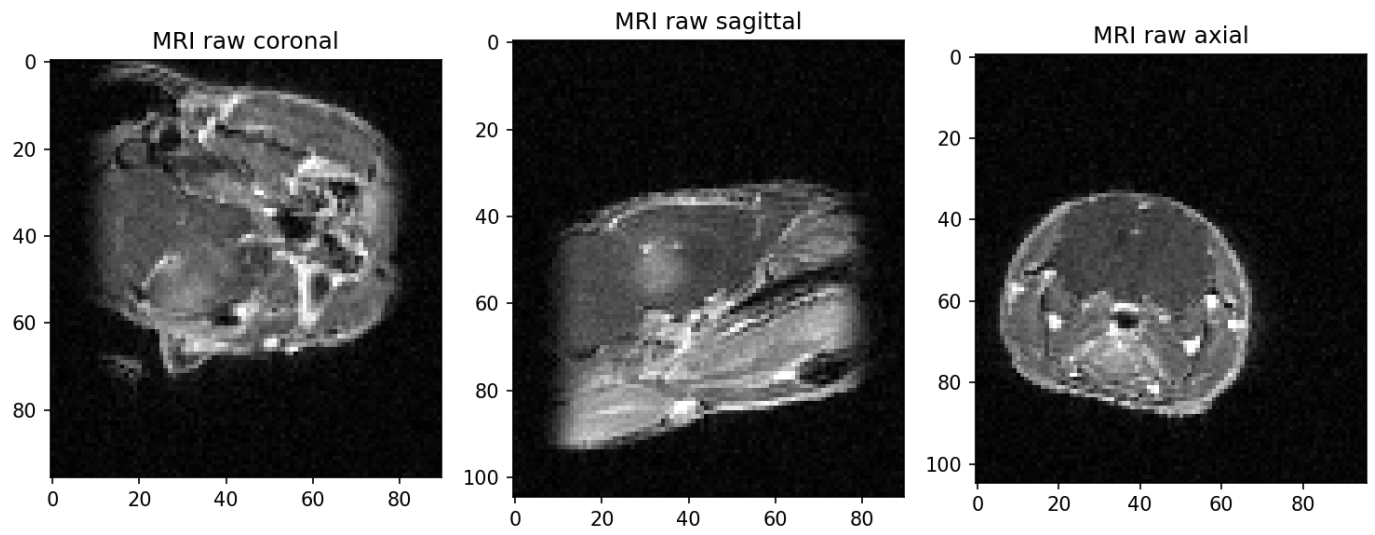


Figure 4.11: Raw MRI image, Timepoint:Week_13, Sequence type: T1

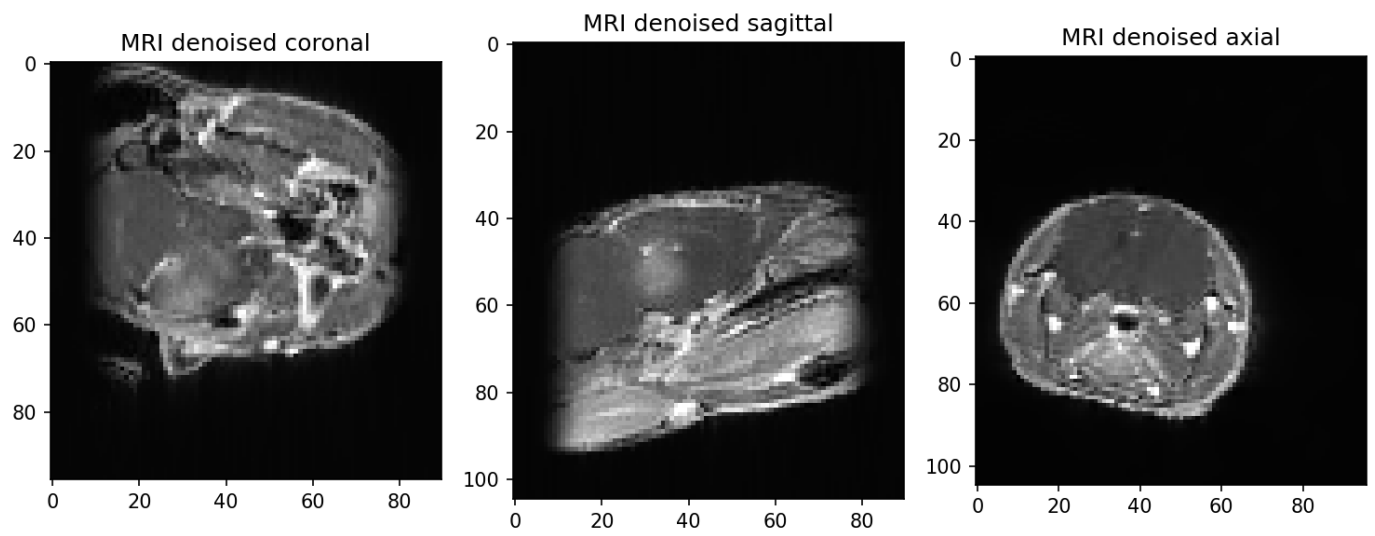


Figure 4.12: Denoised MRI image, Timepoint:Week_13, Sequence type: T1

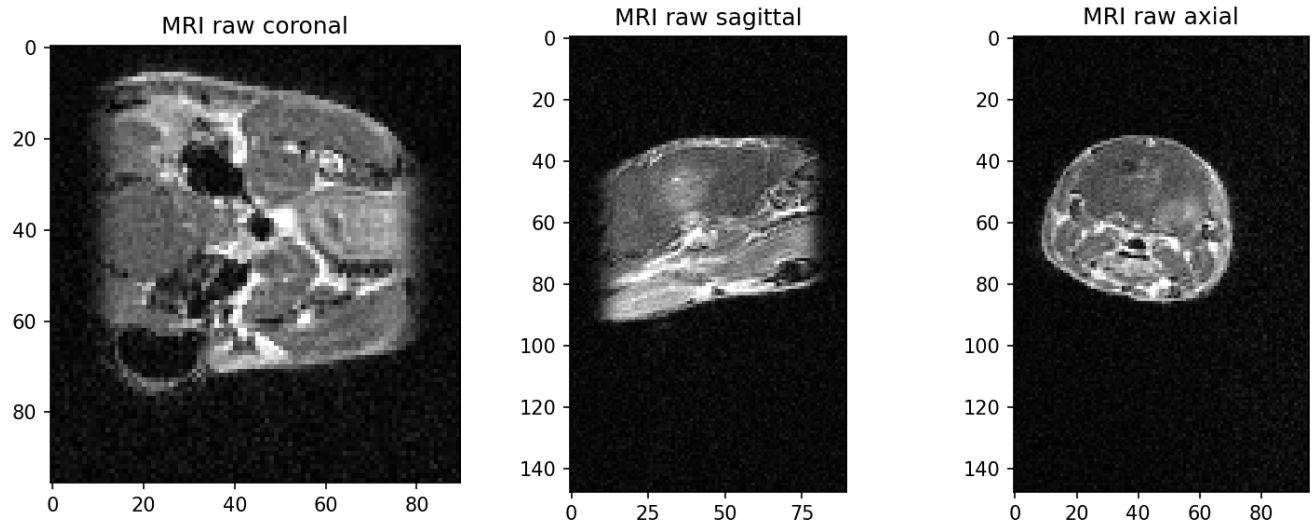


Figure 4.13: Raw MRI image, Timepoint:Week_14, Sequence type: T1

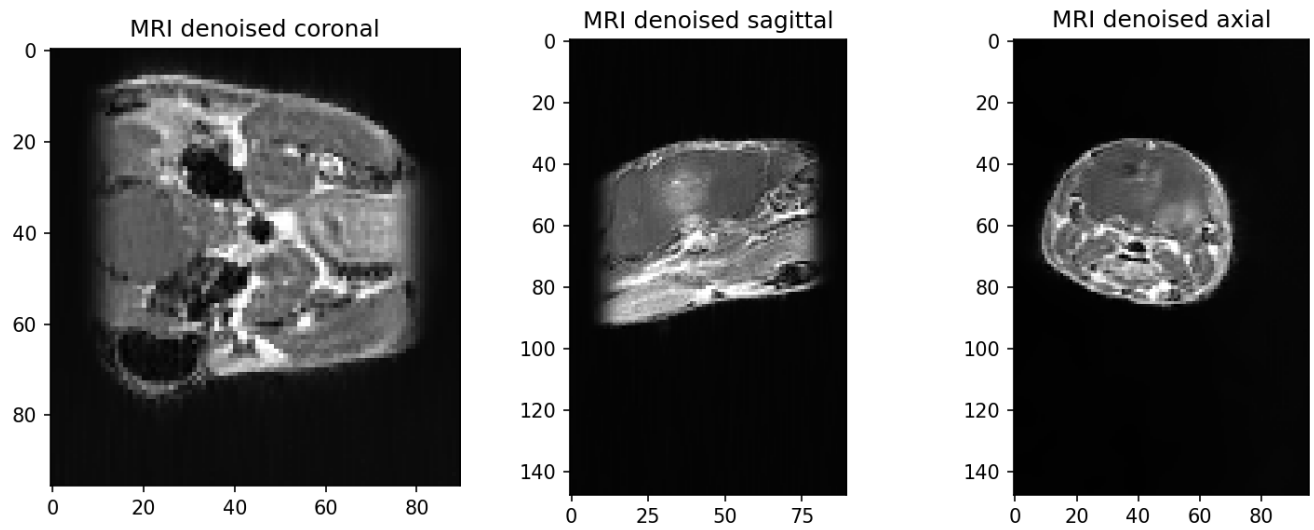


Figure 4.14: Denoised MRI image, Timepoint:Week_14, Sequence type: T1

4.1.2 Sequence type: T2

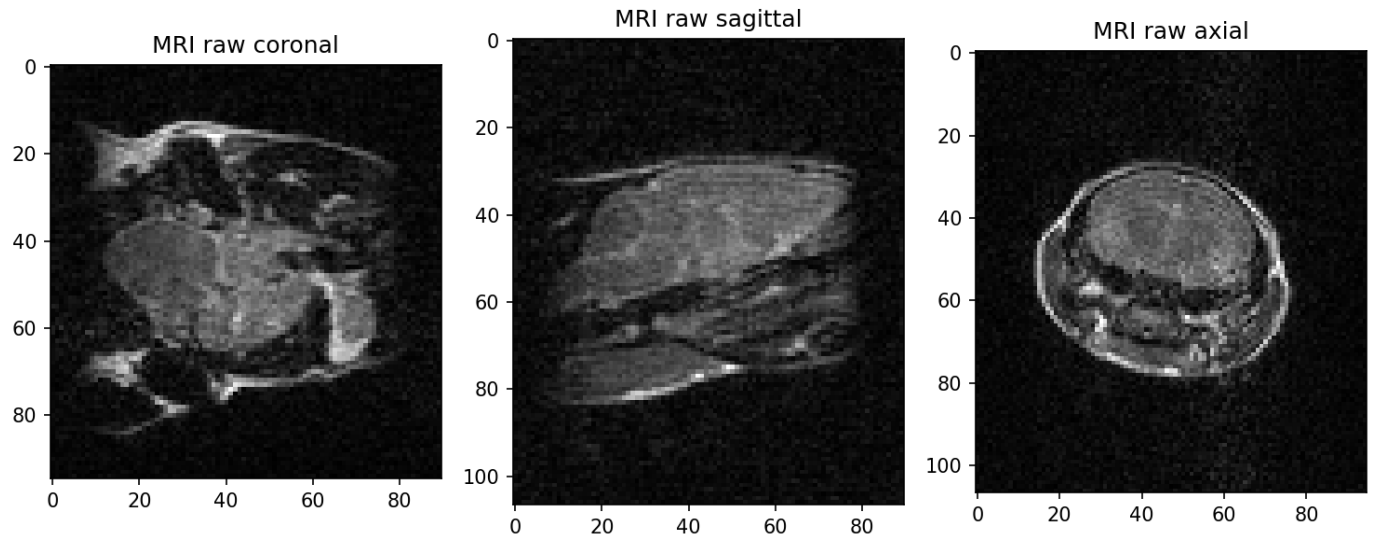


Figure 4.15: Raw MRI image, Timepoint:Week_00, Sequence type: T2

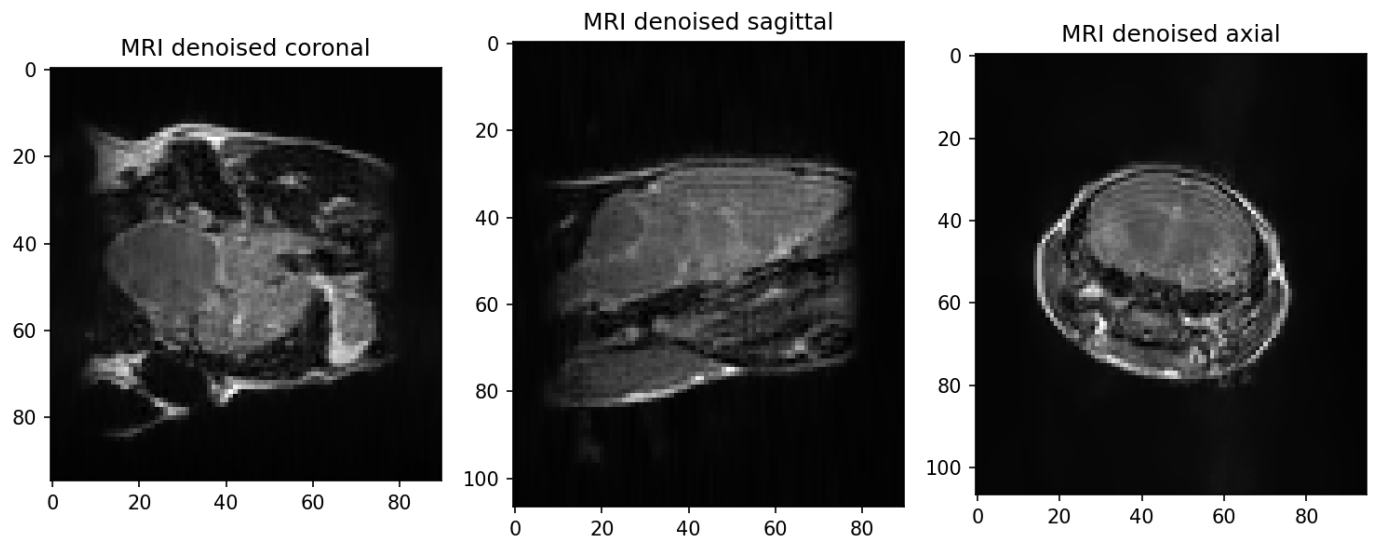


Figure 4.16: Denoised MRI image, Timepoint:Week_00, Sequence type: T2

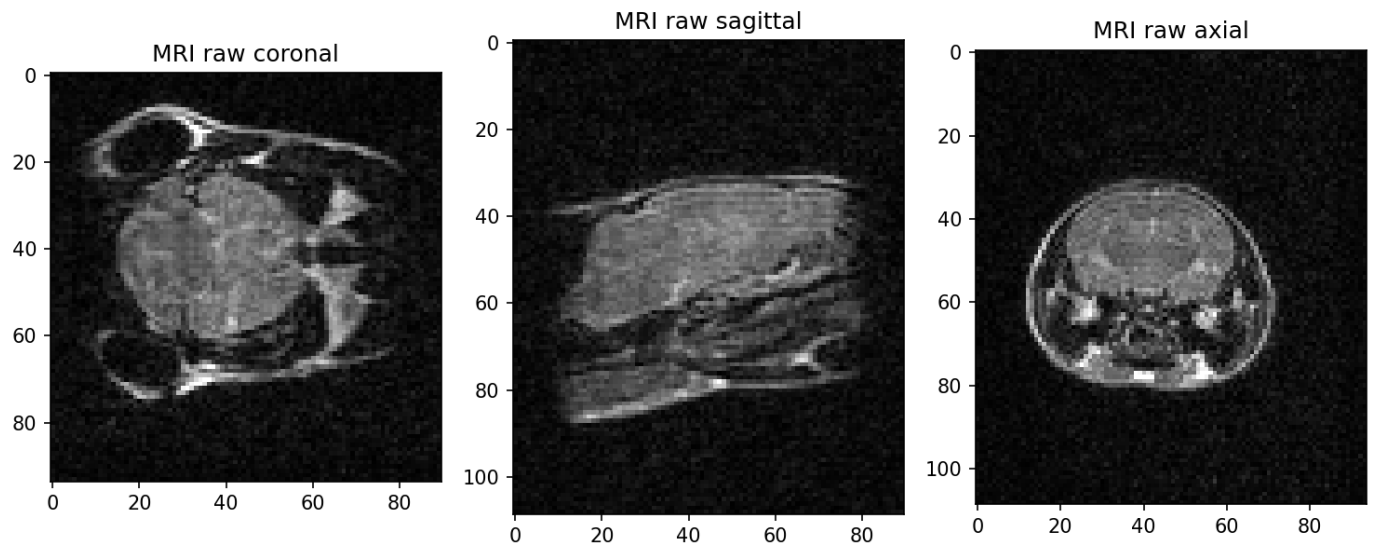


Figure 4.17: Raw MRI image, Timepoint:Week_03, Sequence type: T2

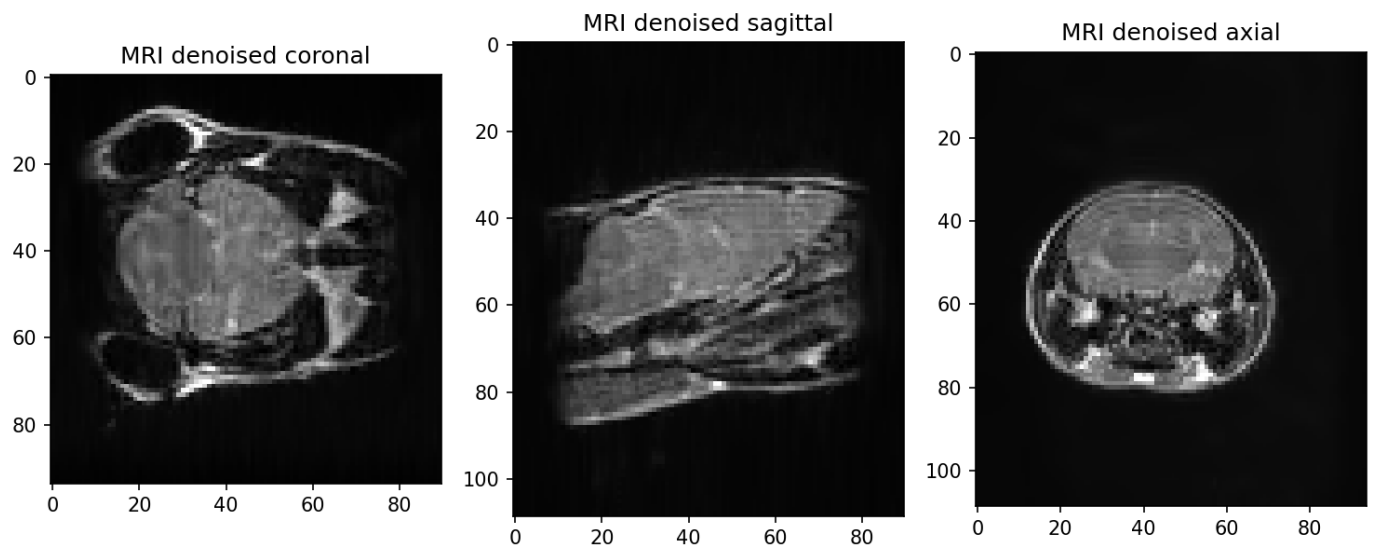


Figure 4.18: Denoised MRI image, Timepoint:Week_03, Sequence type: T2

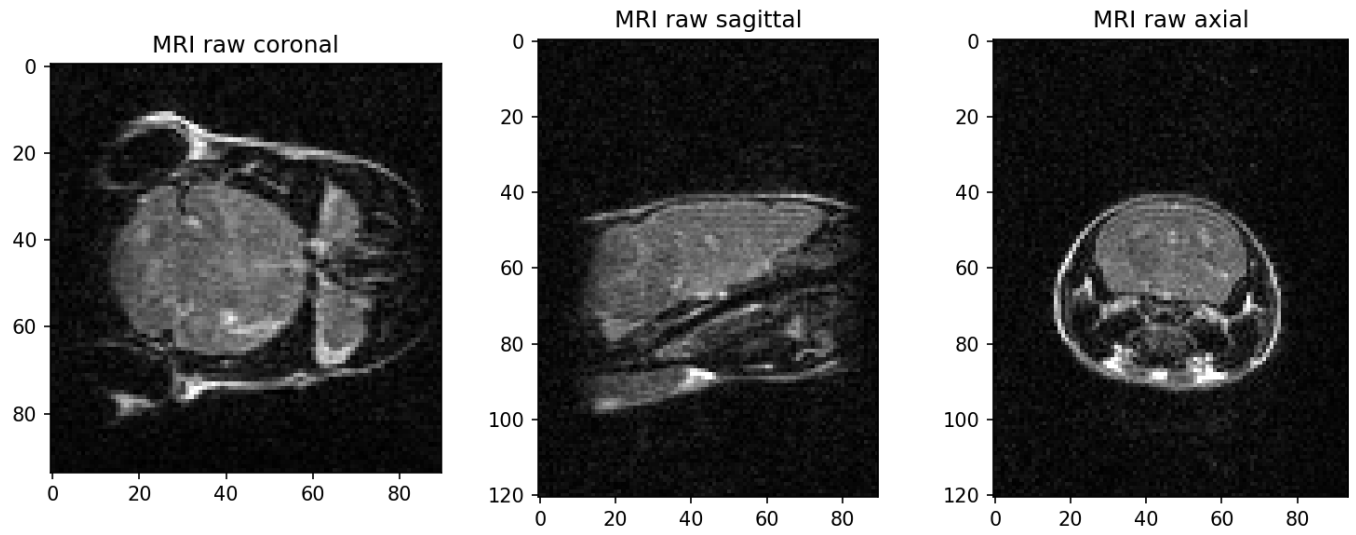


Figure 4.19: Raw MRI image, Timepoint:Week_05, Sequence type: T2

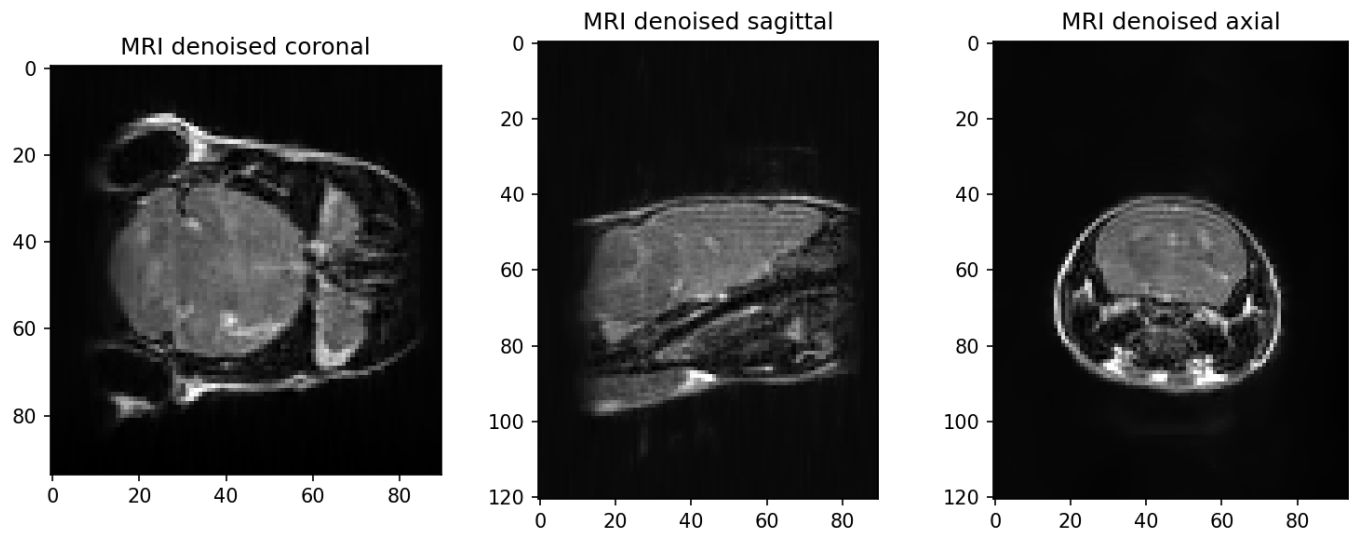


Figure 4.20: Denoised MRI image, Timepoint:Week_05, Sequence type: T2

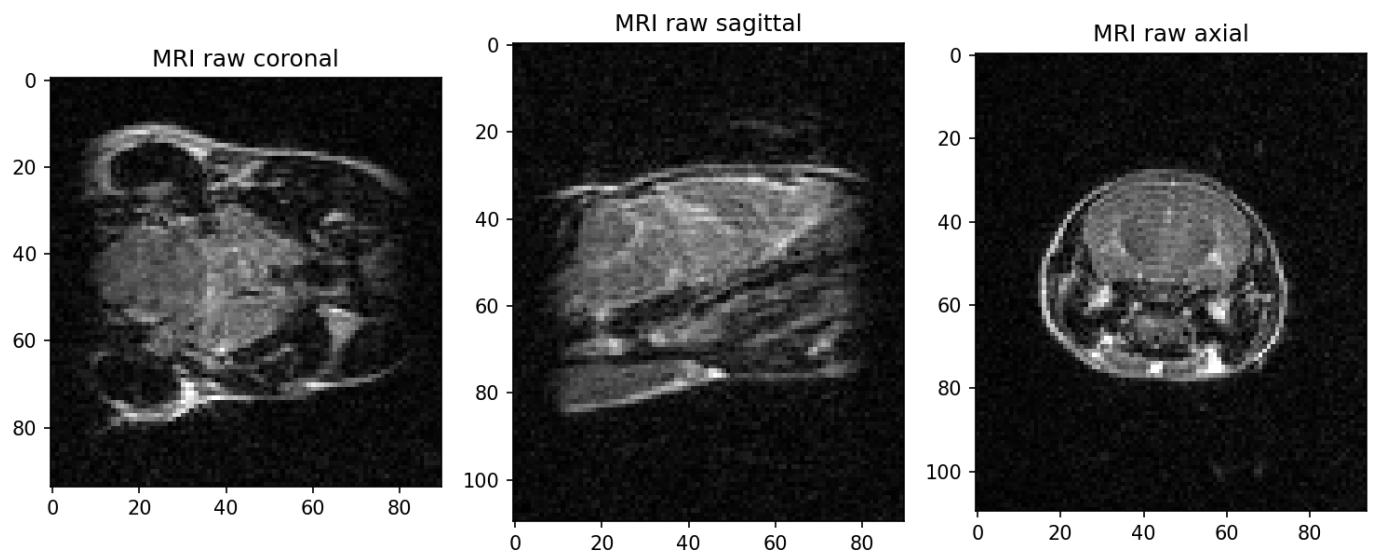


Figure 4.21: Raw MRI image, Timepoint:Week_07, Sequence type: T2

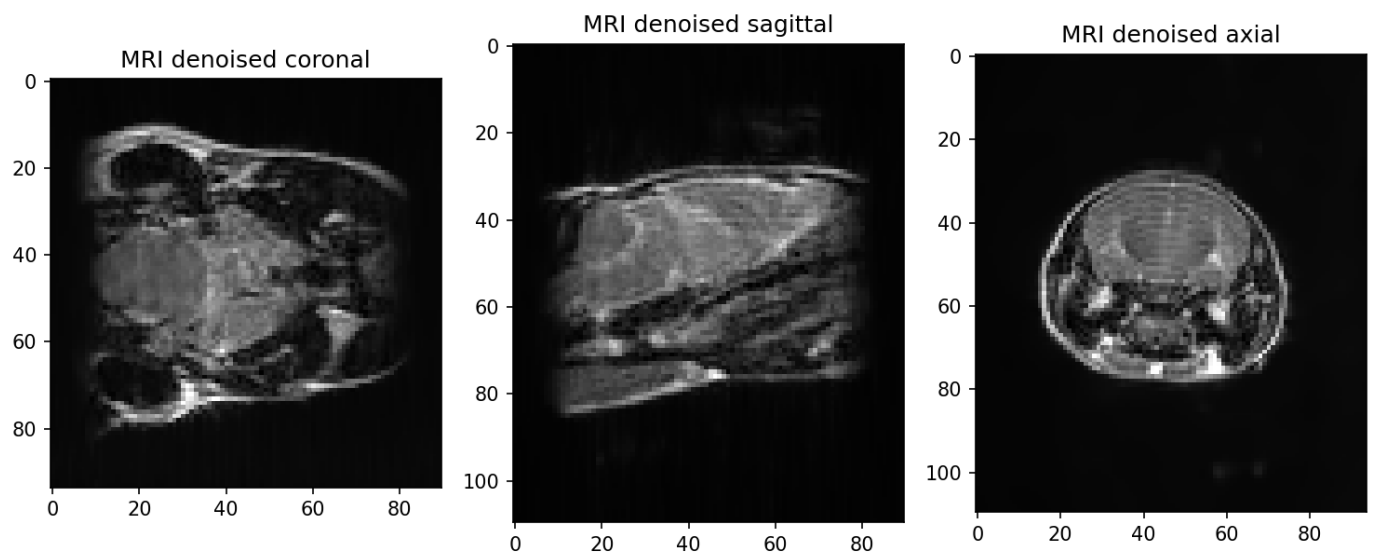


Figure 4.22: Denoised MRI image, Timepoint:Week_07, Sequence type: T2

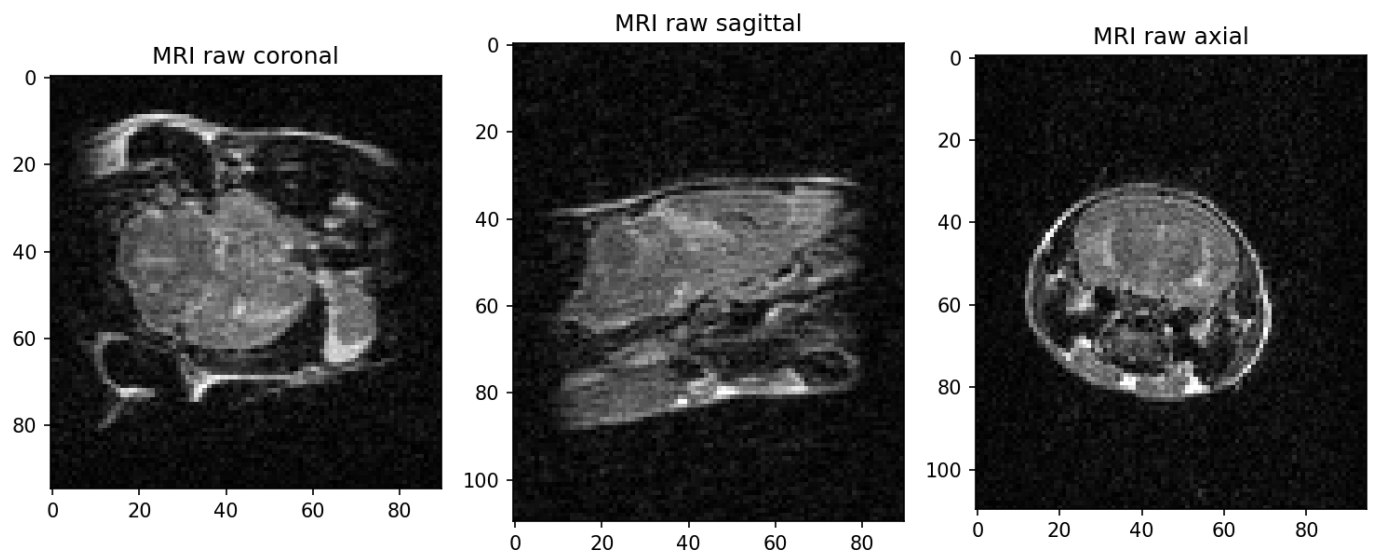


Figure 4.23: Raw MRI image, Timepoint:Week_09, Sequence type: T2

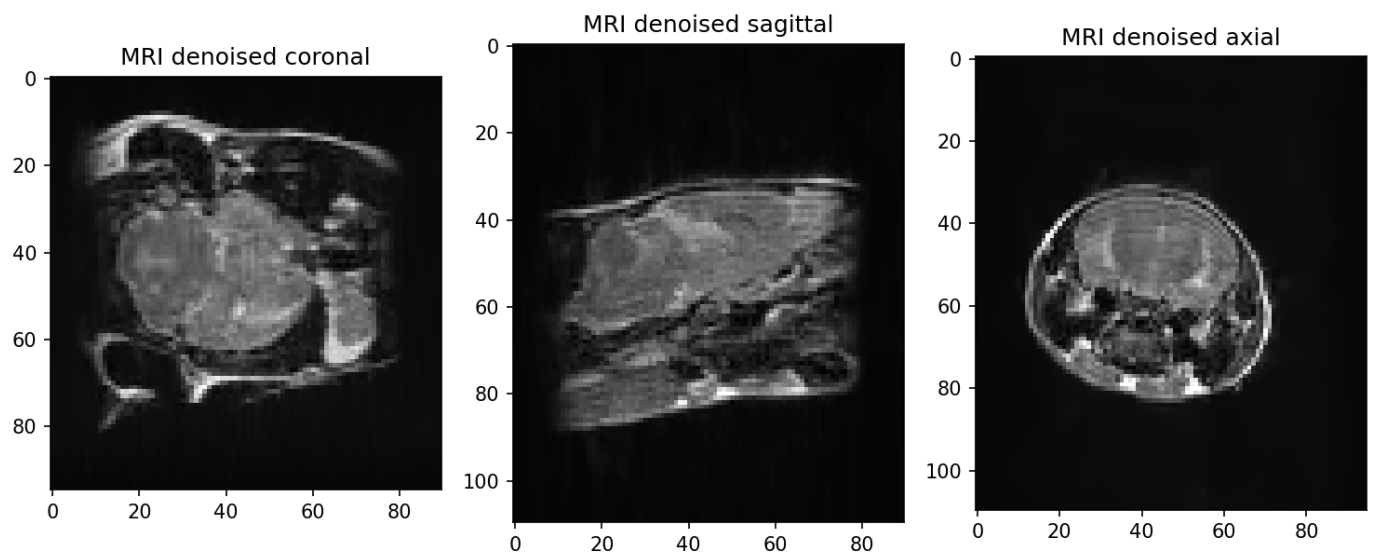


Figure 4.24: Denoised MRI image, Timepoint:Week_09, Sequence type: T2

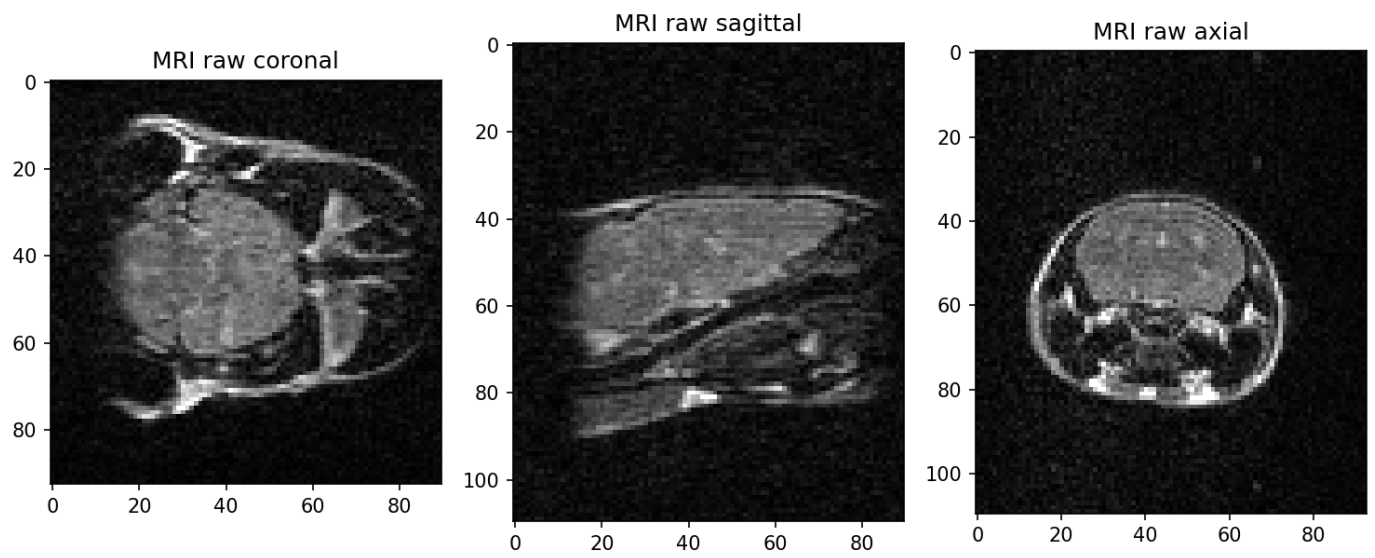


