PHD MEETING - 06 DEC 2016

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UCL
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Academic Health Science Partnership
UZ LEUVEN
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EPSRC
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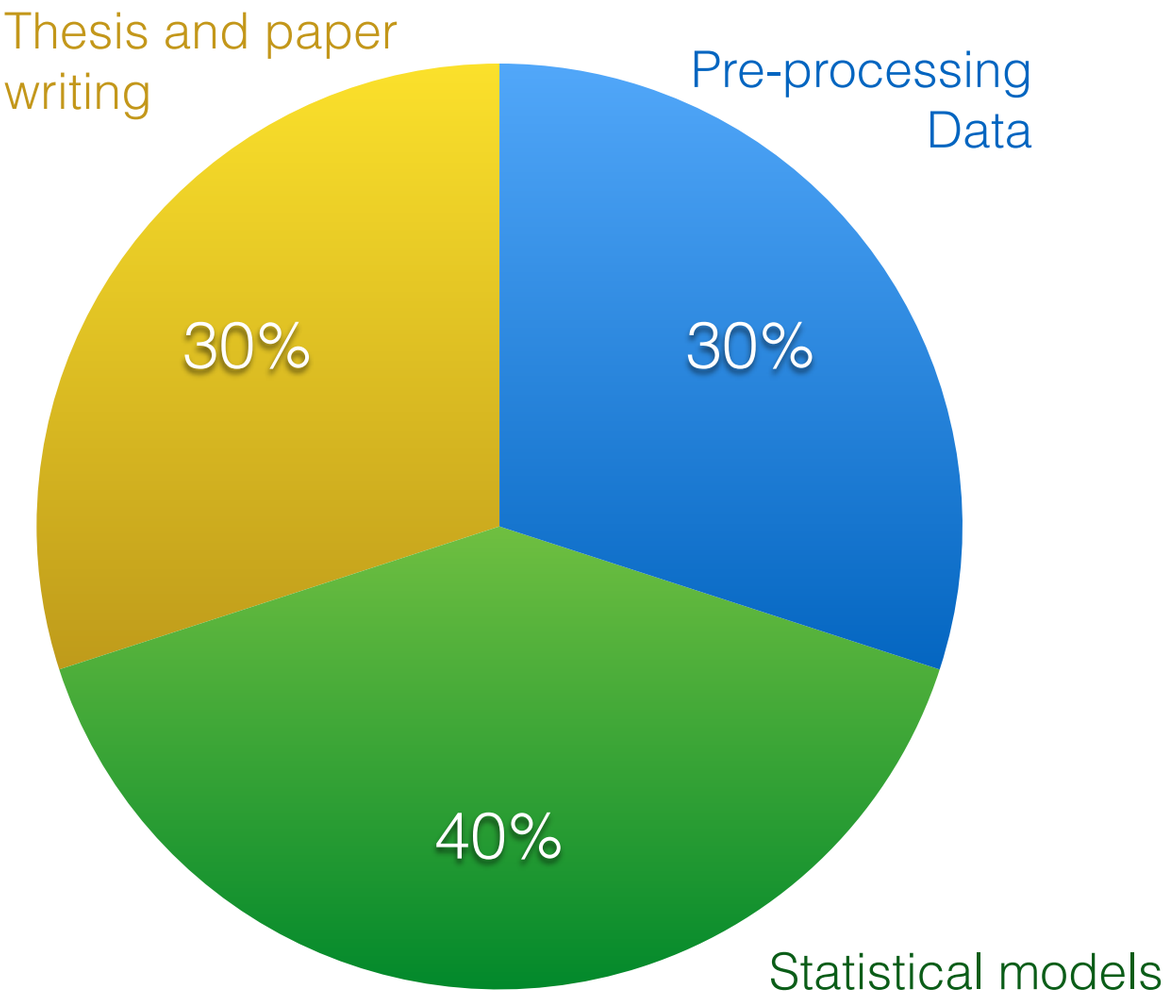
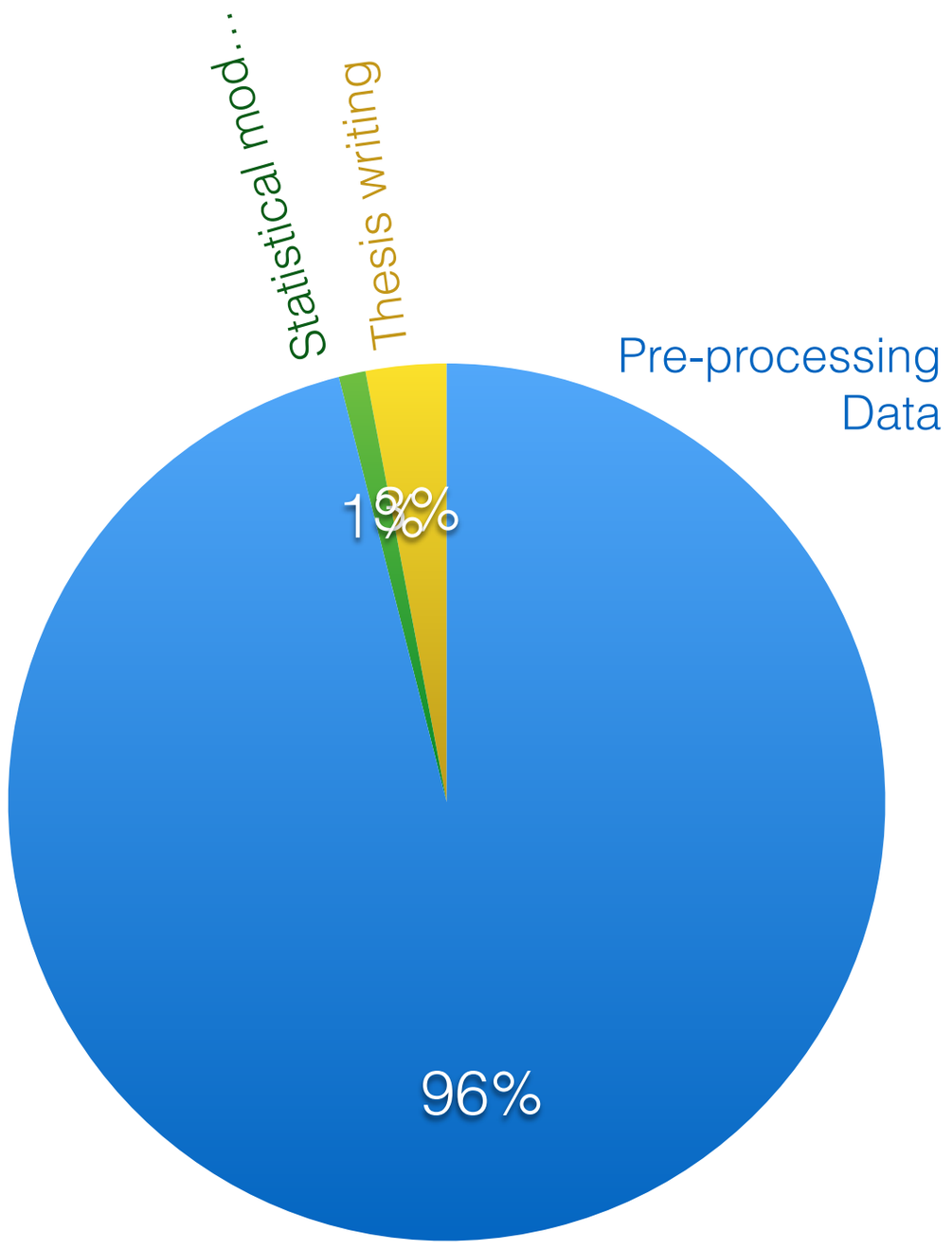
Working hours distribution