Figure 4.25: Raw MRI image, Timepoint:Week_11, Sequence type: T2

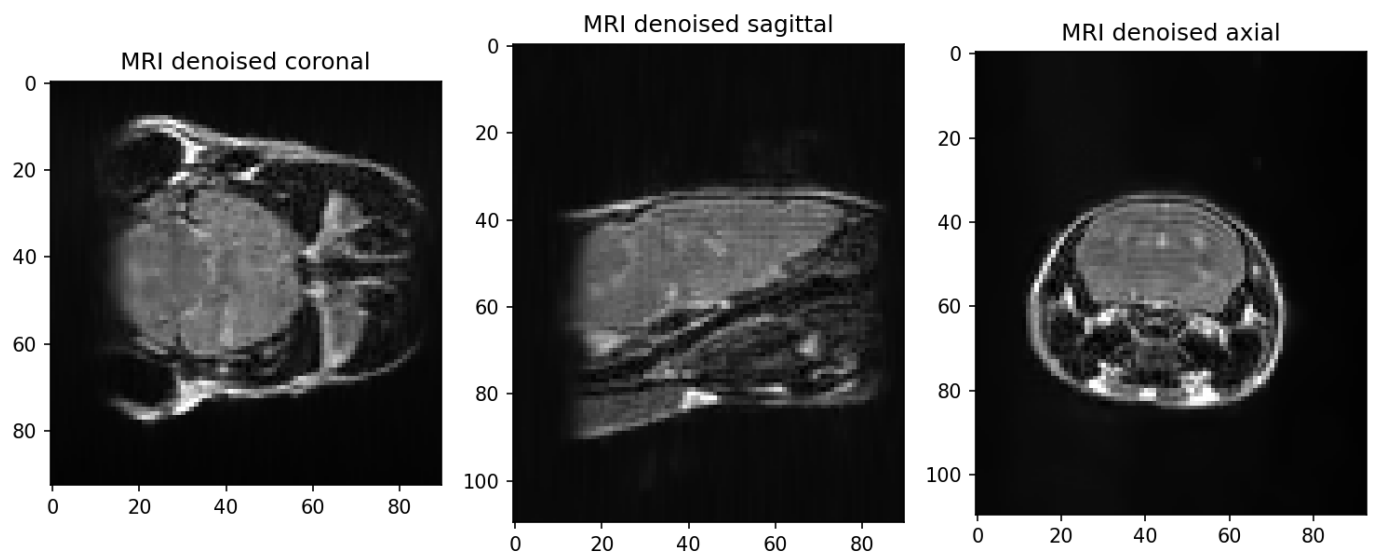


Figure 4.26: Denoised MRI image, Timepoint:Week_11, Sequence type: T2

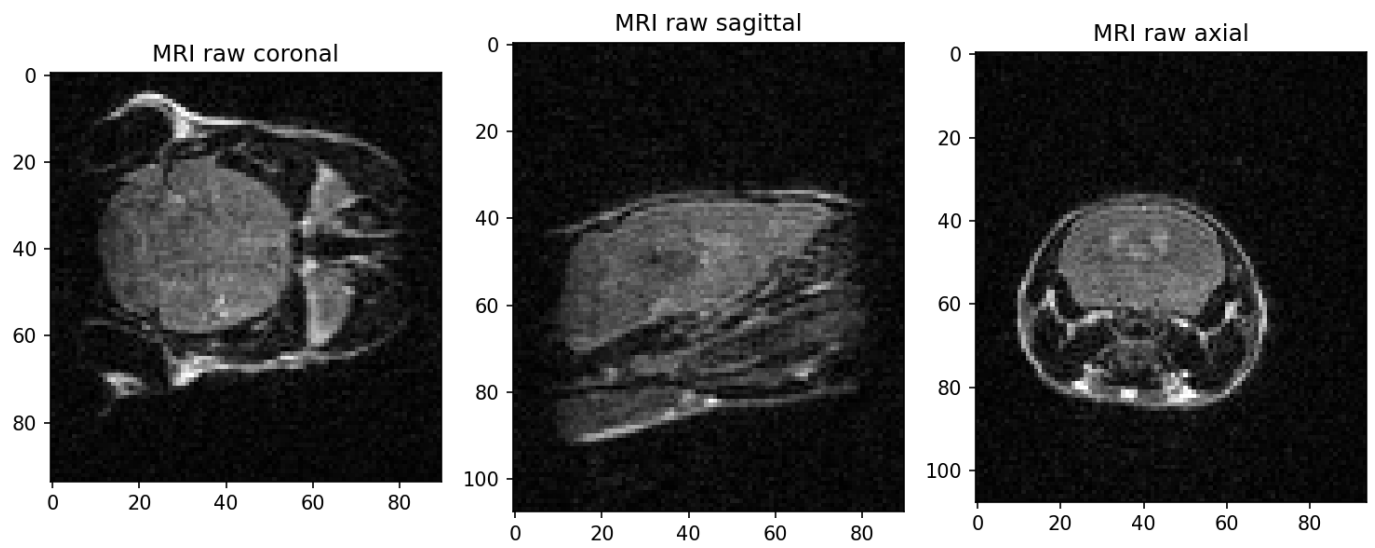


Figure 4.27: Raw MRI image, Timepoint:Week_13, Sequence type: T2

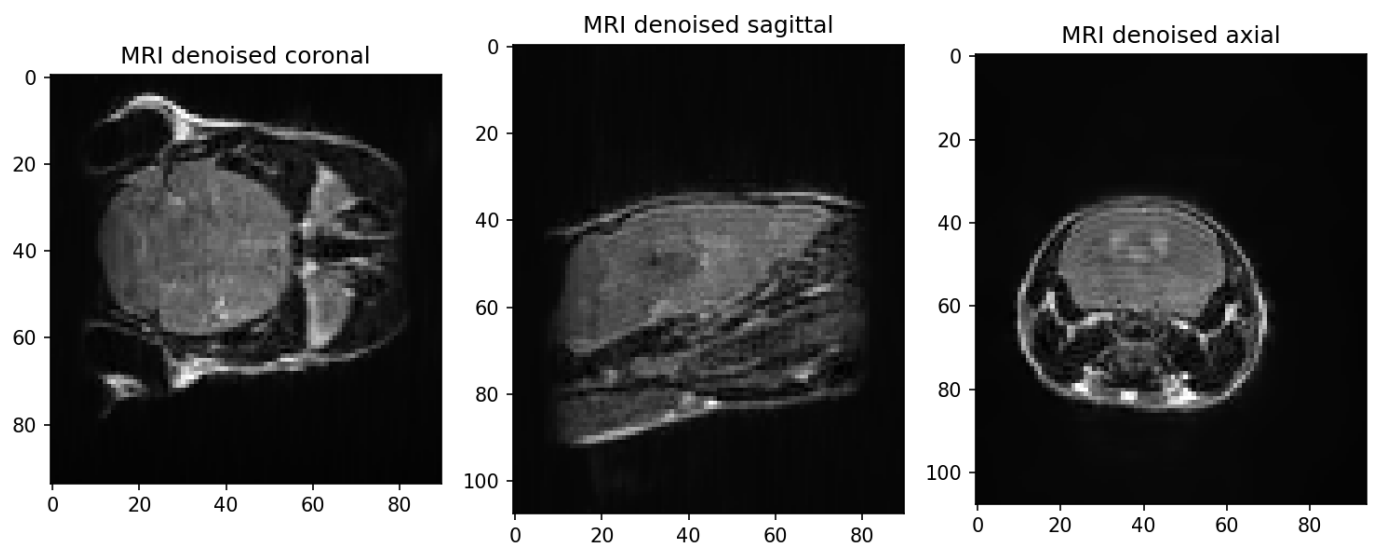


Figure 4.28: Denoised MRI image, Timepoint:Week_13, Sequence type: T2

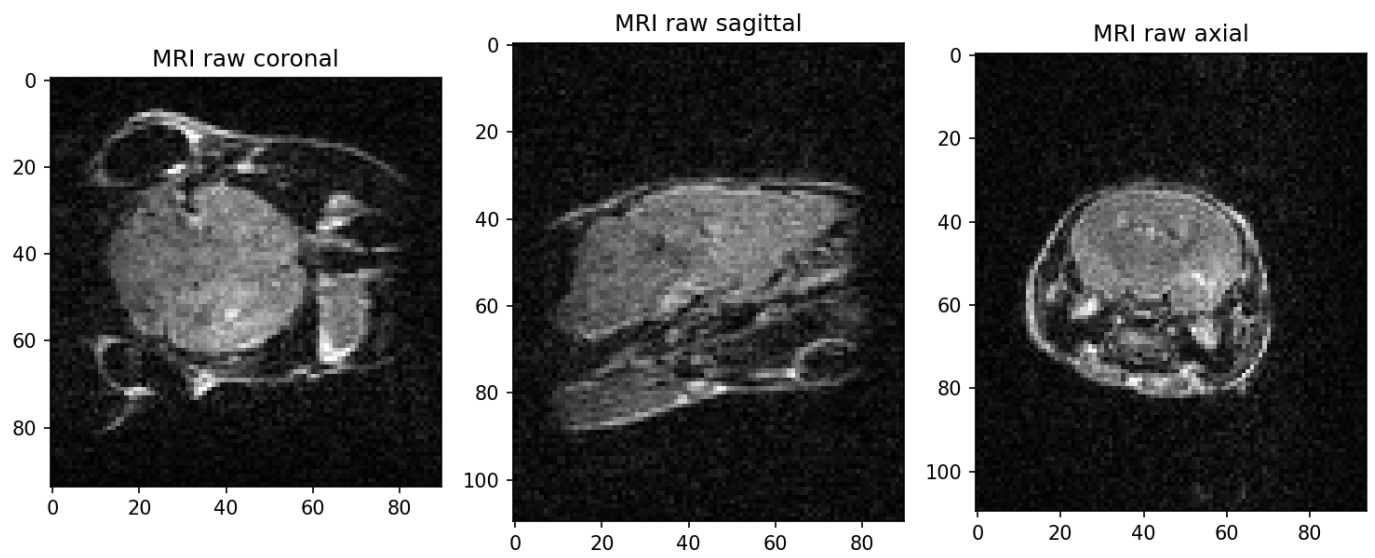


Figure 4.29: Raw MRI image, Timepoint:Week_14, Sequence type: T2

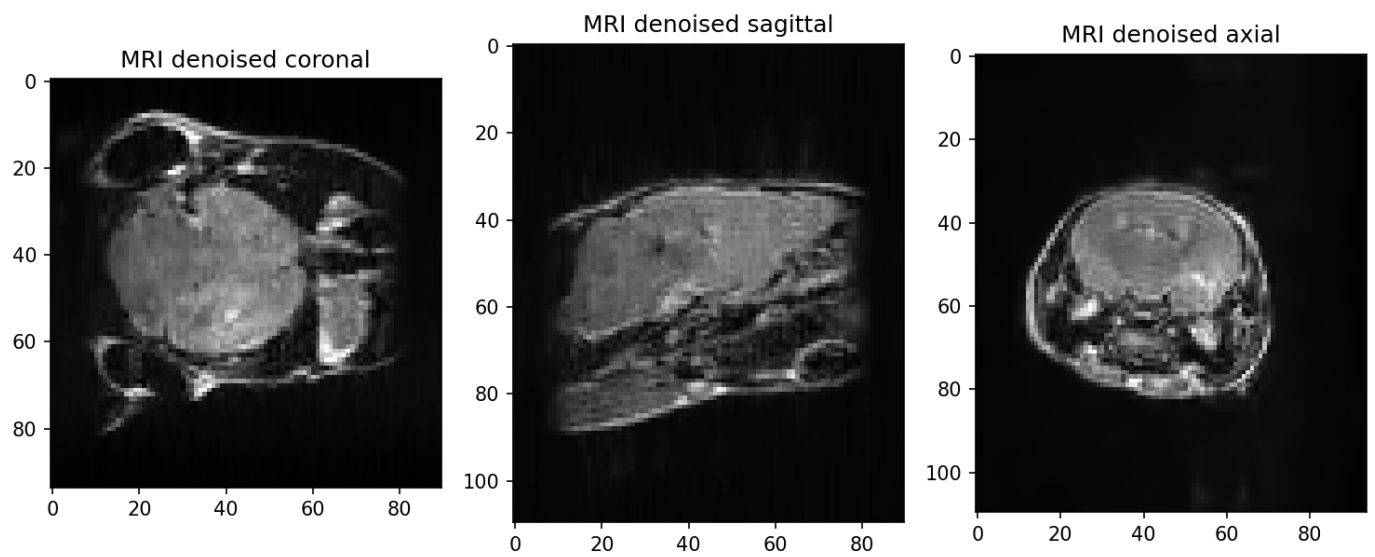


Figure 4.30: Denoised MRI image, Timepoint:Week_14, Sequence type: T2

4.2 Registration (timepoints)

4.2.1 Sequence type: T1

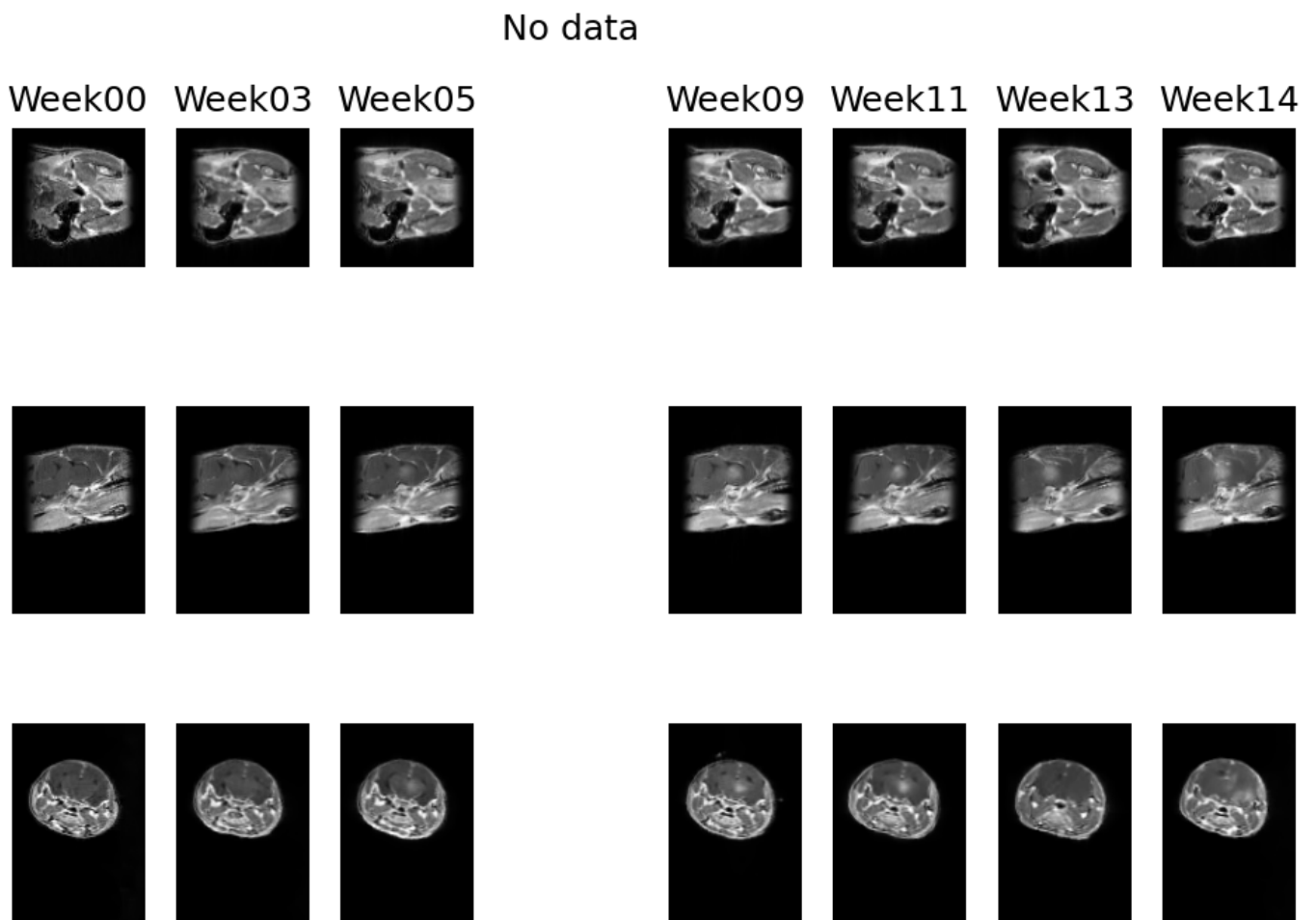


Figure 4.31: Gallery of registered MRI images , Sequence type: T1

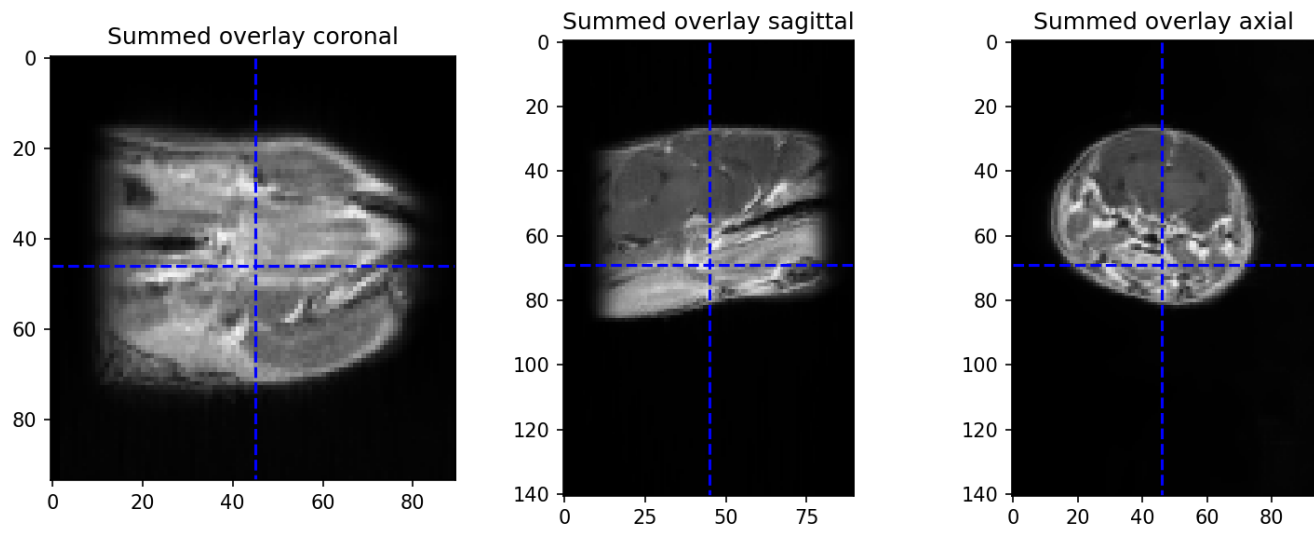


Figure 4.32: Summed overlay of registered MRI images , Sequence type: T1

4.2.2 Sequence type: T2

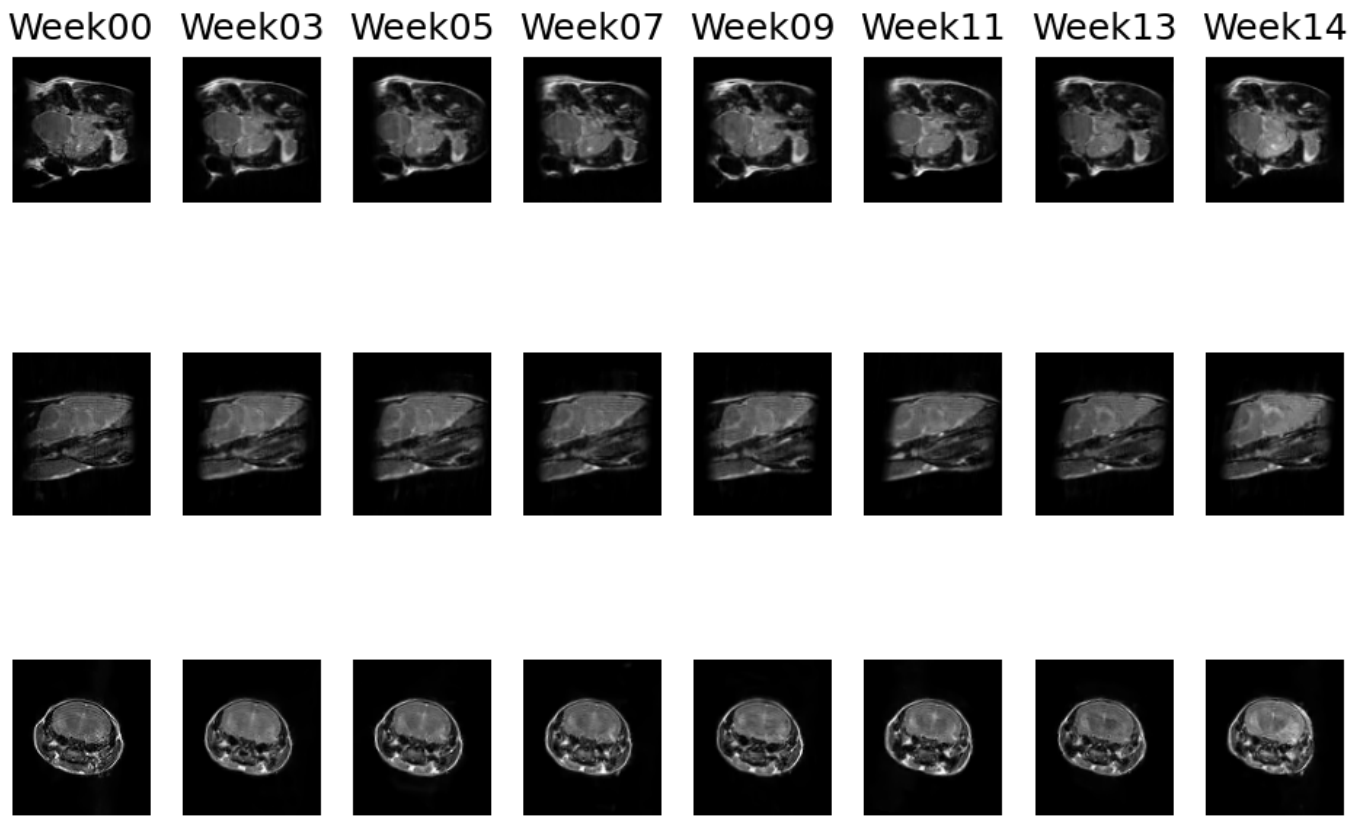


Figure 4.33: Gallery of registered MRI images , Sequence type: T2

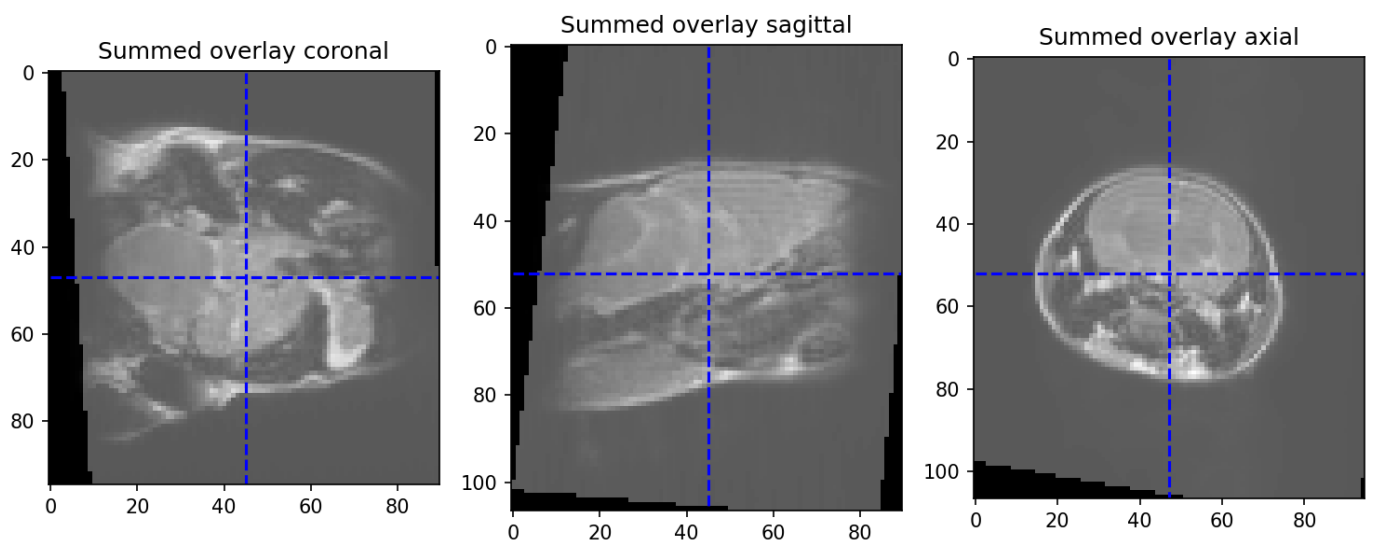


Figure 4.34: Summed overlay of registered MRI images , Sequence type: T2

4.3 Warping to CBCT

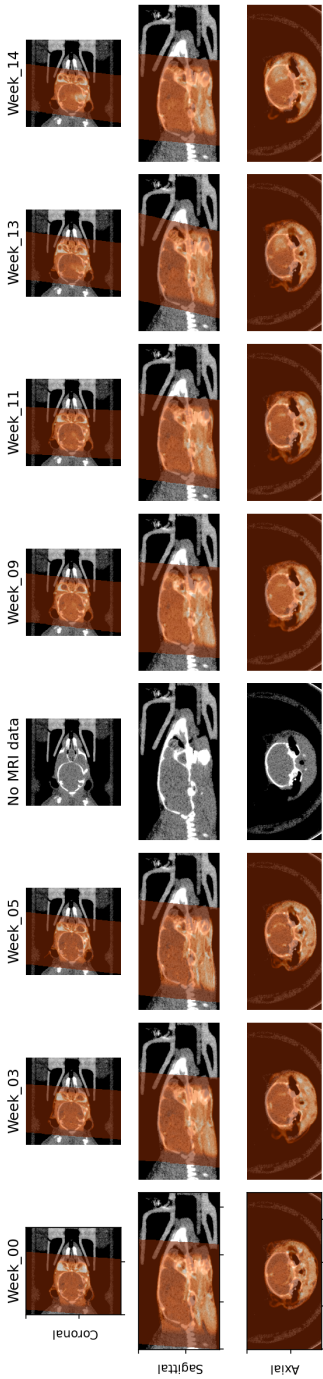


Figure 4.35: Gallery of CBCT (gray) and warped MRI images (orange) , Sequence type: T1

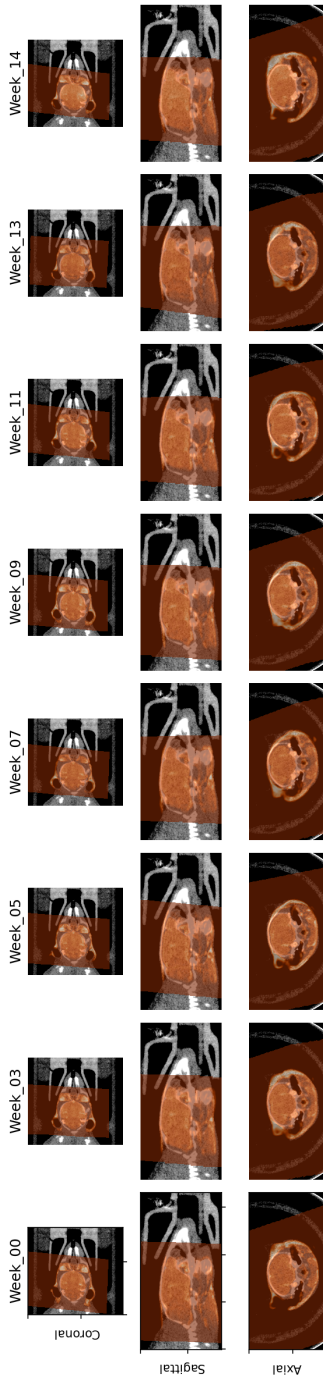


Figure 4.36: Gallery of CBCT (gray) and warped MRI images (orange) , Sequence type: T2

5 Histology image data

5.1 Bundle registration

Number of section locations:21

Stainings for this sample:

- HE: Hematoxylin & eosin staining
- GNI: GFAP, Nestin, Iba1 and DAPI

Note: Pairs of histochemical (e.g. HE) and immunofluorescent (e.g. GNI) images are registered with a contour-based technique, whereas pairs of immunofluorescent images (e.g. GNI and NOK) are registered with an intensity-based method. For the latter, the DAPI canal present in all immunofluorescent stainings serves as registration reference and is displayed in this overview.

5.1.1 0001_Scene_1

Raw images:

- P2_A_C3H_BF_H_HE_0004_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0004_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0004_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene_1_ScanRegion0.czi

Registered stainings: 4/2

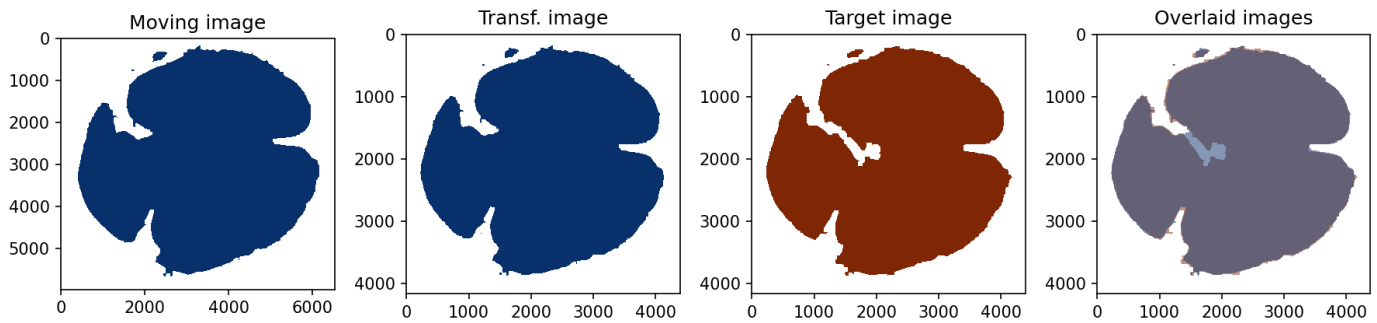


Figure 5.1: Results of registration of image P2_A_C3H_BF_H_HE_0004_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene_1_ScanRegion0 (Target image)

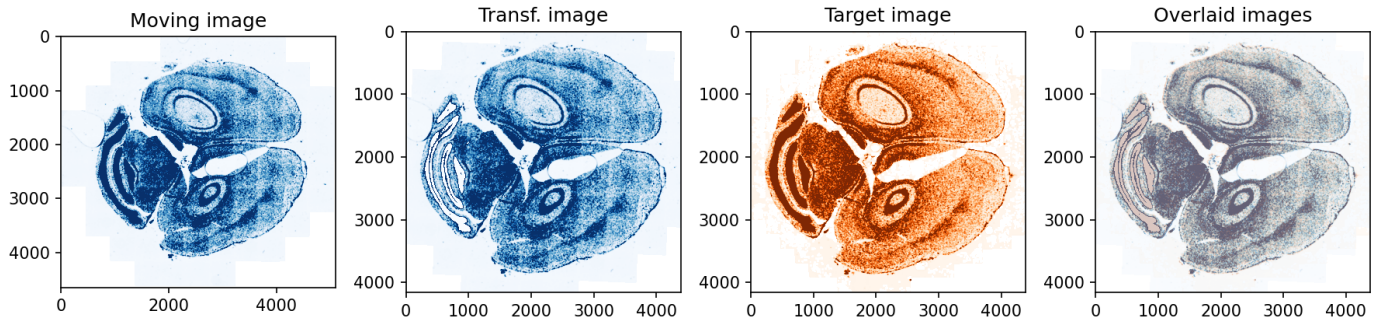


Figure 5.2: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0004_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene_1_ScanRegion0 (Target image)

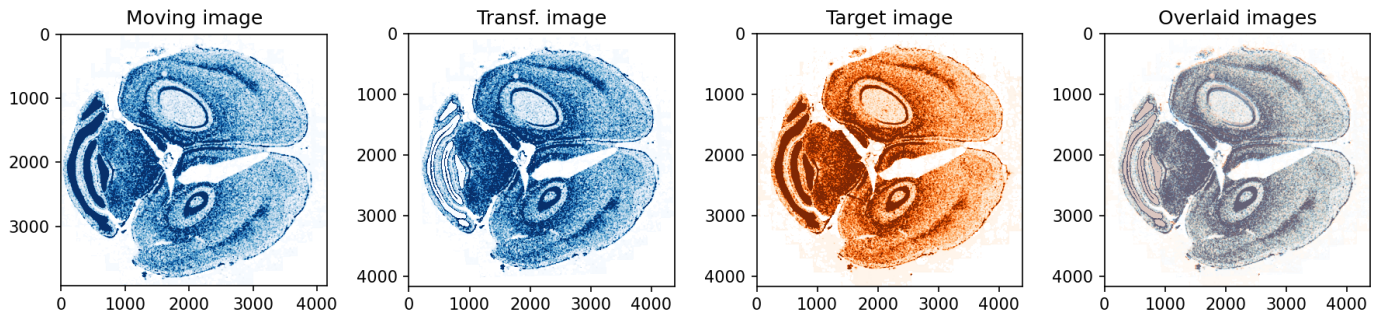


Figure 5.3: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0004_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene_1_ScanRegion0 (Target image)

5.1.2 0001_Scene_2

Raw images:

- P2_A_C3H_BF_H_HE_0004_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0004_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0004_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene_2_ScanRegion1.czi

Registered stainings: 4/2

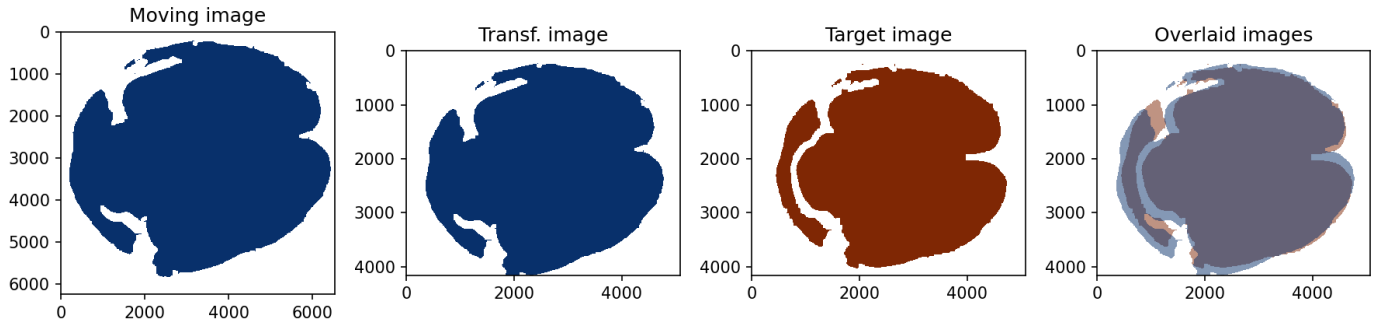


Figure 5.4: Results of registration of image P2_A_C3H_BF_H_HE_0004_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene.2_ScanRegion1 (Target image)