As planned

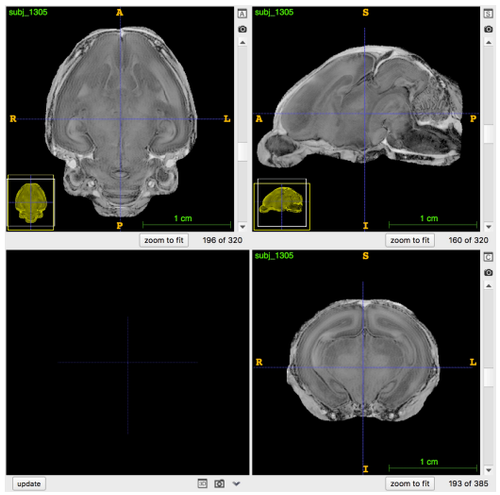


As it is

Preliminary template creation:

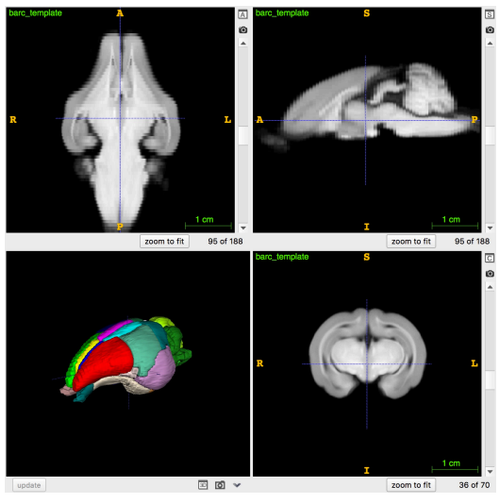
Pipeline for the creation of the preliminary, using the Barcelona template

Ingredients



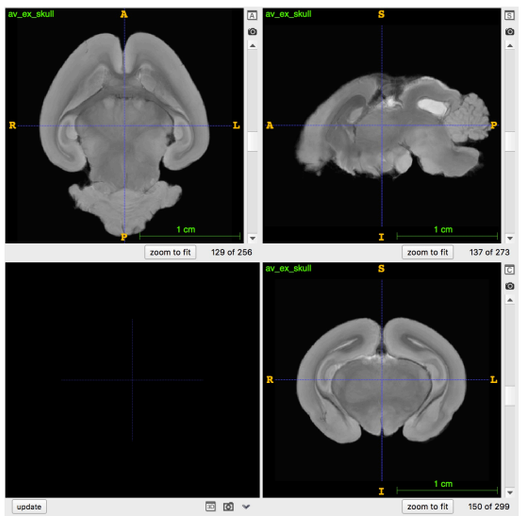
1) **An in skull subject from the pilot study**: manually oriented from bicommissural orientation to in plane, and pre-processed (automatic roi extraction, BFC)

dim = (320,385,320)
res = (0.078, 0.078, 0.078)



2) **Barcelona template**: template + atlas published online (took 4 years of work to the fetalMed group).

dim = (188, 188, 70)
res = (0.15, 0.15, 0.7)



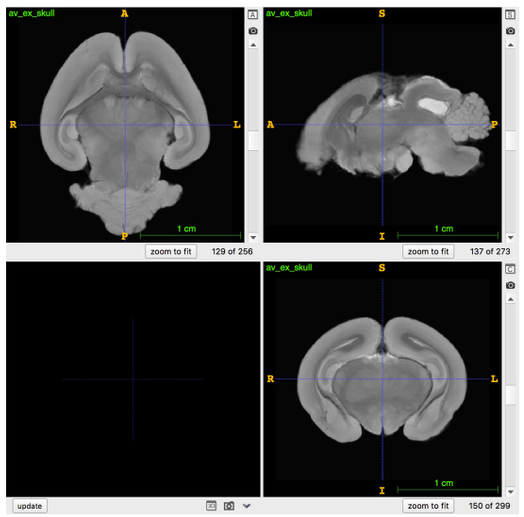
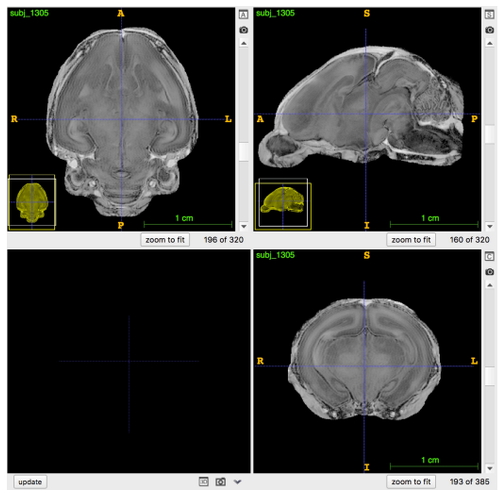
3) **Ex-skull template**: template created averaging 4 ex-skull subjects from the pilot study.