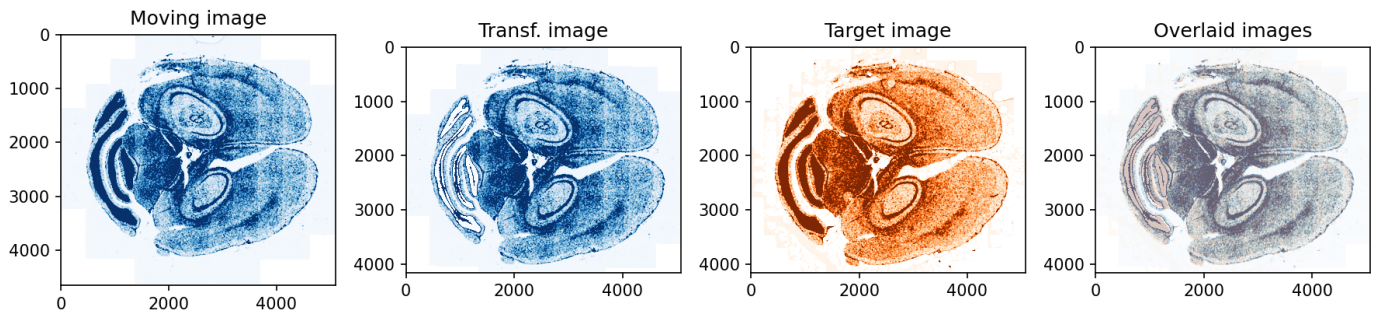


Figure 5.5: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0004_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene.2_ScanRegion1 (Target image)

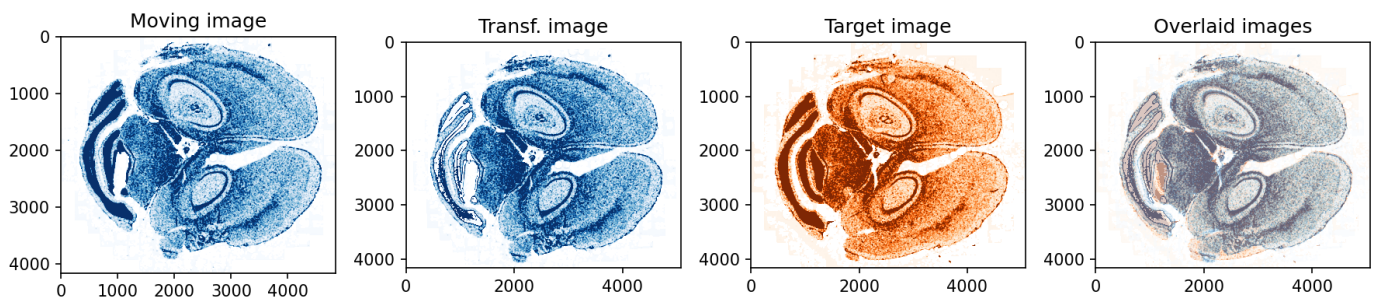


Figure 5.6: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0004_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0004_Scene.2_ScanRegion1 (Target image)

5.1.3 0002_Scene_1

Raw images:

- P2_A_C3H_BF_H_HE_0005_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0005_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0005_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0005_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

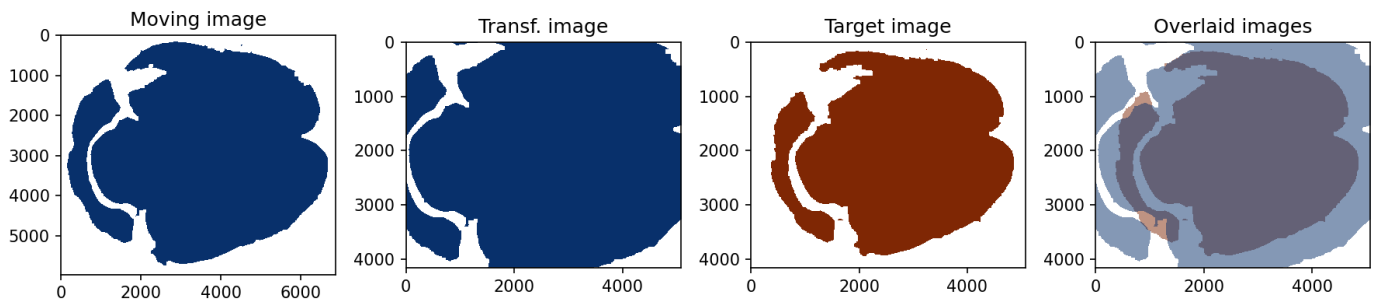


Figure 5.7: Results of registration of image P2_A_C3H_BF_H_HE_0005_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_1_ScanRegion0 (Target image)

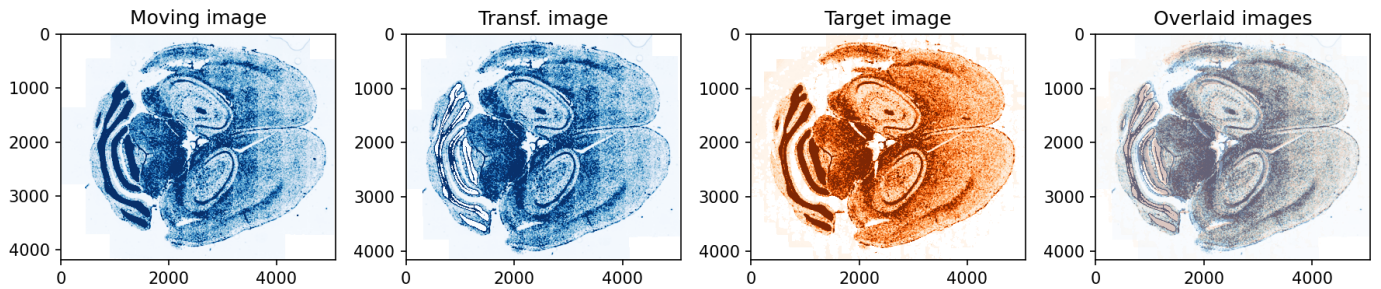


Figure 5.8: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0005_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_1_ScanRegion0 (Target image)

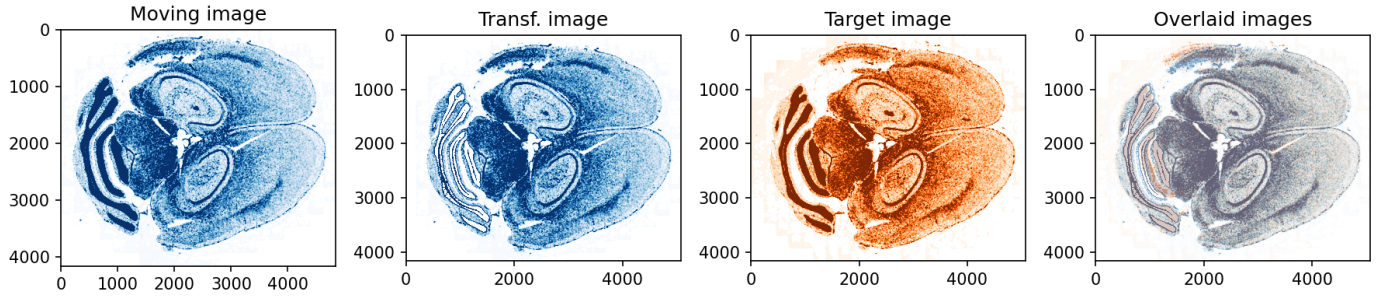


Figure 5.9: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0005_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_1_ScanRegion0 (Target image)

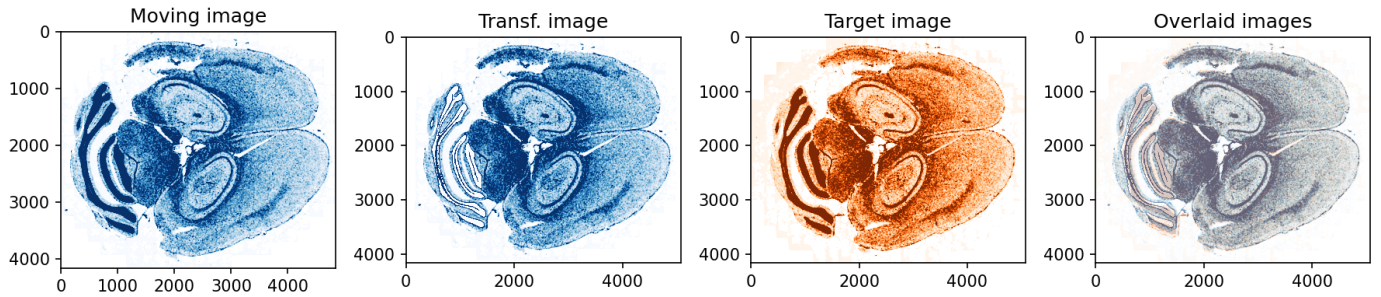


Figure 5.10: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0005_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_1_ScanRegion0 (Target image)

5.1.4 0002_Scene_2

Raw images:

- P2_A_C3H_BF_H_HE_0005_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0005_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0005_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0005_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_2_ScanRegion1.czi

Registered stainings: 5/2

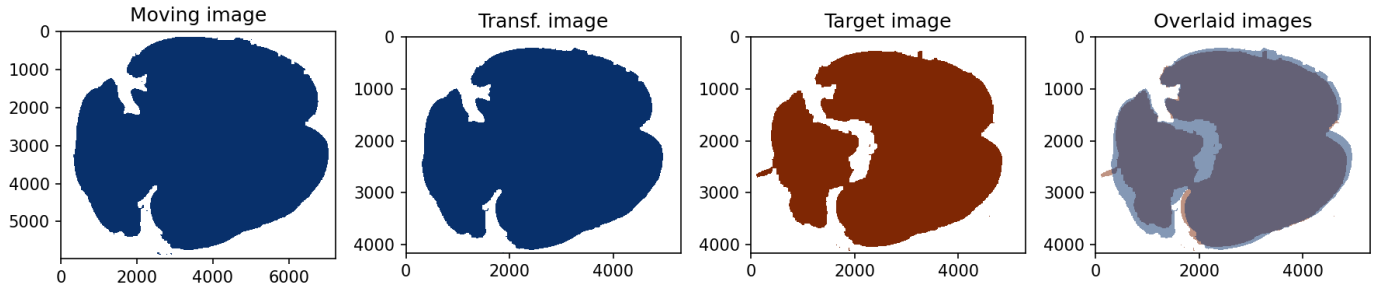


Figure 5.11: Results of registration of image P2_A_C3H_BF_H_HE_0005_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_2_ScanRegion1 (Target image)

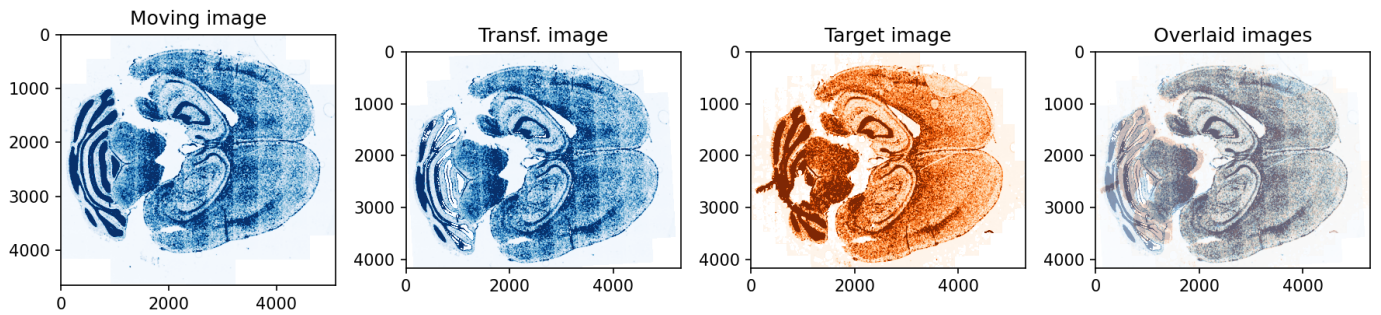


Figure 5.12: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0005_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_2_ScanRegion1 (Target image)

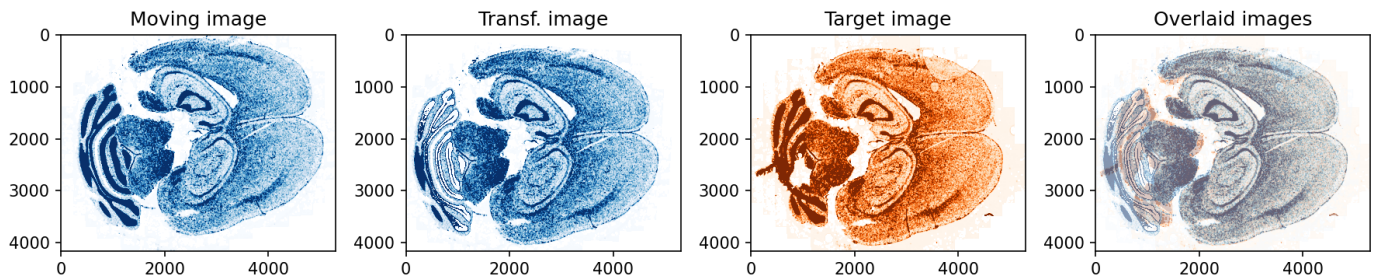


Figure 5.13: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0005_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_2_ScanRegion1 (Target image)

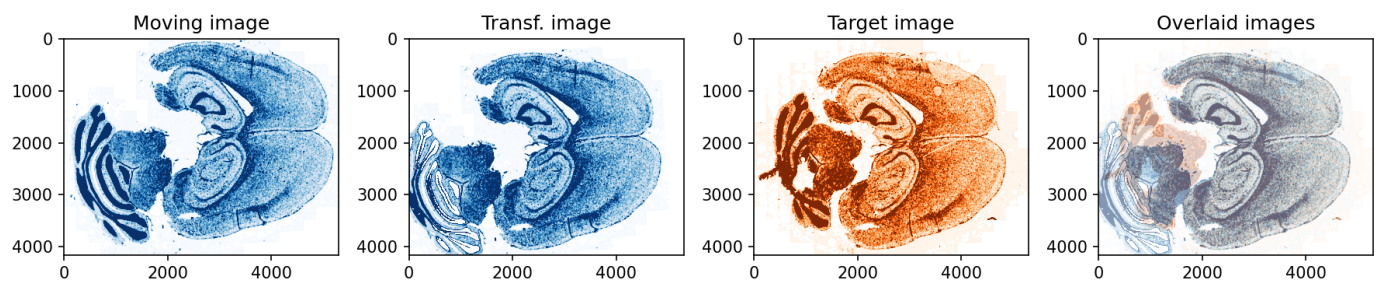


Figure 5.14: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0005_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0005_Scene_2_ScanRegion1 (Target image)

5.1.5 0003_Scene_1

Raw images:

- P2_A_C3H_BF_H_HE_0006_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0006_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0006_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0006_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0006_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

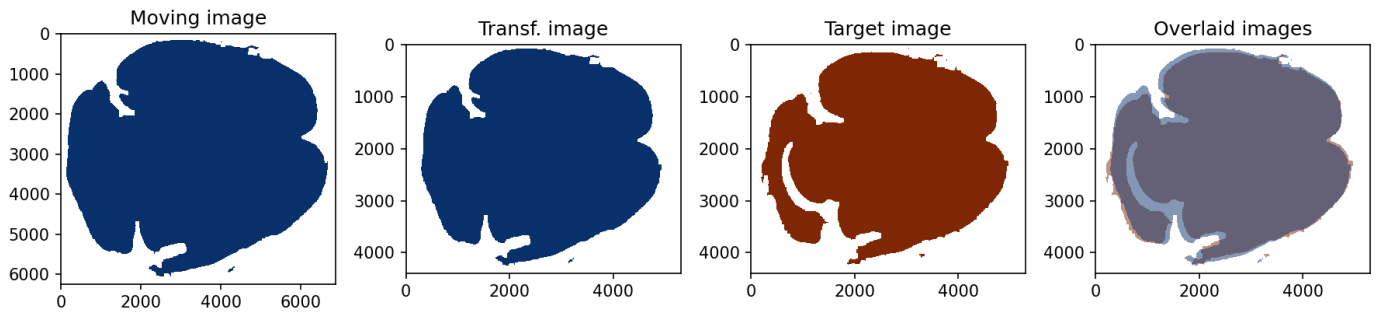


Figure 5.15: Results of registration of image P2_A_C3H_BF_H_HE_0006_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0006_Scene_1_ScanRegion0 (Target image)

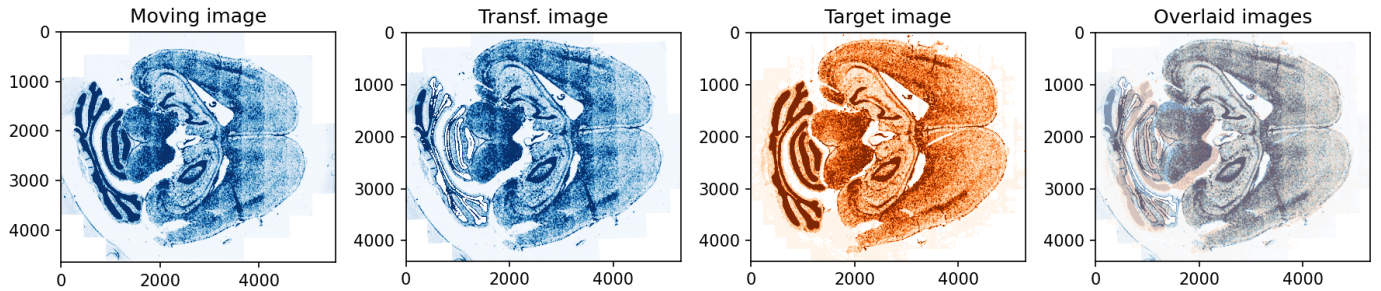


Figure 5.16: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0006_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0006_Scene_1_ScanRegion0 (Target image)

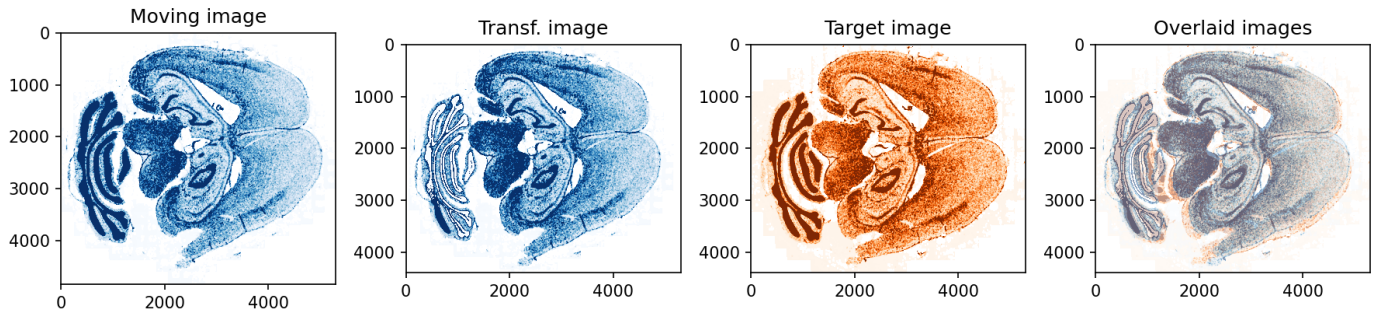


Figure 5.17: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0006_Scene.1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0006_Scene.1_ScanRegion0 (Target image)

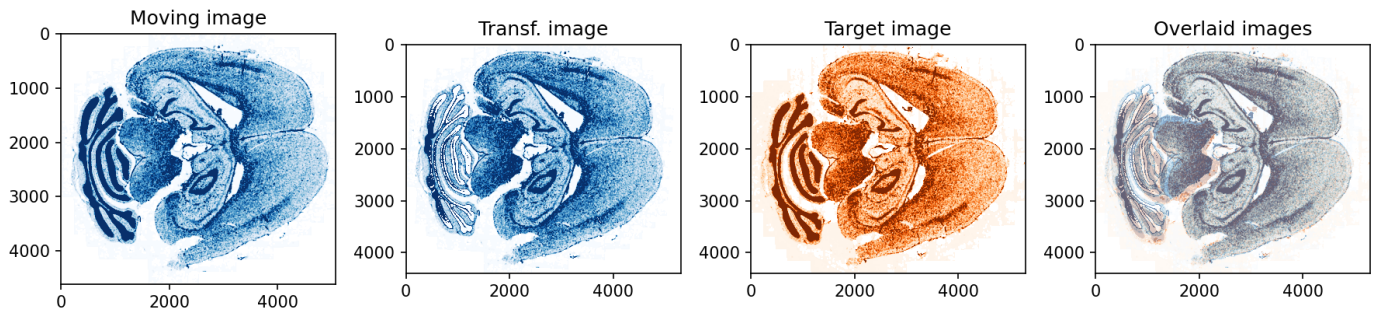


Figure 5.18: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0006_Scene.1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0006_Scene.1_ScanRegion0 (Target image)

5.1.6 0003_Scene_2

Raw images:

- P2_A_C3H_BF_H_HE_0006_Scene.2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0006_Scene.2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0006_Scene.2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0006_Scene.2_ScanRegion1.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0006_Scene.2_ScanRegion1.czi

Registered stainings: 5/2

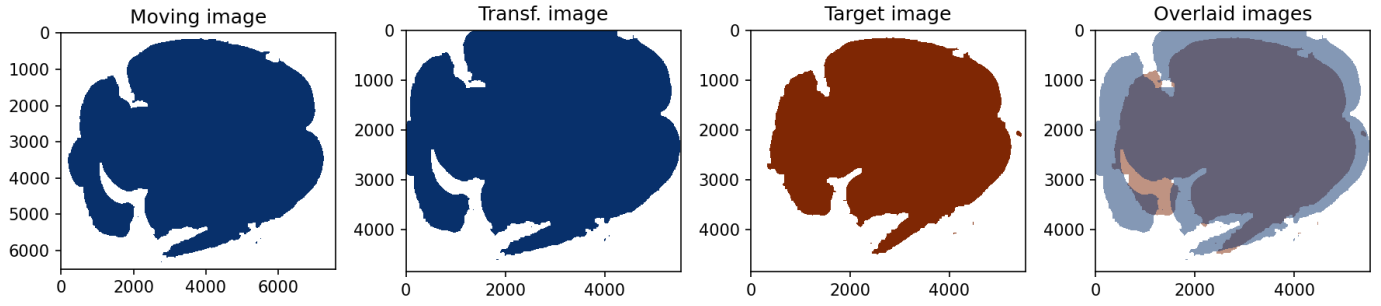


Figure 5.19: Results of registration of image P2_A_C3H_BF_H_HE.0006_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP.0006_Scene.2_ScanRegion1 (Target image)

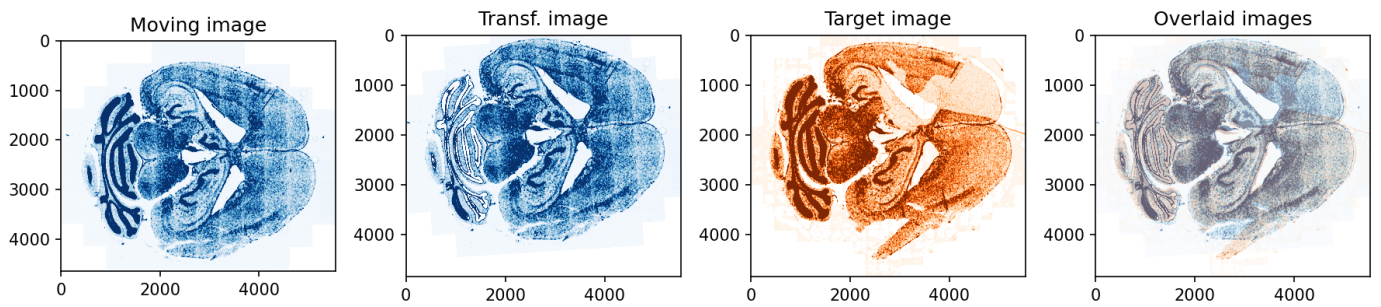


Figure 5.20: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45.0006_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP.0006_Scene.2_ScanRegion1 (Target image)

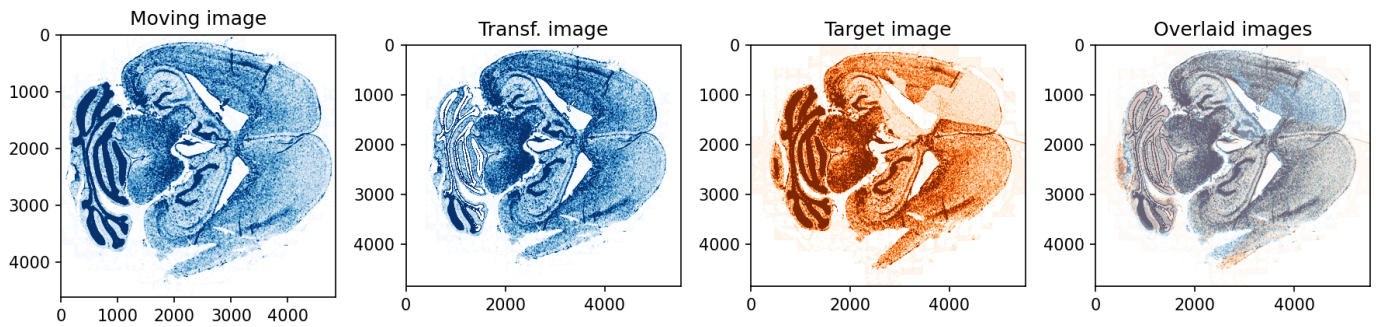


Figure 5.21: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2.0006_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP.0006_Scene.2_ScanRegion1 (Target image)

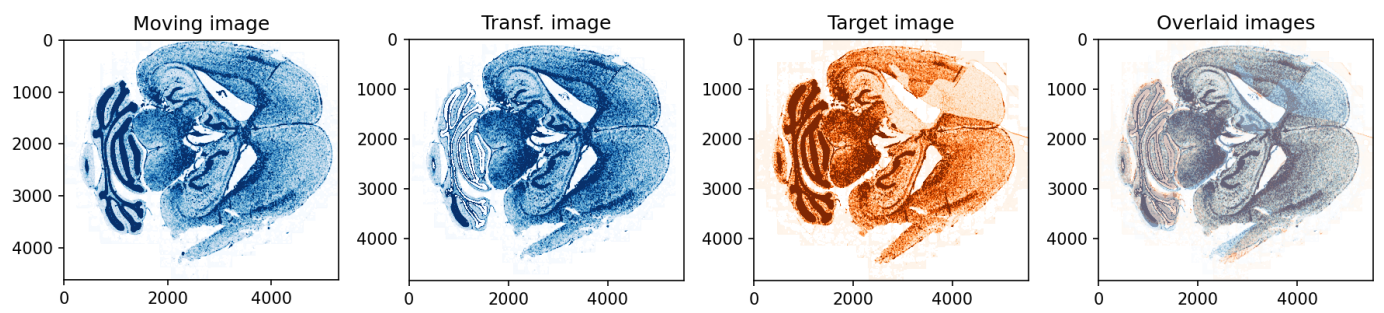


Figure 5.22: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0006_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0006_Scene_2_ScanRegion1 (Target image)

5.1.7 0004_Scene_1

Raw images:

- P2_A_C3H_BF_H_HE_0007_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0007_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0007_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0007_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0007_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

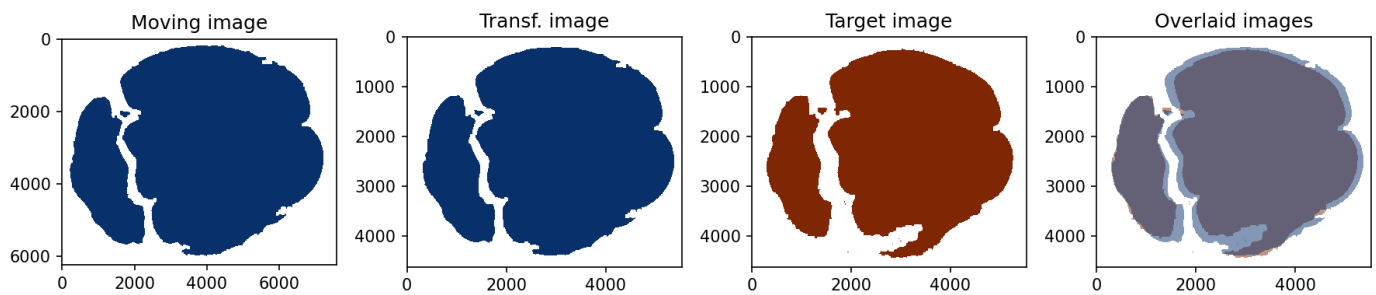


Figure 5.23: Results of registration of image P2_A_C3H_BF_H_HE_0007_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0007_Scene_1_ScanRegion0 (Target image)

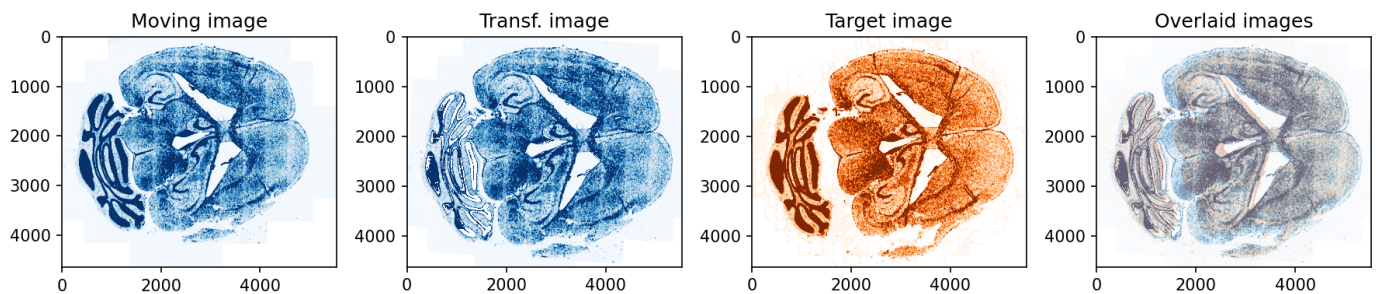


Figure 5.24: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0007_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0007_Scene_1_ScanRegion0 (Target image)

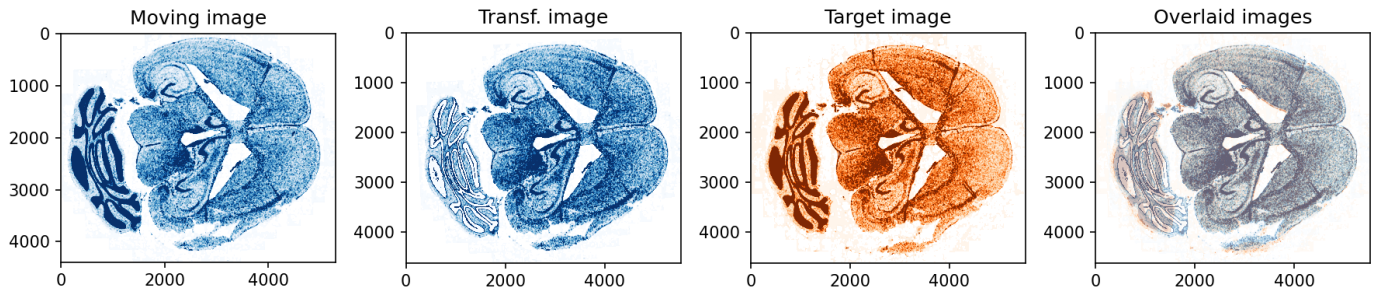


Figure 5.25: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0007_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0007_Scene_1_ScanRegion0 (Target image)

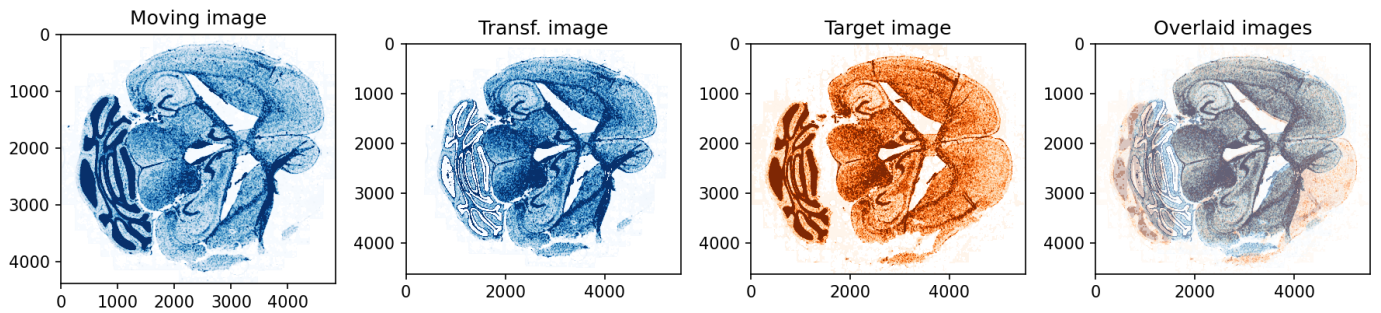


Figure 5.26: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0007_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0007_Scene_1_ScanRegion0 (Target image)

5.1.8 0004_Scene_2

Raw images:

- P2_A_C3H_BF_H_HE_0007_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0007_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0007_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0007_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0007_Scene_2_ScanRegion1.czi

Registered stainings: 5/2

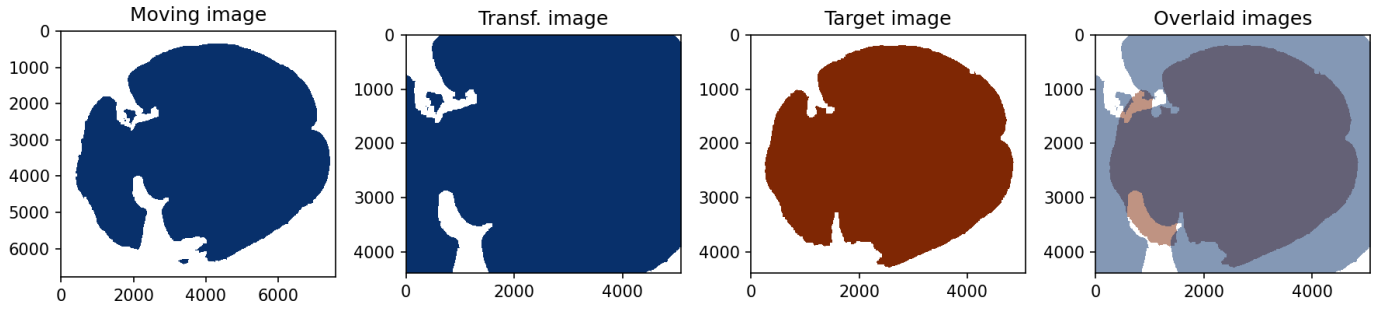


Figure 5.27: Results of registration of image P2_A_C3H_BF_H_HE.0007_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP.0007_Scene.2_ScanRegion1 (Target image)

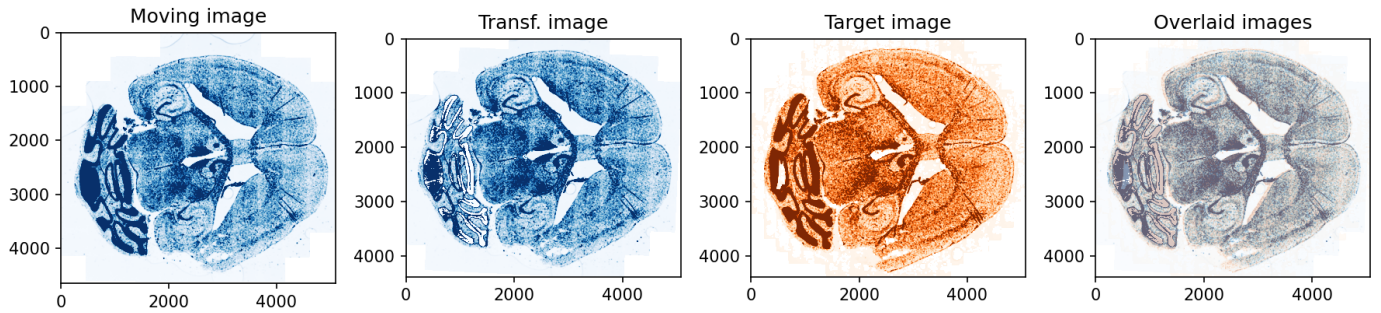


Figure 5.28: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45.0007_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP.0007_Scene.2_ScanRegion1 (Target image)

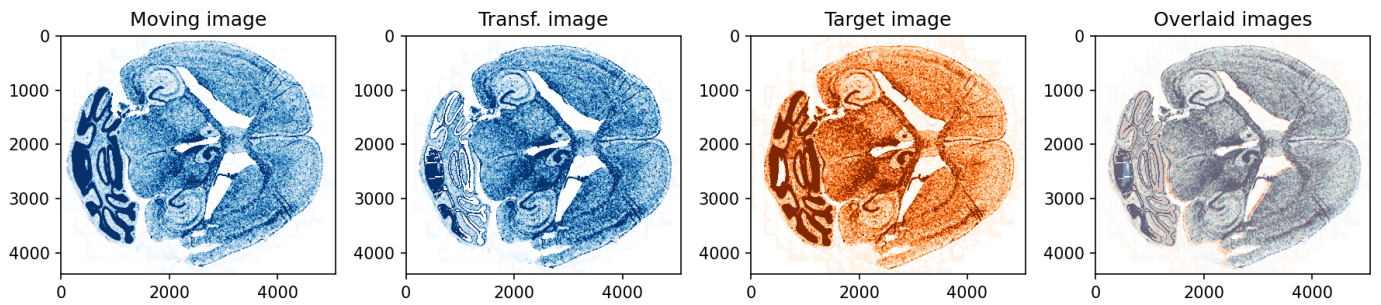


Figure 5.29: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2.0007_Scene.2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP.0007_Scene.2_ScanRegion1 (Target image)

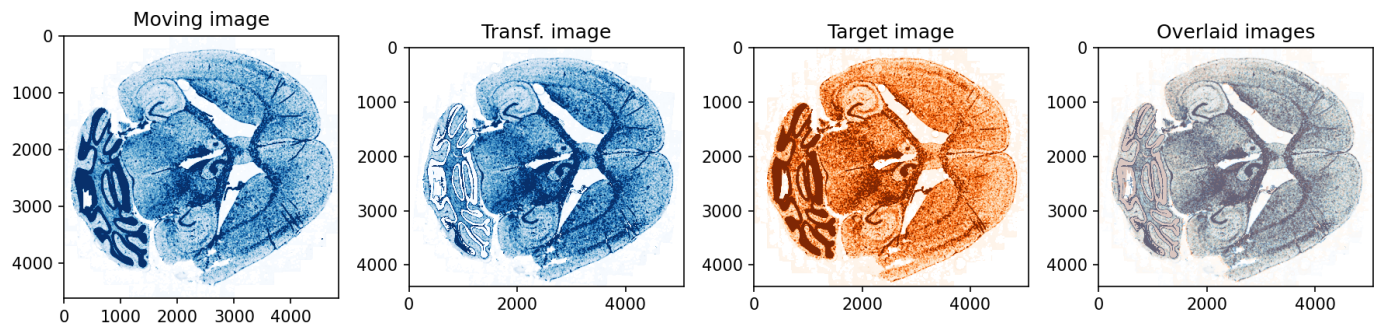


Figure 5.30: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0007_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0007_Scene_2_ScanRegion1 (Target image)

5.1.9 0005_Scene_1

Raw images:

- P2_A_C3H_BF_H_HE_0008_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0008_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0008_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_1_ScanRegion0.czi

Registered stainings: 4/2

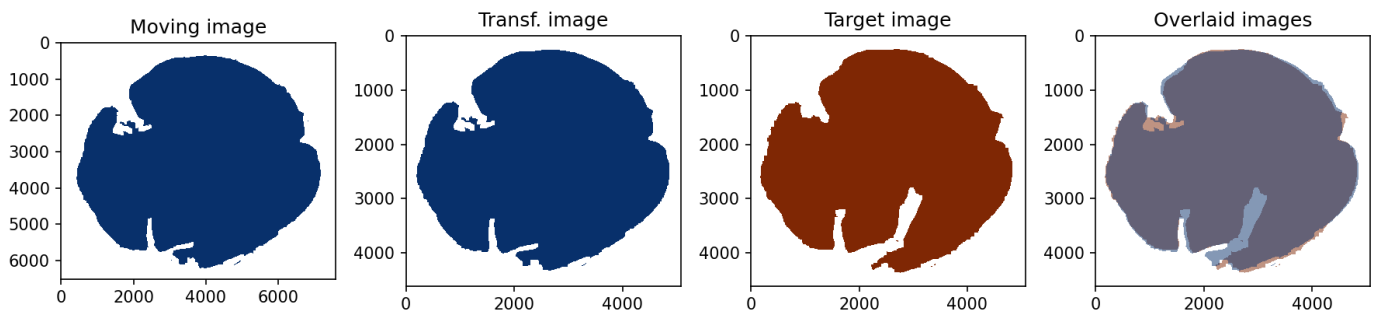


Figure 5.31: Results of registration of image P2_A_C3H_BF_H_HE_0008_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_1_ScanRegion0 (Target image)

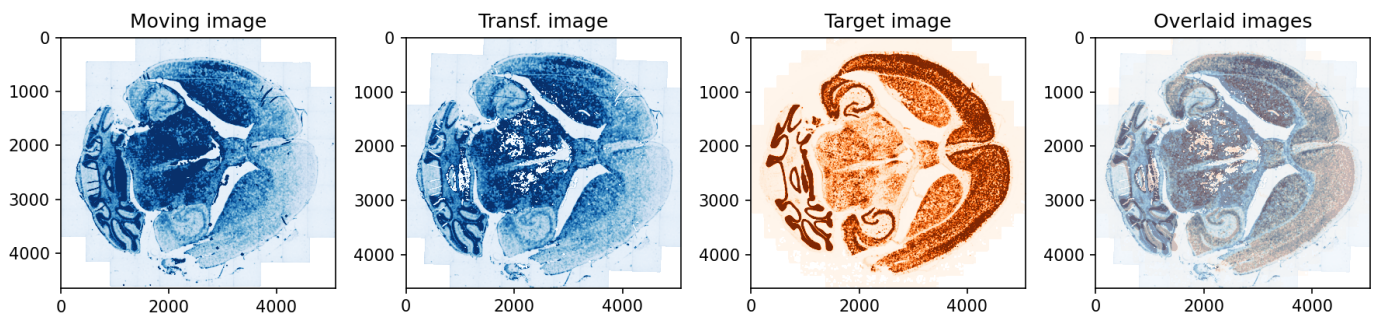


Figure 5.32: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0008_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_1_ScanRegion0 (Target image)

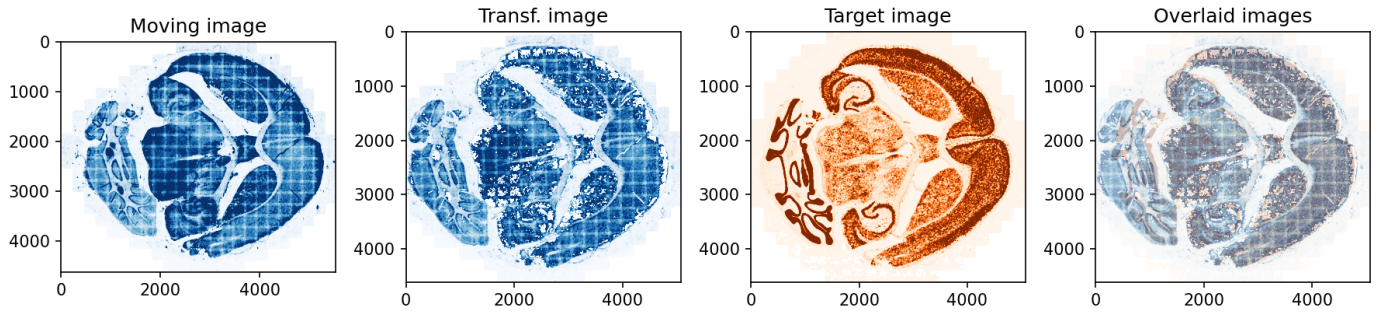


Figure 5.33: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0008_Scene_1_ScanRegion0 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_1_ScanRegion0 (Target image)

5.1.10 0005_Scene_2

Raw images:

- P2_A_C3H_BF_H_HE_0008_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0008_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0008_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_2_ScanRegion1.czi

Registered stainings: 4/2

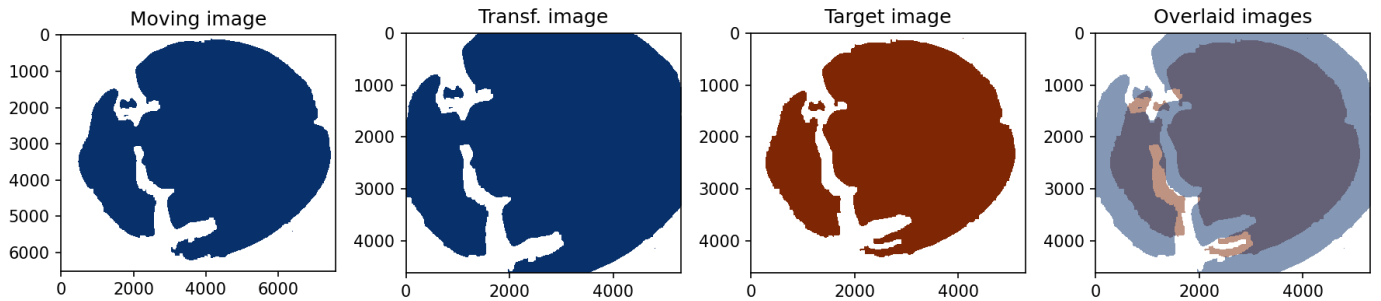


Figure 5.34: Results of registration of image P2_A_C3H_BF_H_HE_0008_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_2_ScanRegion1 (Target image)

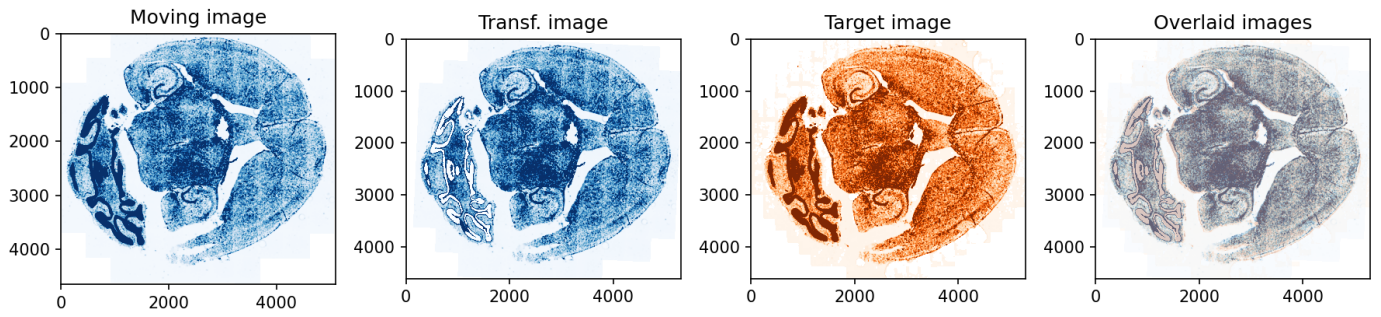


Figure 5.35: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0008_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_2_ScanRegion1 (Target image)