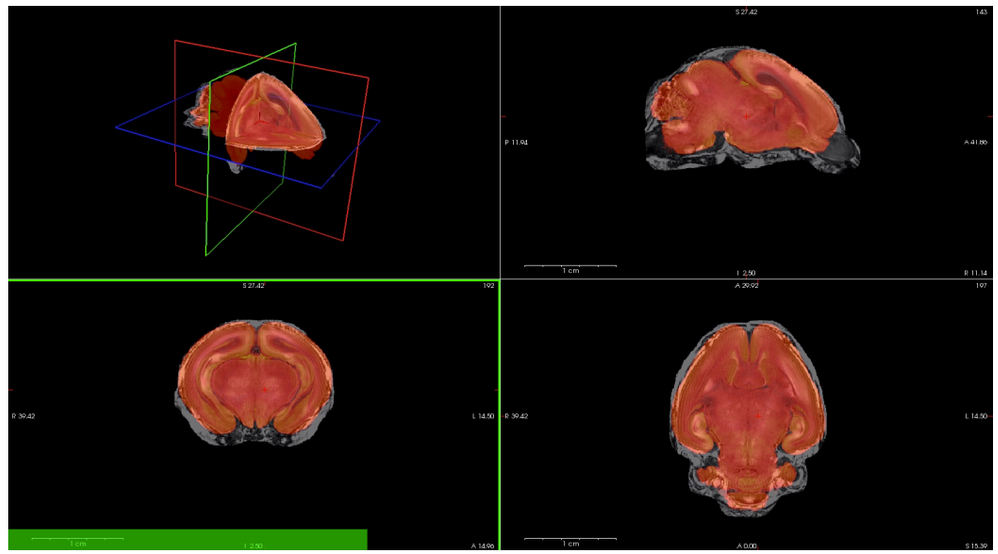
dim = (320,385,320)
res = (0.078, 0.078, 0.078)

Preliminary template creation:

Pipeline for the creation of the preliminary, using the Barcelona template

Step 1: rigid registration of the ex-skull on the subject to segment

Rig( , ) =



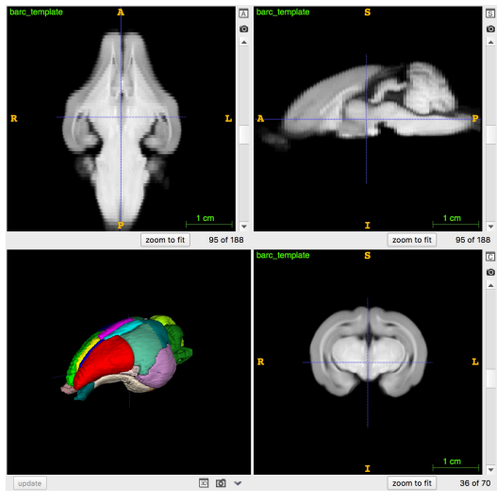
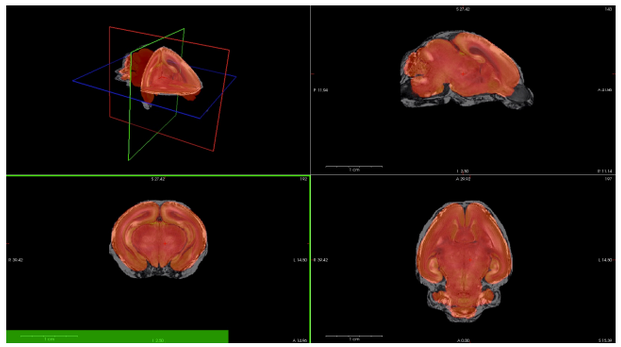
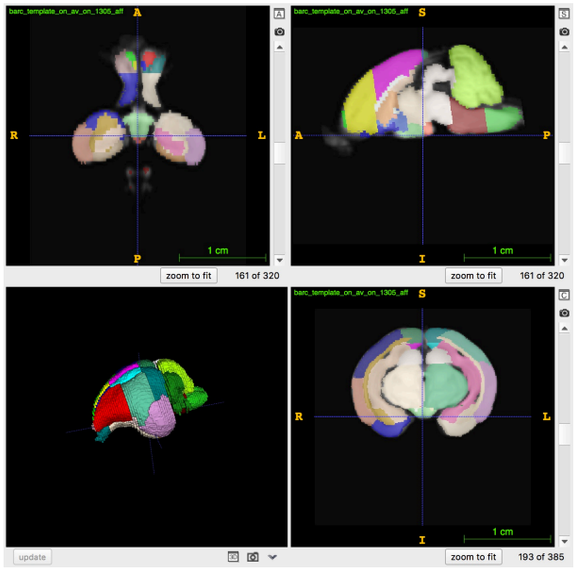
Ex-skull template