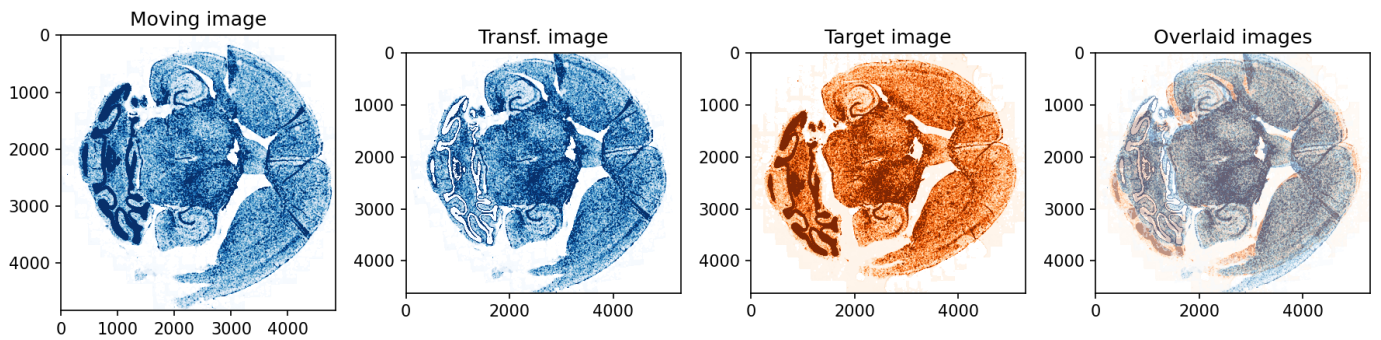


Figure 5.36: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0008_Scene_2_ScanRegion1 (Moving image) to P2_A_C3H_M5_NGO_NeuN_GFAP_OSP_0008_Scene_2_ScanRegion1 (Target image)

5.1.11 0006_Scene_1

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0009_Scene_1_ScanRegion0.czi
- P2_A_C3H_BF_H_HE_0009_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0009_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0009_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0009_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

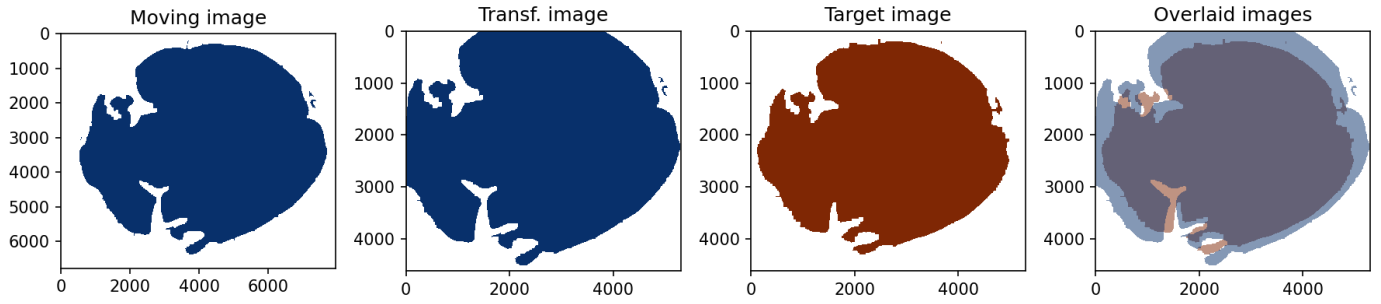


Figure 5.37: Results of registration of image P2_A_C3H_BF_H_HE.0009_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0009_Scene.1_ScanRegion0 (Target image)

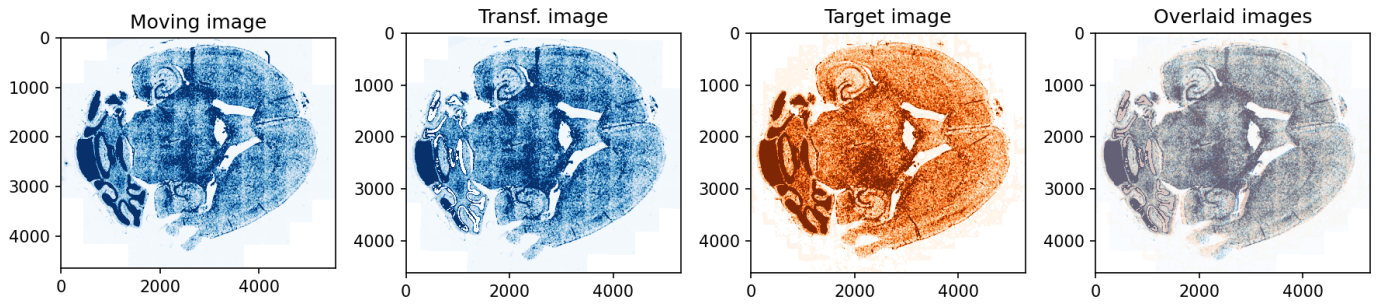


Figure 5.38: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45.0009_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0009_Scene.1_ScanRegion0 (Target image)

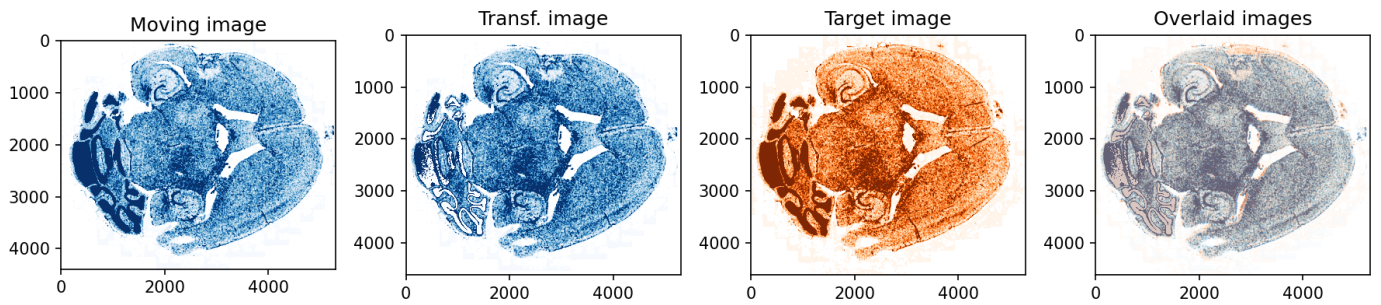


Figure 5.39: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2.0009_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0009_Scene.1_ScanRegion0 (Target image)

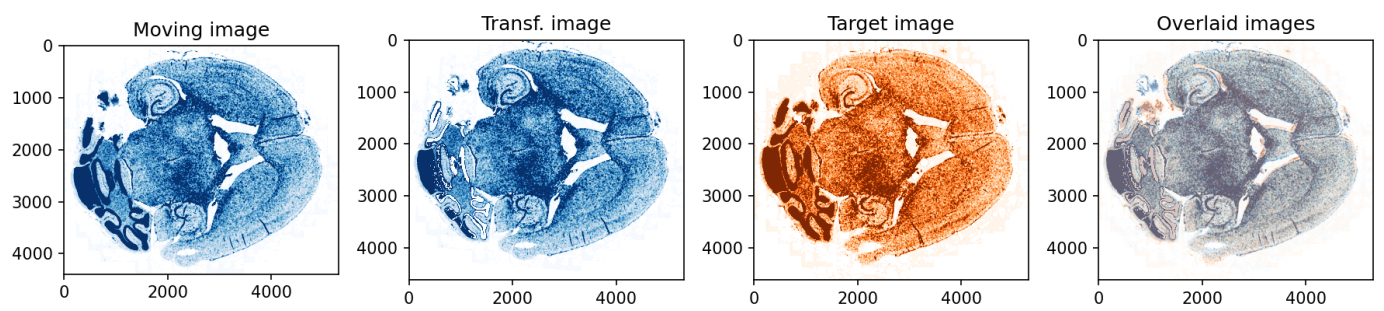


Figure 5.40: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0009_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0009_Scene_1_ScanRegion0 (Target image)

5.1.12 0006_Scene_2

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0009_Scene_2_ScanRegion1.czi
- P2_A_C3H_BF_H_HE_0009_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0009_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0009_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0009_Scene_2_ScanRegion1.czi

Registered stainings: 5/2

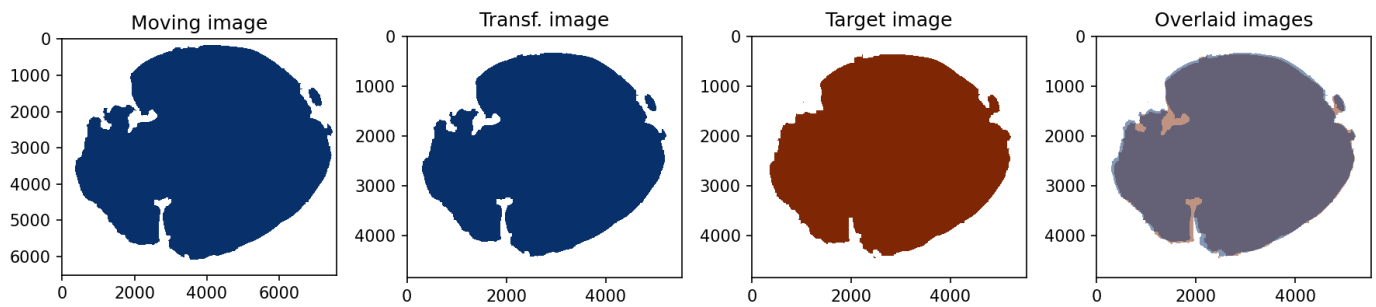


Figure 5.41: Results of registration of image P2_A_C3H_BF_H_HE_0009_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0009_Scene_2_ScanRegion1 (Target image)

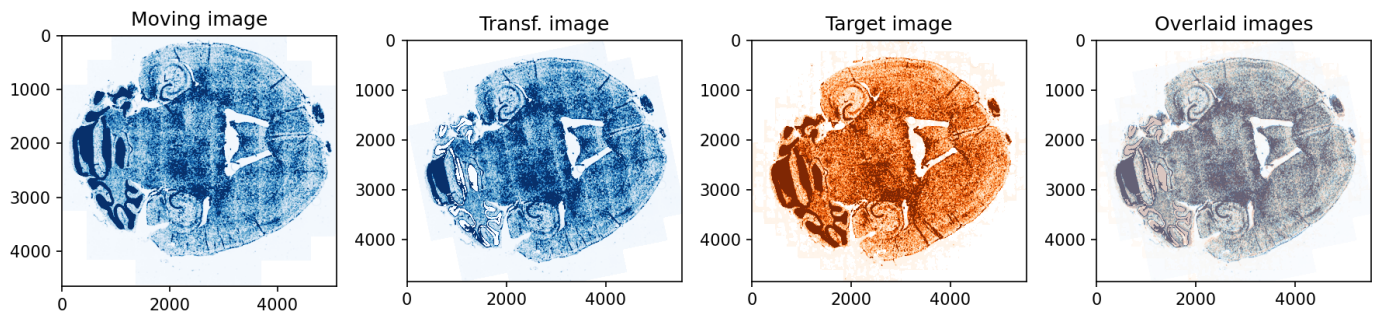


Figure 5.42: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0009_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0009_Scene_2_ScanRegion1 (Target image)

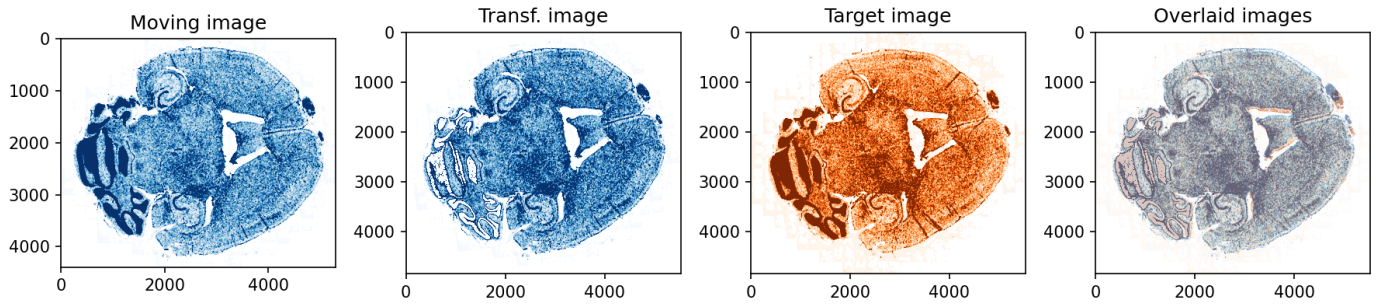


Figure 5.43: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0009_Scene_2_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0009_Scene_2_ScanRegion1 (Target image)

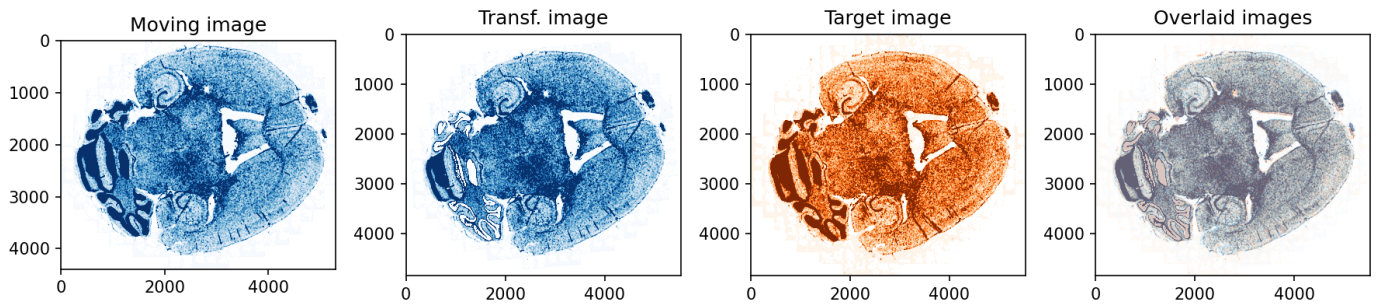


Figure 5.44: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0009_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0009_Scene_2_ScanRegion1 (Target image)

5.1.13 0007_Scene_1

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene_1_ScanRegion0.czi
- P2_A_C3H_BF_H_HE_0010_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0010_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0010_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0010_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

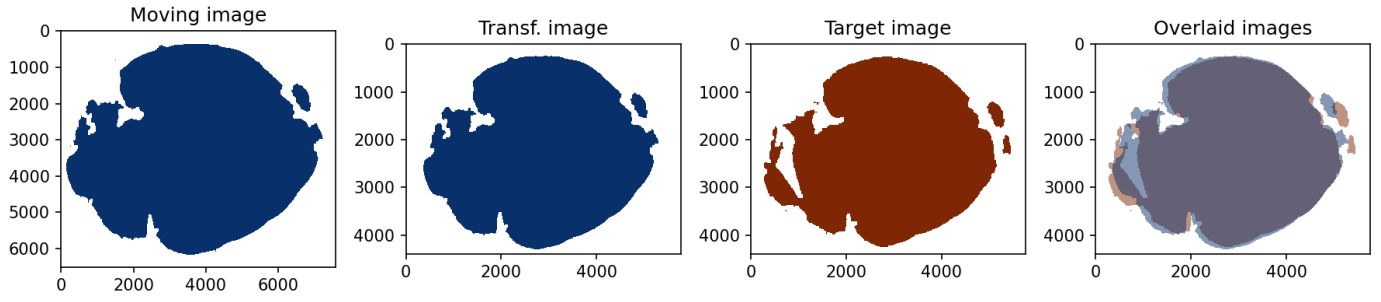


Figure 5.45: Results of registration of image P2_A_C3H_BF_H_HE_0010_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene.1_ScanRegion0 (Target image)

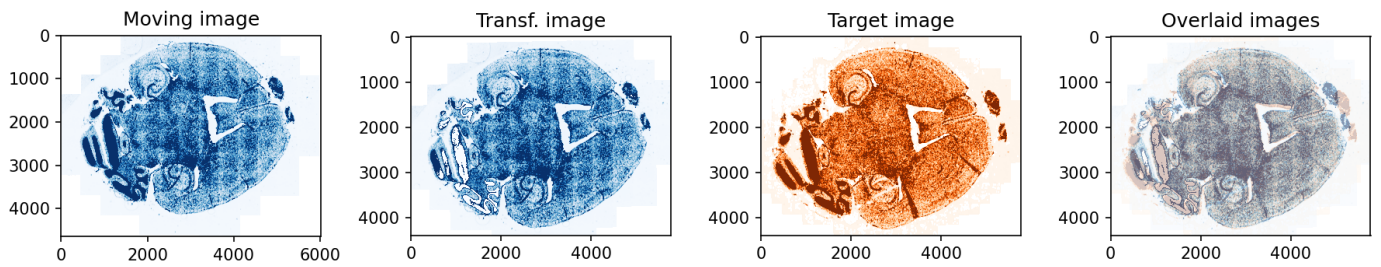


Figure 5.46: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0010_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene.1_ScanRegion0 (Target image)

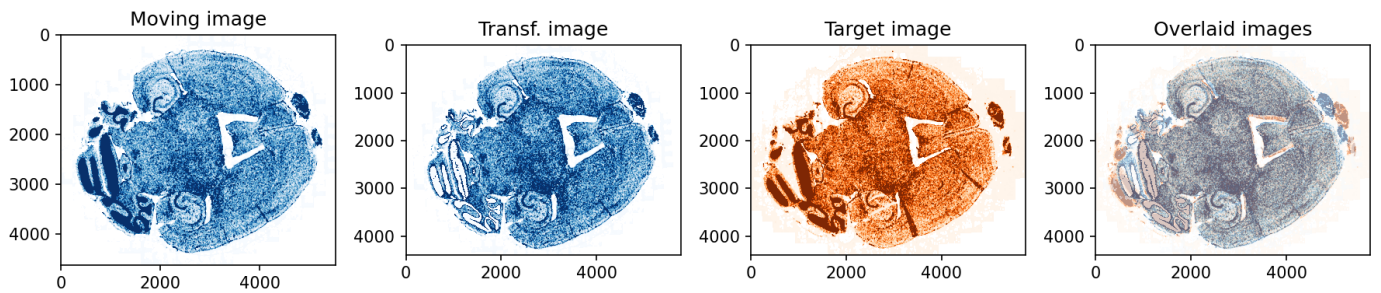


Figure 5.47: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0010_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene.1_ScanRegion0 (Target image)

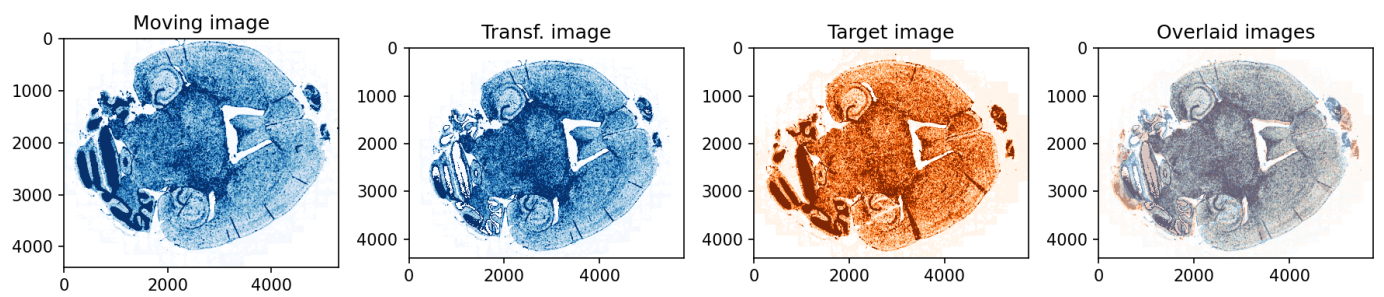


Figure 5.48: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0010_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene_1_ScanRegion0 (Target image)

5.1.14 0007_Scene_2

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene_2_ScanRegion1.czi
- P2_A_C3H_BF_H_HE_0010_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0010_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0010_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0010_Scene_2_ScanRegion1.czi

Registered stainings: 5/2

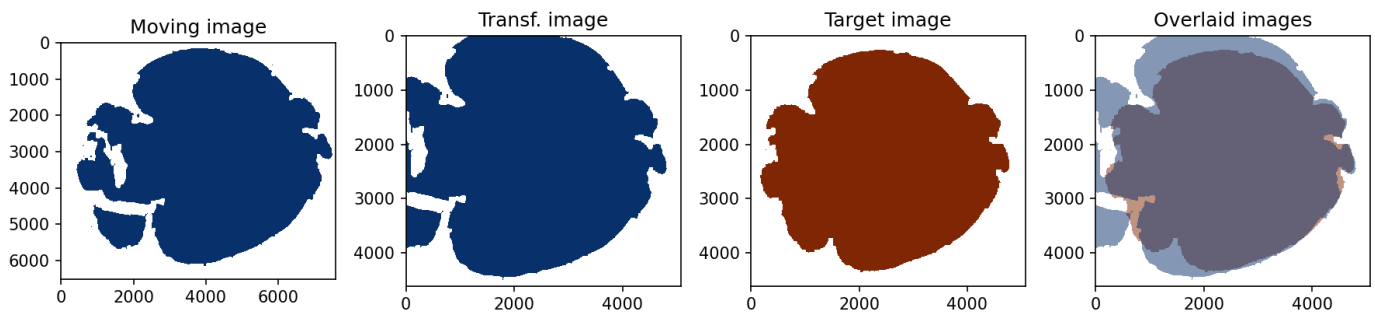


Figure 5.49: Results of registration of image P2_A_C3H_BF_H_HE_0010_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene_2_ScanRegion1 (Target image)

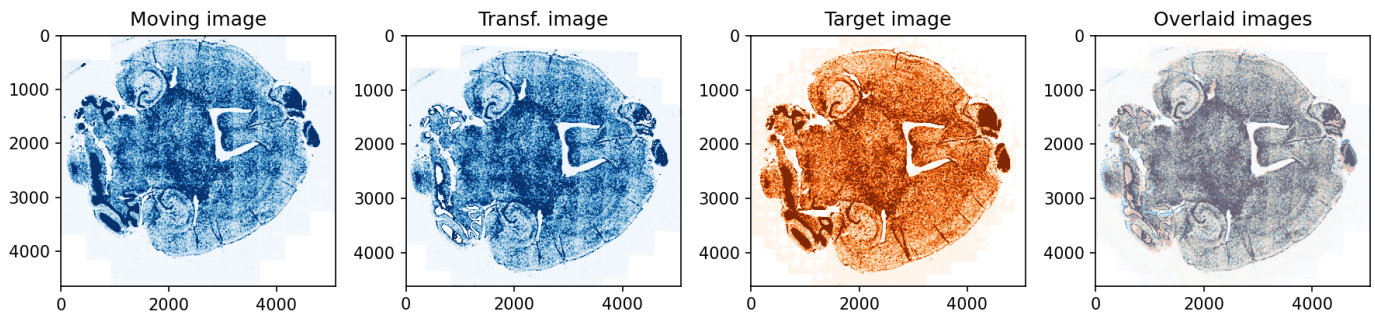


Figure 5.50: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0010_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene_2_ScanRegion1 (Target image)

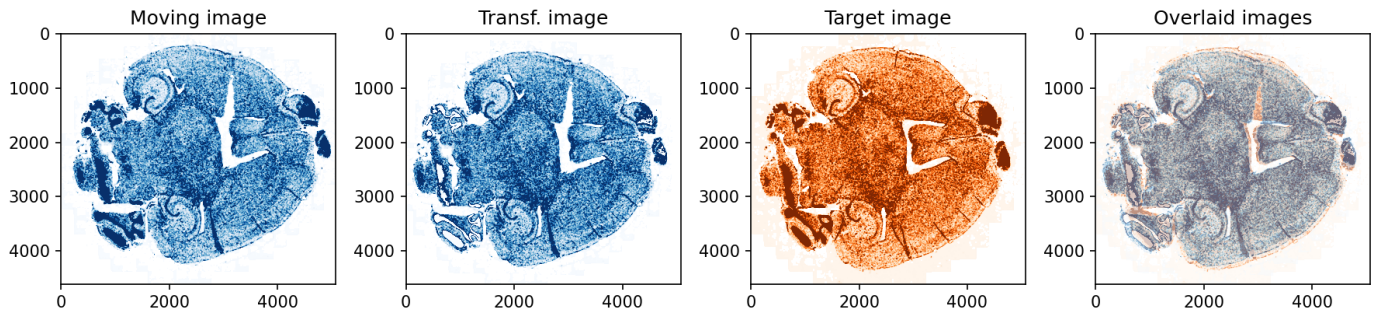


Figure 5.51: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0010_Scene_2_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene_2_ScanRegion1 (Target image)