Subject to be segmented

Ex-skull aligned with the subject to segment

Preliminary template creation:

Step 2: Affine registration of the adult Barcelona template on the ex-skull template in the space of the subject to segment.

Aff( , ) = 

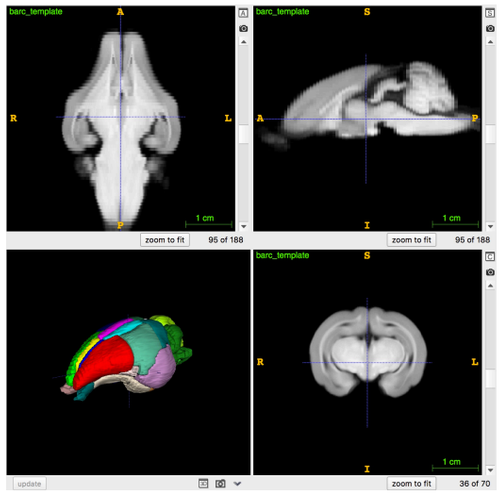
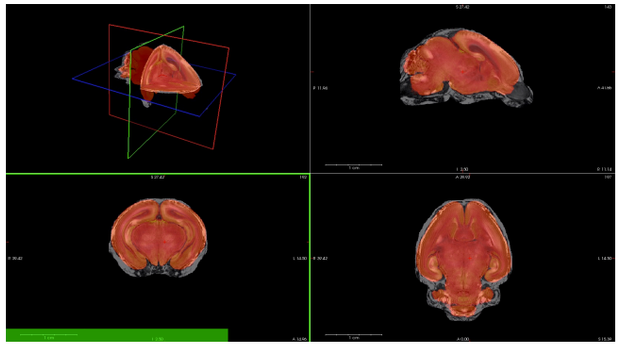
Barcelona template

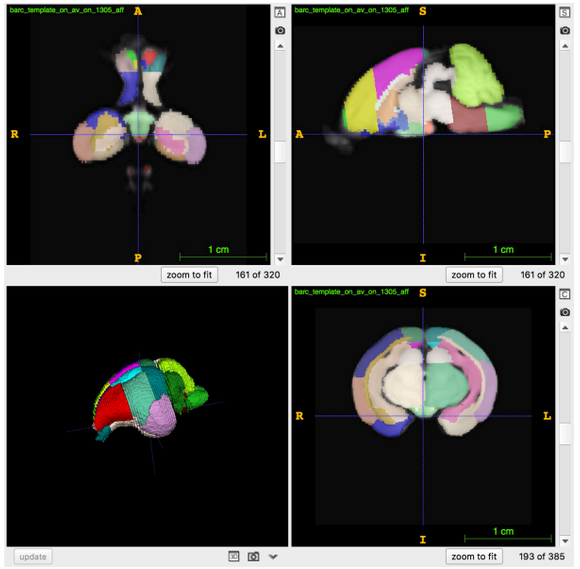
Ex-skull aligned with the subject to segment