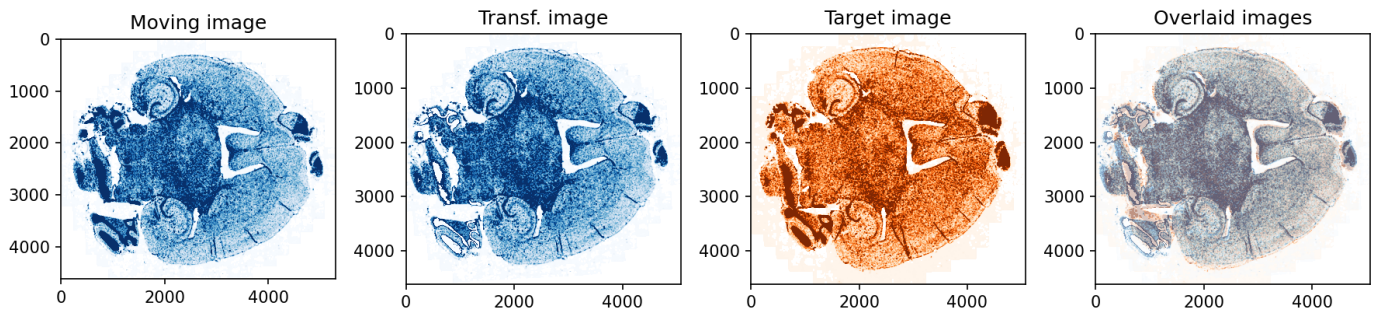


Figure 5.52: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0010_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0010_Scene_2_ScanRegion1 (Target image)

5.1.15 0008_Scene_1

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0011_Scene_1_ScanRegion0.czi
- P2_A_C3H_BF_H_HE_0011_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0011_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0011_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0011_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

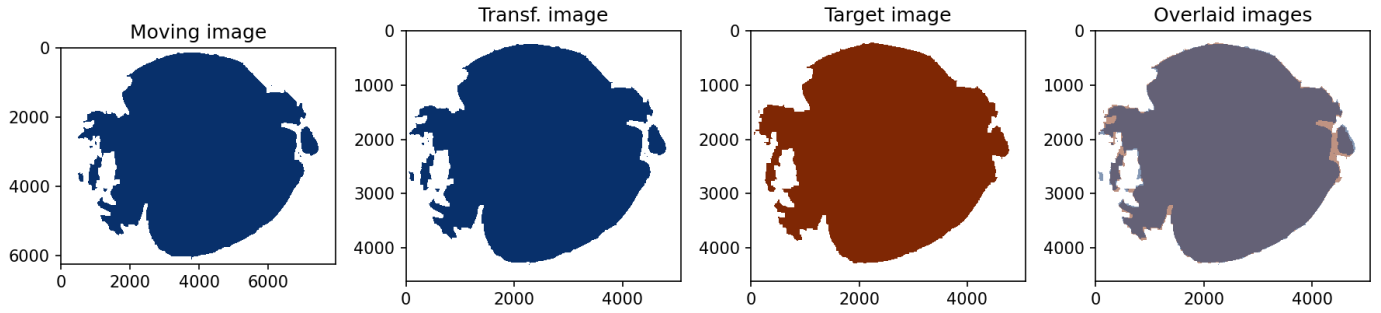


Figure 5.53: Results of registration of image P2_A_C3H_BF_H_HE.0011_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0011_Scene.1_ScanRegion0 (Target image)

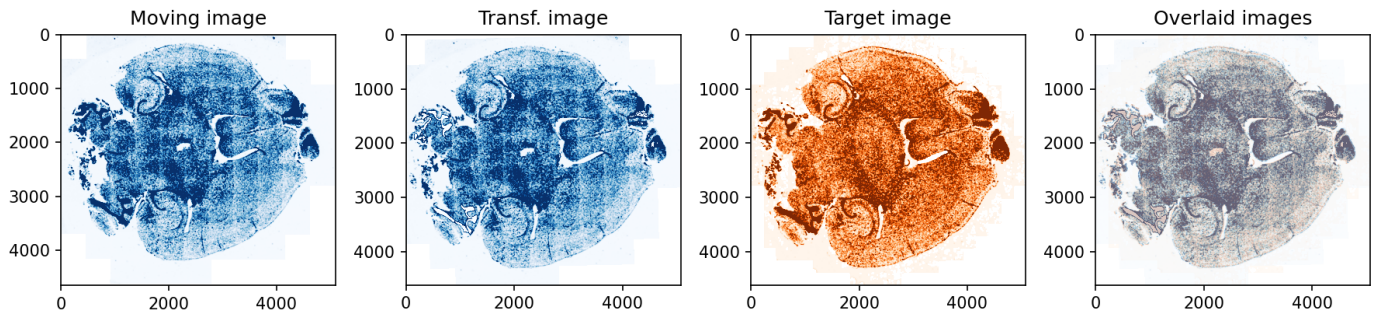


Figure 5.54: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45.0011_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0011_Scene.1_ScanRegion0 (Target image)

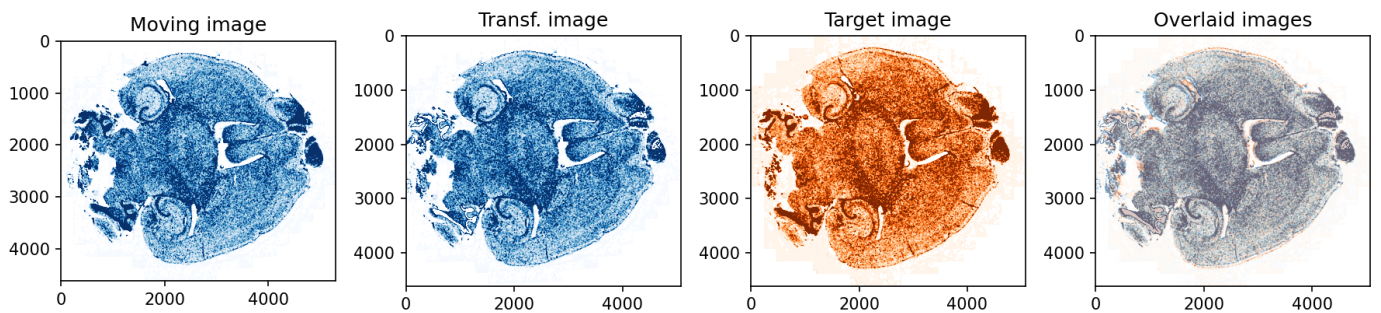


Figure 5.55: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2.0011_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0011_Scene.1_ScanRegion0 (Target image)

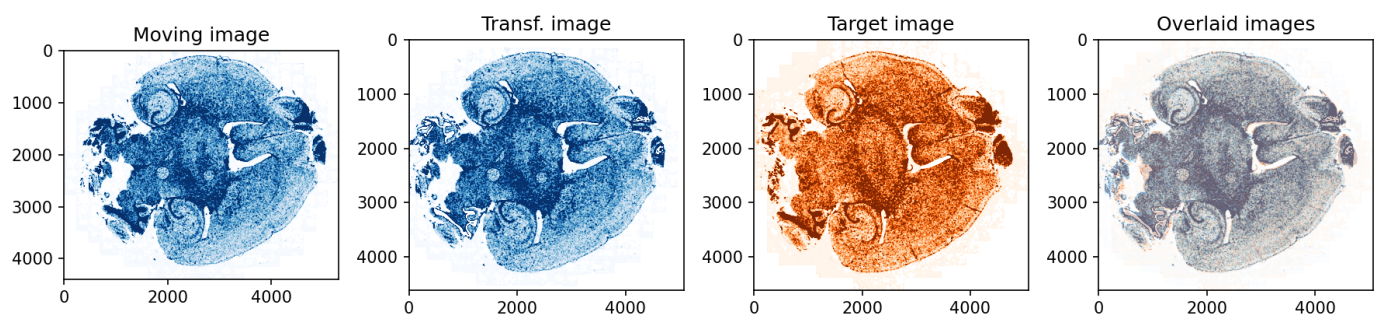


Figure 5.56: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0011_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0011_Scene_1_ScanRegion0 (Target image)

5.1.16 0008_Scene_2

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0011_Scene_2_ScanRegion1.czi
- P2_A_C3H_BF_H_HE_0011_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0011_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0011_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0011_Scene_2_ScanRegion1.czi

Registered stainings: 5/2

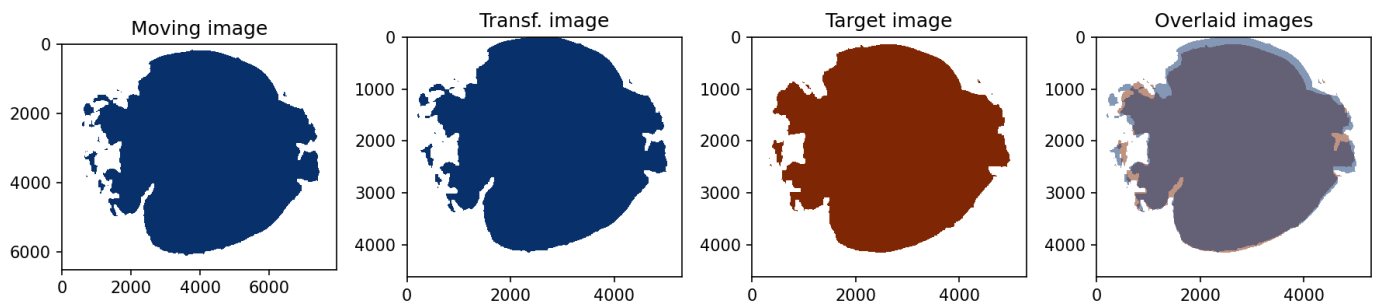


Figure 5.57: Results of registration of image P2_A_C3H_BF_H_HE_0011_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0011_Scene_2_ScanRegion1 (Target image)

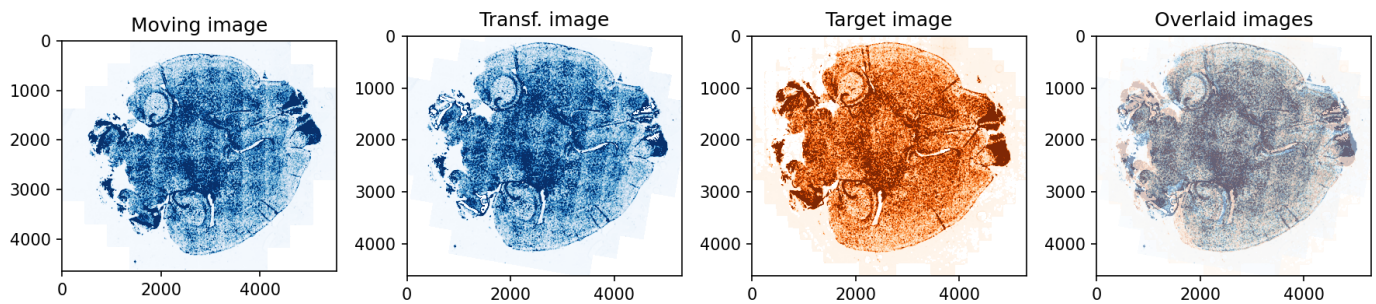


Figure 5.58: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0011_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0011_Scene_2_ScanRegion1 (Target image)

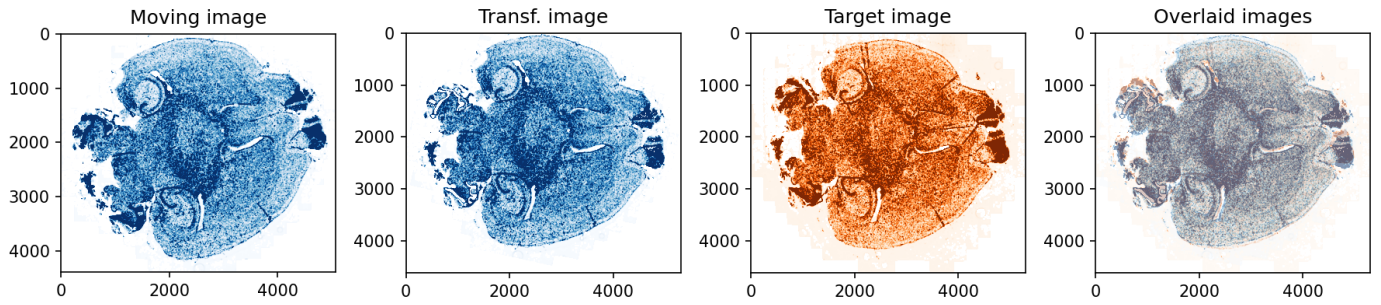


Figure 5.59: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0011_Scene_2_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0011_Scene_2_ScanRegion1 (Target image)

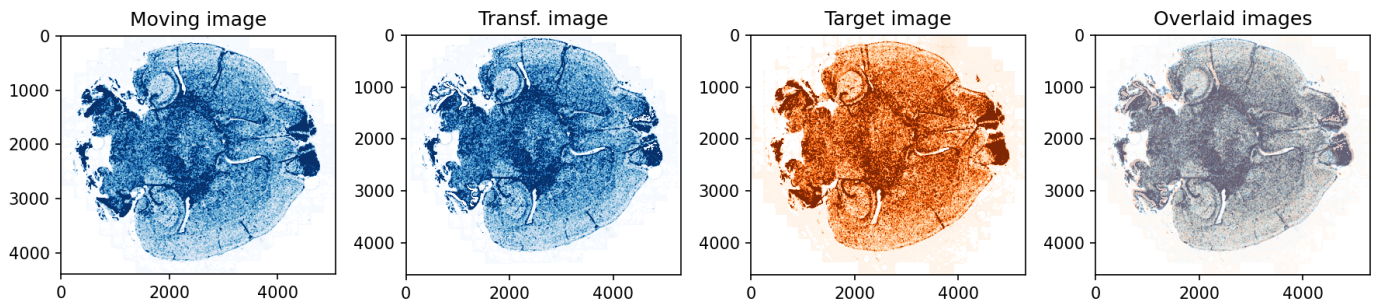


Figure 5.60: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0011_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0011_Scene_2_ScanRegion1 (Target image)

5.1.17 0009_Scene_1

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0012_Scene_1_ScanRegion0.czi
- P2_A_C3H_BF_H_HE_0012_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0012_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0012_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0012_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

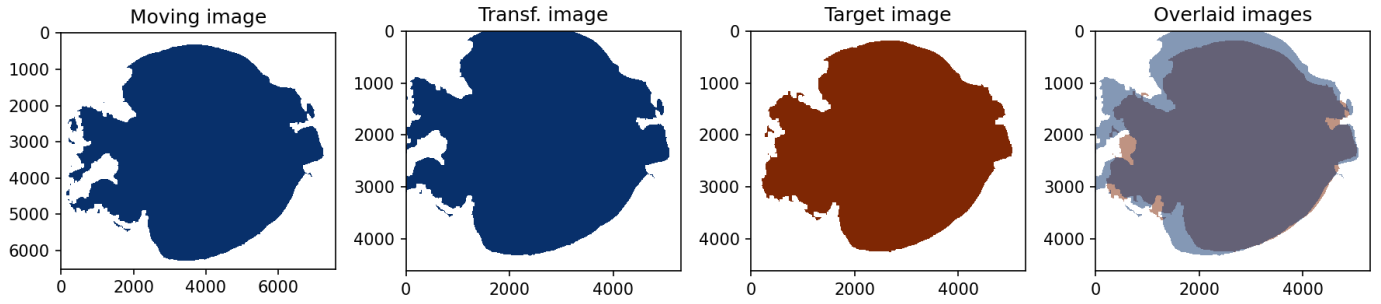


Figure 5.61: Results of registration of image P2_A_C3H_BF_H_HE.0012_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0012_Scene.1_ScanRegion0 (Target image)

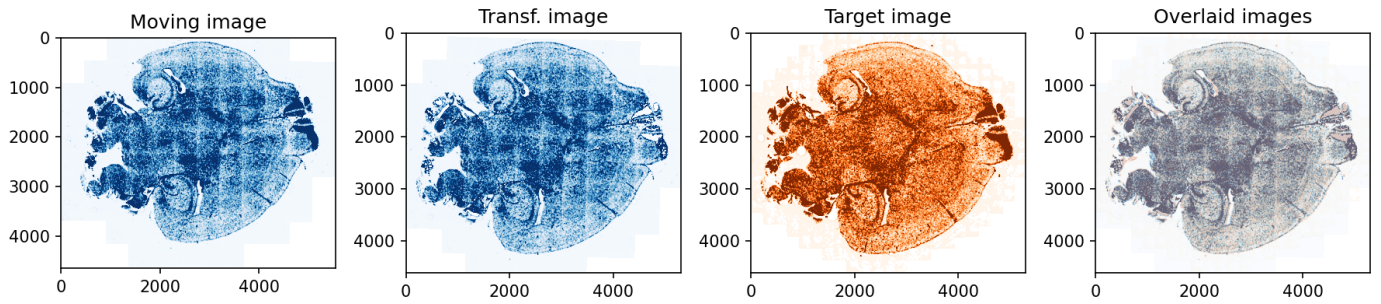


Figure 5.62: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45.0012_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0012_Scene.1_ScanRegion0 (Target image)

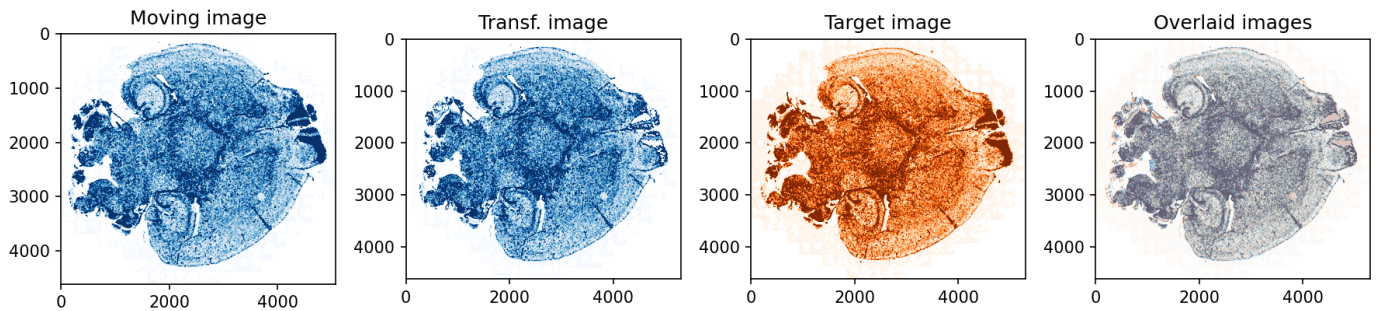


Figure 5.63: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2.0012_Scene.1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP.0012_Scene.1_ScanRegion0 (Target image)

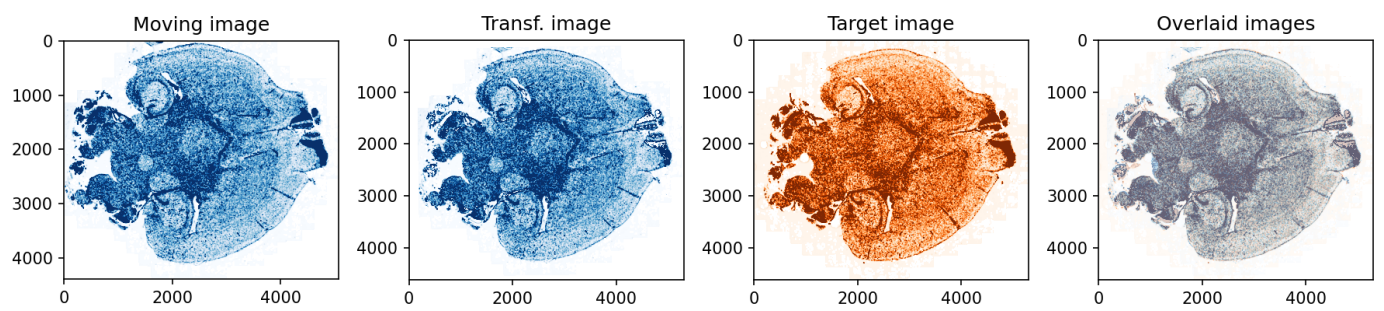


Figure 5.64: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0012_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0012_Scene_1_ScanRegion0 (Target image)

5.1.18 0009_Scene_2

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0012_Scene_2_ScanRegion1.czi
- P2_A_C3H_BF_H_HE_0012_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0012_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0012_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0012_Scene_2_ScanRegion1.czi

Registered stainings: 5/2

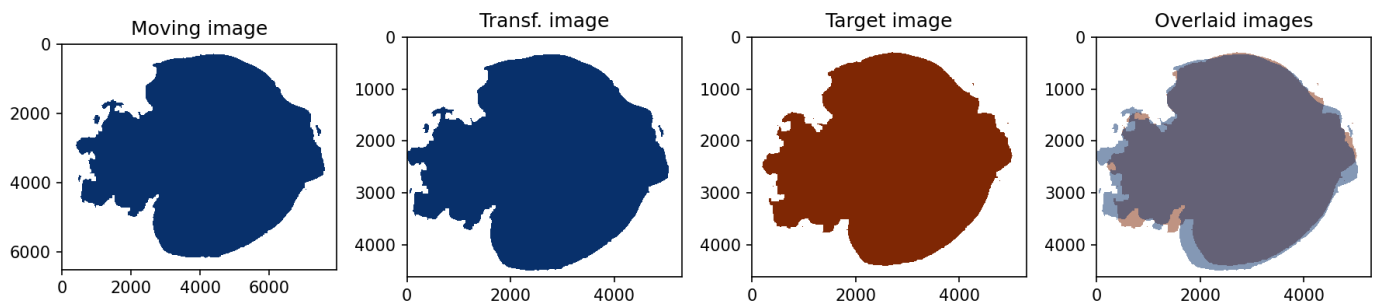


Figure 5.65: Results of registration of image P2_A_C3H_BF_H_HE_0012_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0012_Scene_2_ScanRegion1 (Target image)

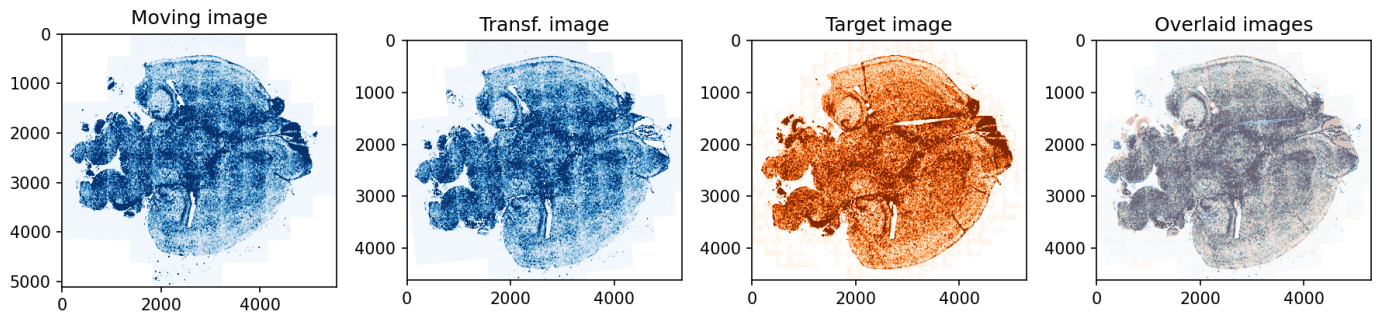


Figure 5.66: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0012_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0012_Scene_2_ScanRegion1 (Target image)