Adultino and atlas

Preliminary template creation:

Step 3 A: Non-rigid (small refinement) of the adult Barcelona template on the ex-skull template in the space of the subject to be segmented, and atlas propagation.

non-rig( , ) =



Barcelona template

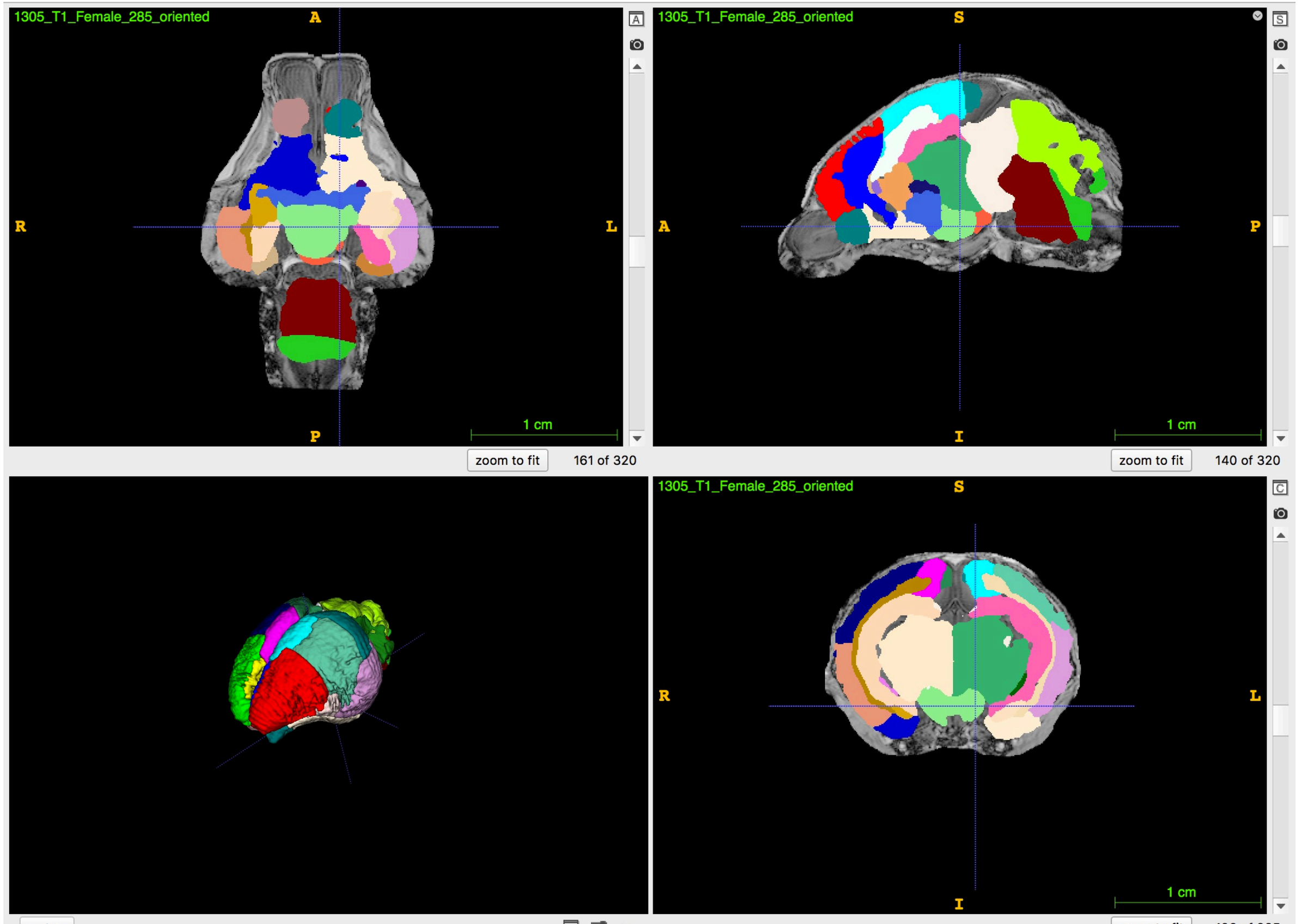
Ex-skull aligned with the subject to segment

Adultino and atlas

Step 3 B: Manual small refinements instead of the non-rigid registration.

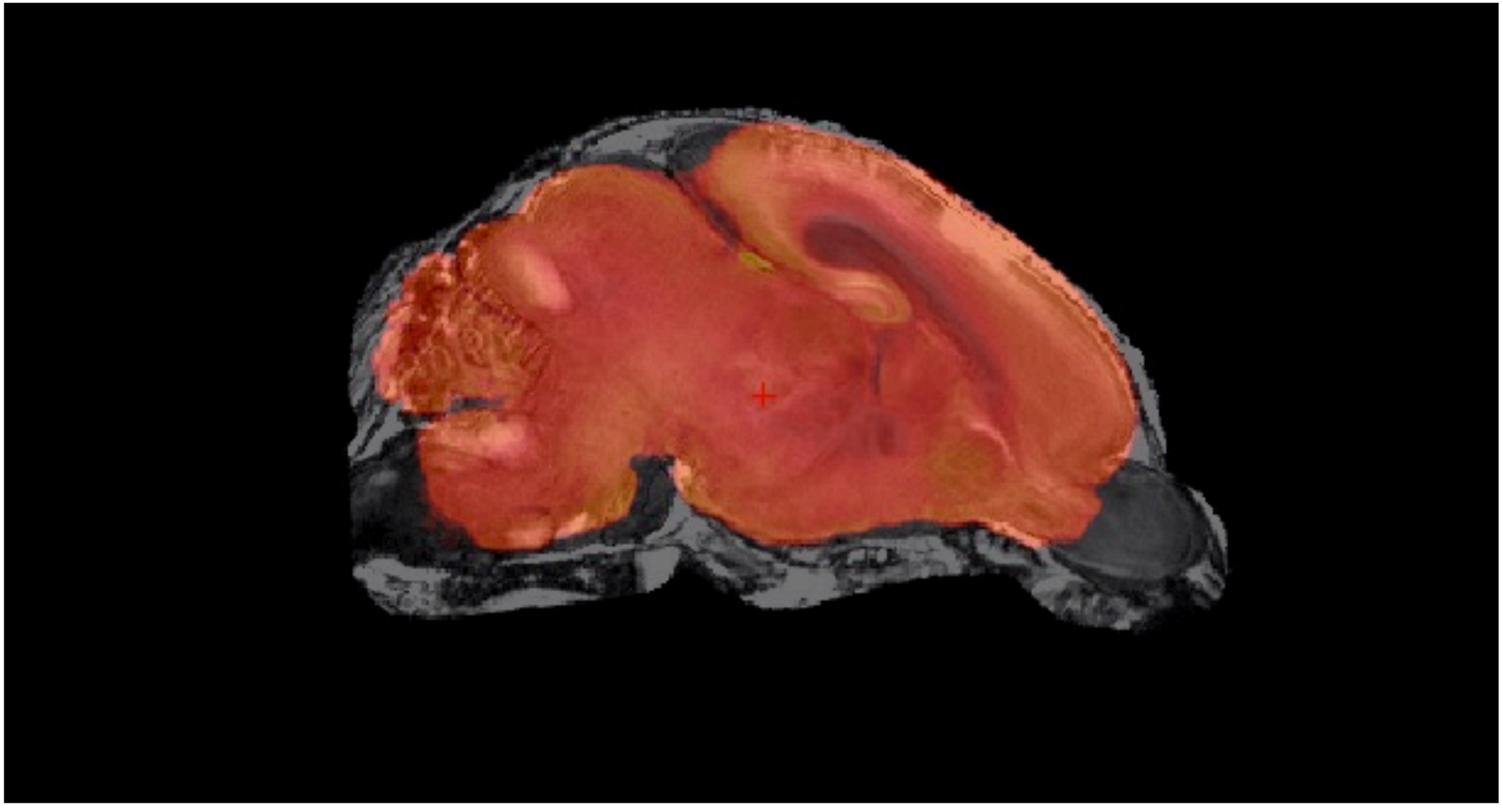
Step 4: dilations + erosions, smoothing of the mask.