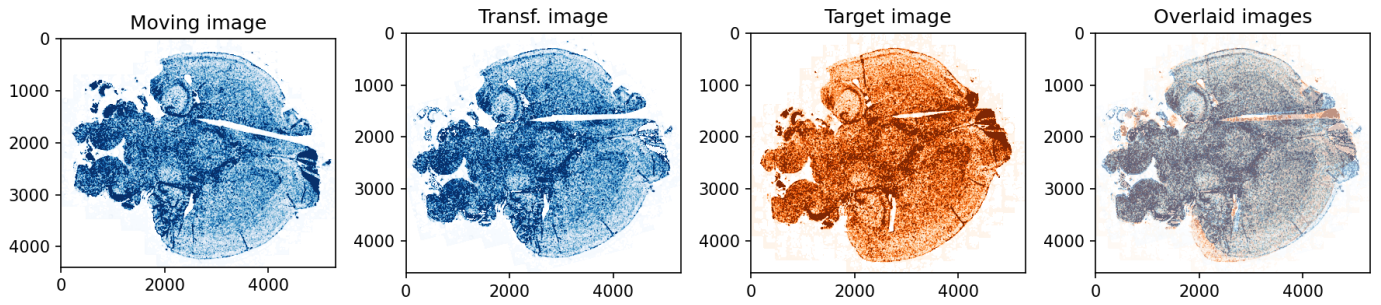


Figure 5.67: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0012_Scene_2_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0012_Scene_2_ScanRegion1 (Target image)

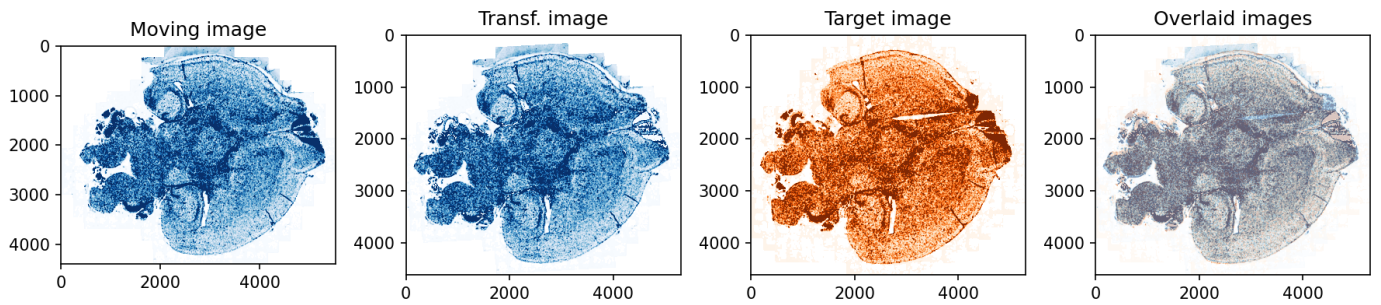


Figure 5.68: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0012_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0012_Scene_2_ScanRegion1 (Target image)

5.1.19 0010_Scene_1

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0013_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0013_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0013_Scene_1_ScanRegion0.czi

Registered stainings: 4/2

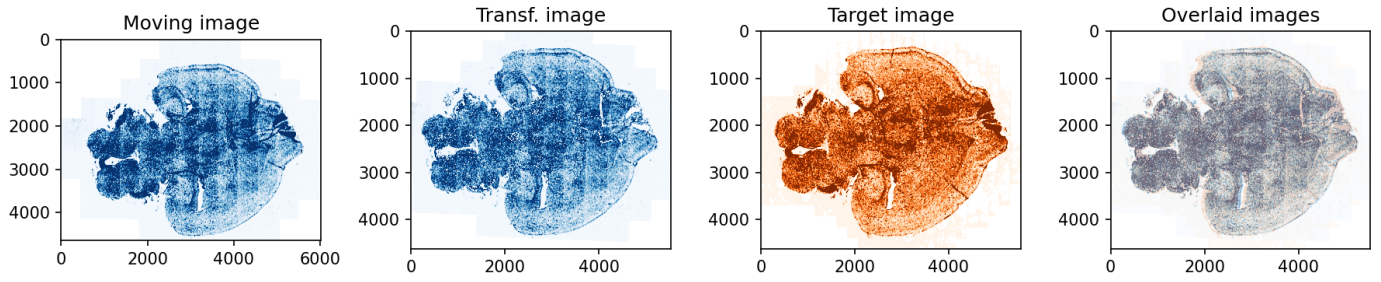


Figure 5.69: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0013_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_1_ScanRegion0 (Target image)

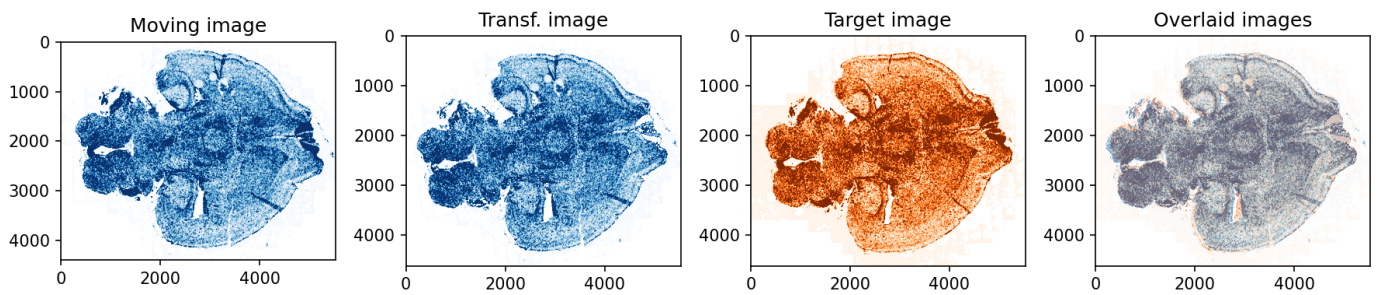


Figure 5.70: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0013_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_1_ScanRegion0 (Target image)

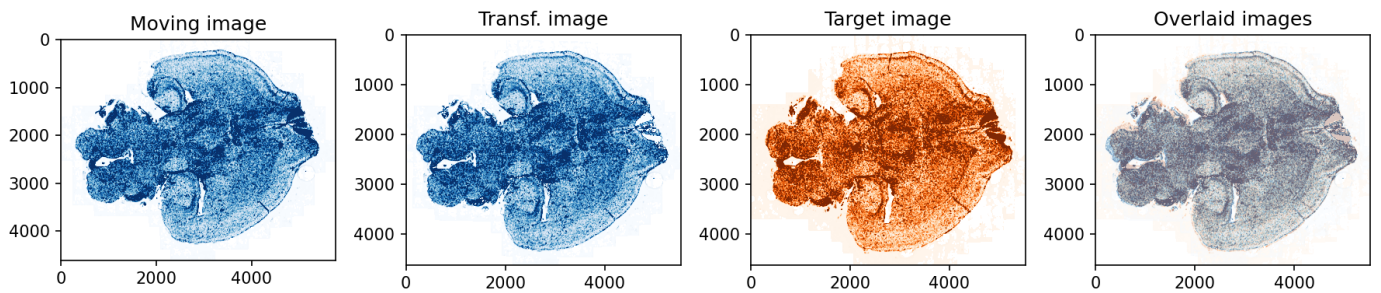


Figure 5.71: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0013_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_1_ScanRegion0 (Target image)

5.1.20 0010_Scene_2

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0013_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0013_Scene_2_ScanRegion1.czi
- P2_A_C3H_M5_NC_Nestin_Cas3_0013_Scene_2_ScanRegion1.czi

Registered stainings: 4/2

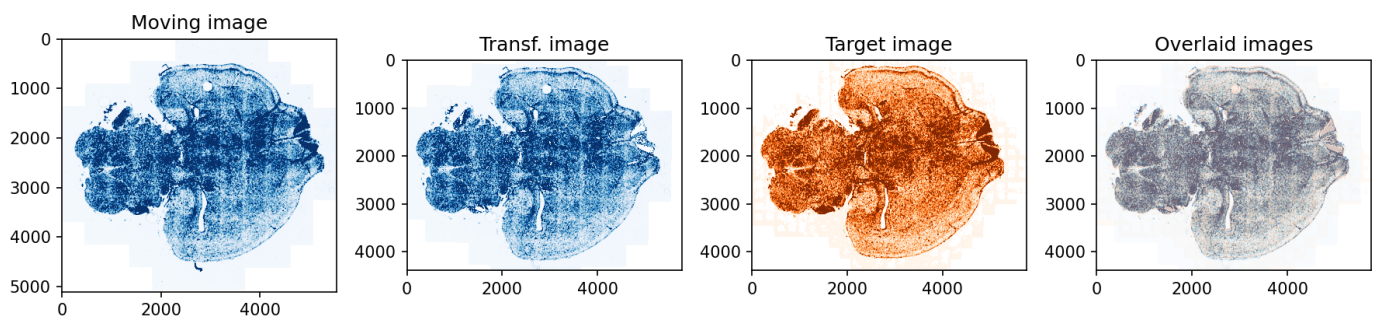


Figure 5.72: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0013_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_2_ScanRegion1 (Target image)

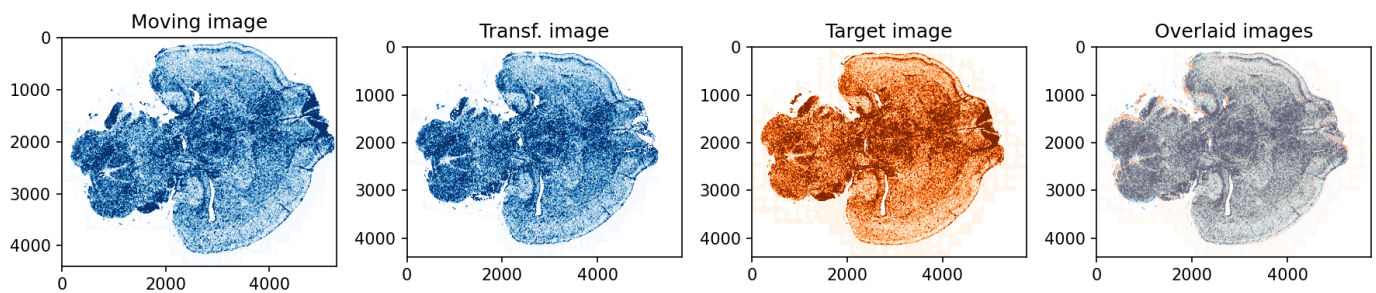


Figure 5.73: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0013_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_2_ScanRegion1 (Target image)

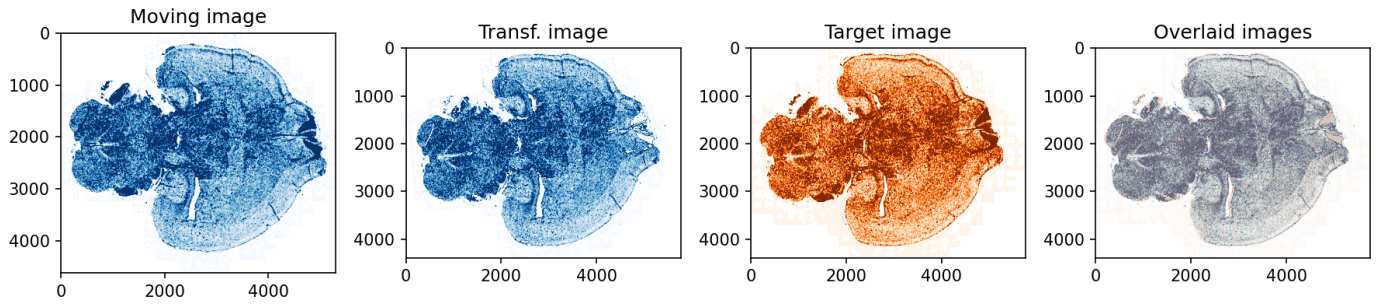


Figure 5.74: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3__0013_Scene_2_ScanRegion1 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0013_Scene_2_ScanRegion1 (Target image)

5.1.21 0011_Scene_1

Raw images:

- P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0014_Scene_1_ScanRegion0.czi
- P2_A_C3H_BF_H_HE_0014_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_IC_Iba1_CD45_0014_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0014_Scene_1_ScanRegion0.czi
- P2_A_C3H_M5_NC_Nestin_Cas3__0014_Scene_1_ScanRegion0.czi

Registered stainings: 5/2

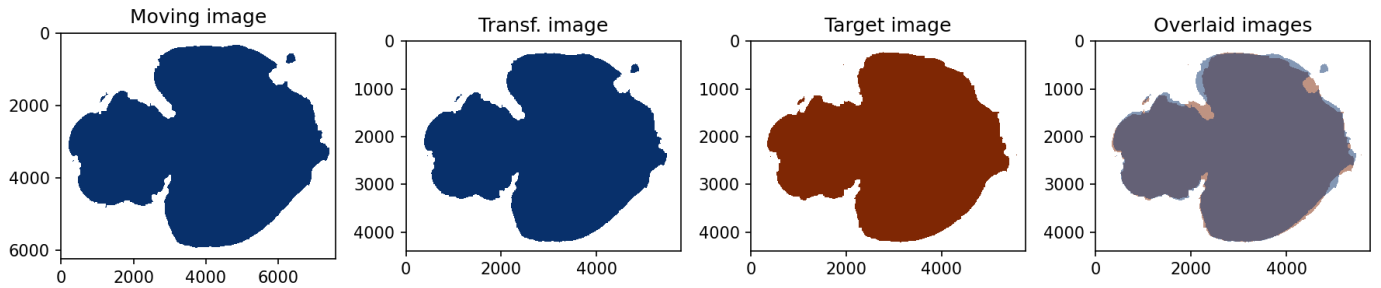


Figure 5.75: Results of registration of image P2_A_C3H_BF_H_HE_0014_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0014_Scene_1_ScanRegion0 (Target image)

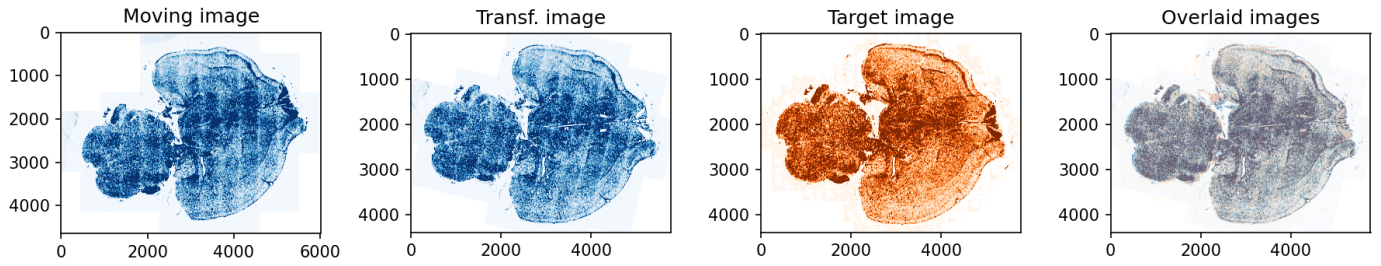


Figure 5.76: Results of registration of image P2_A_C3H_M5_IC_Iba1_CD45_0014_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0014_Scene_1_ScanRegion0 (Target image)

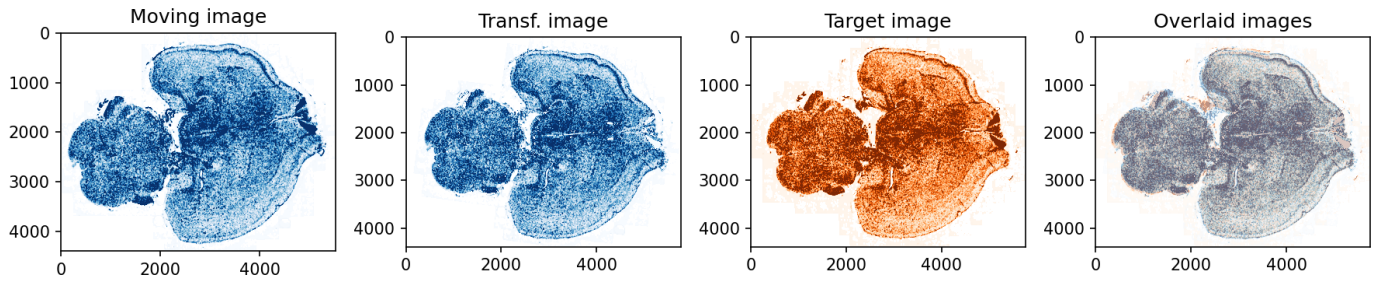


Figure 5.77: Results of registration of image P2_A_C3H_M5_KHM_Ki67_Hif1a_MAP2_0014_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0014_Scene_1_ScanRegion0 (Target image)

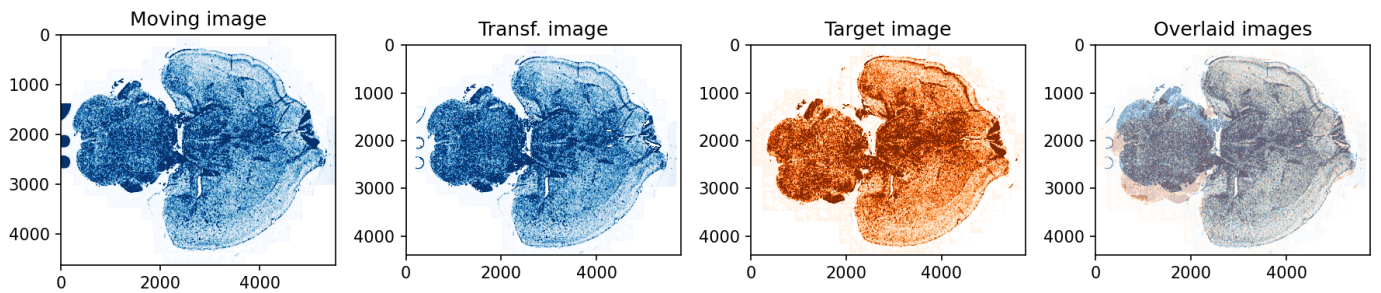


Figure 5.78: Results of registration of image P2_A_C3H_M5_NC_Nestin_Cas3_0014_Scene_1_ScanRegion0 (Moving image) to P1_A_C3H_M5_NGO_NeuN_GFAP_OSP_0014_Scene_1_ScanRegion0 (Target image)

5.2 Slice2Volume

Forward transformation files: 21/21

Inverse transformation files: 21/21

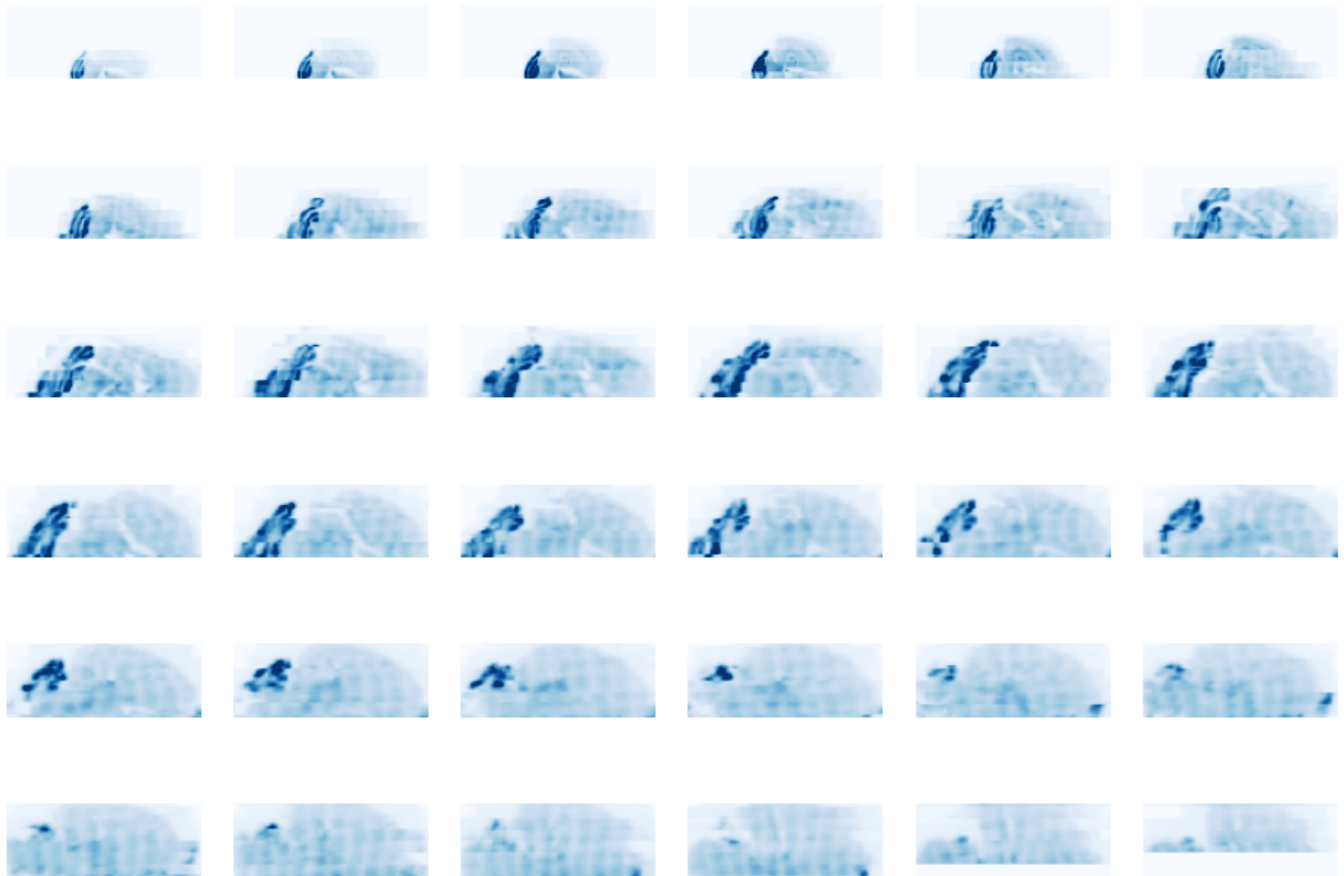


Figure 5.79: Sequence of coronal DAPI images that were transformed with Slice2Volume. This view allows to evaluate the consistency of subsequent slices.

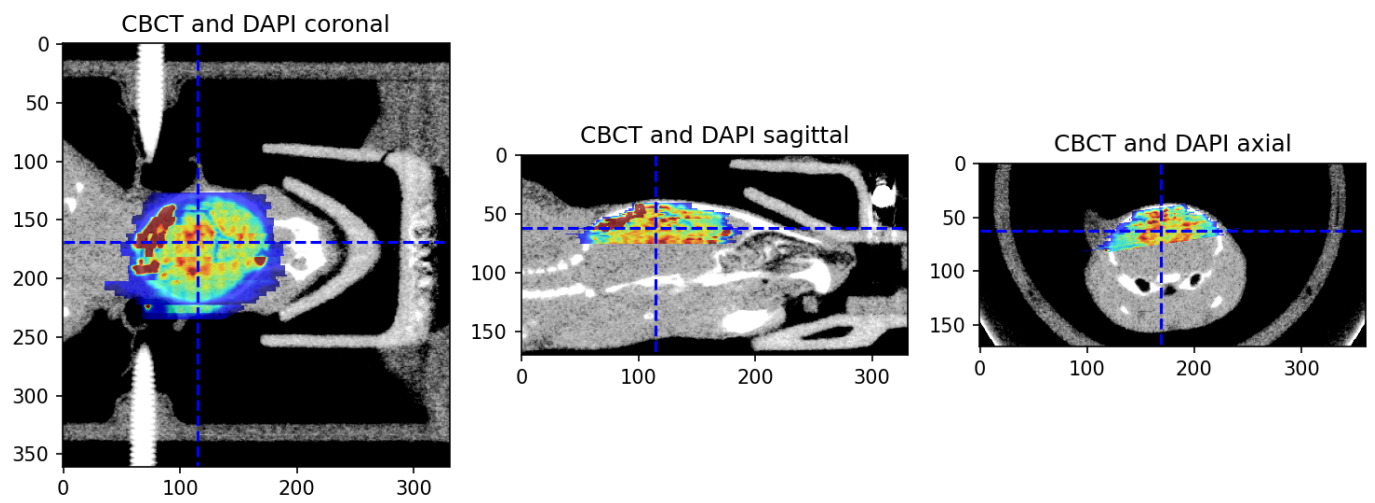


Figure 5.80: Overlay of downsampled and transformed histological image (transformed_DAPI) and CBCT