Preliminary template Result:

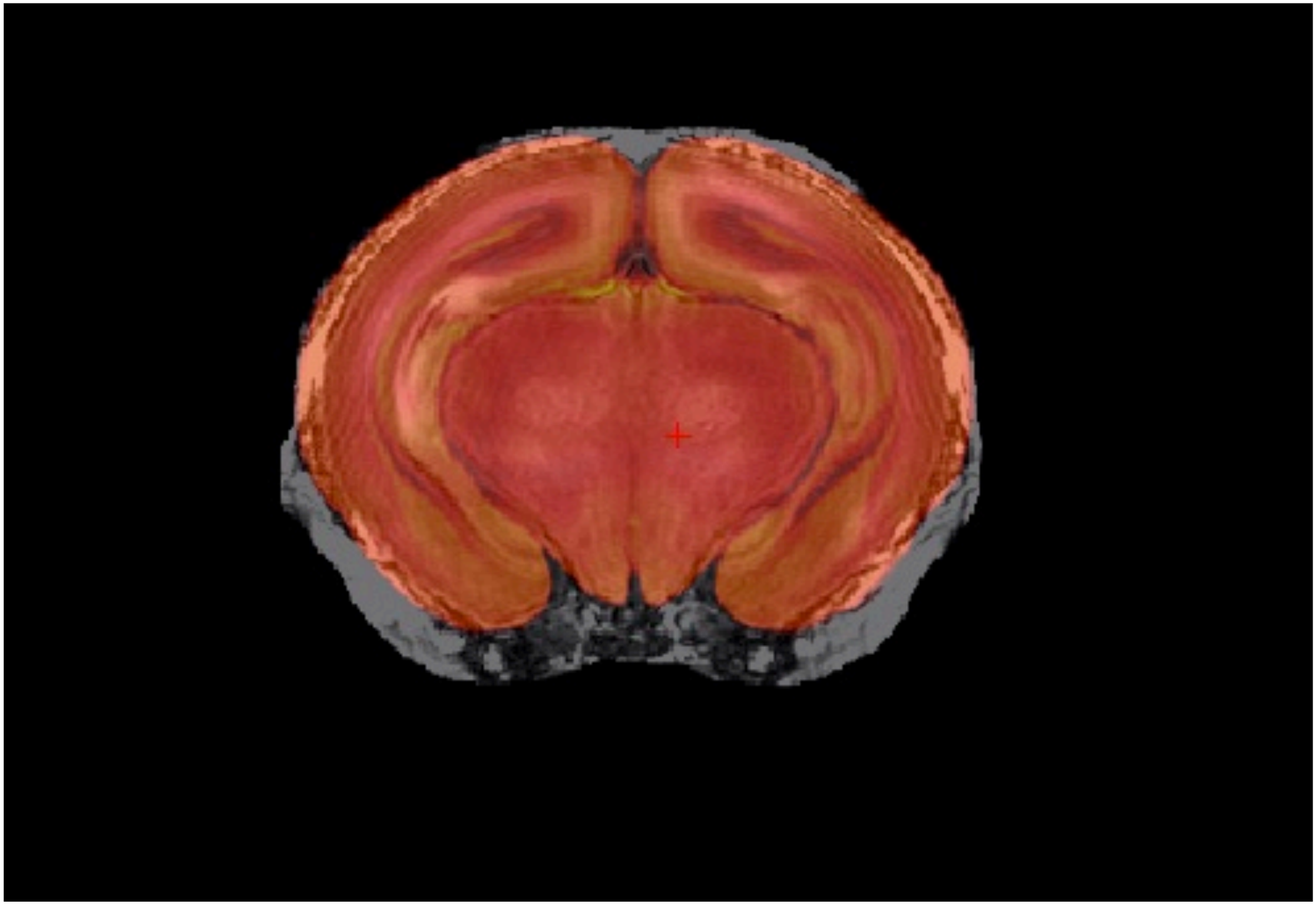


PROBLEM:

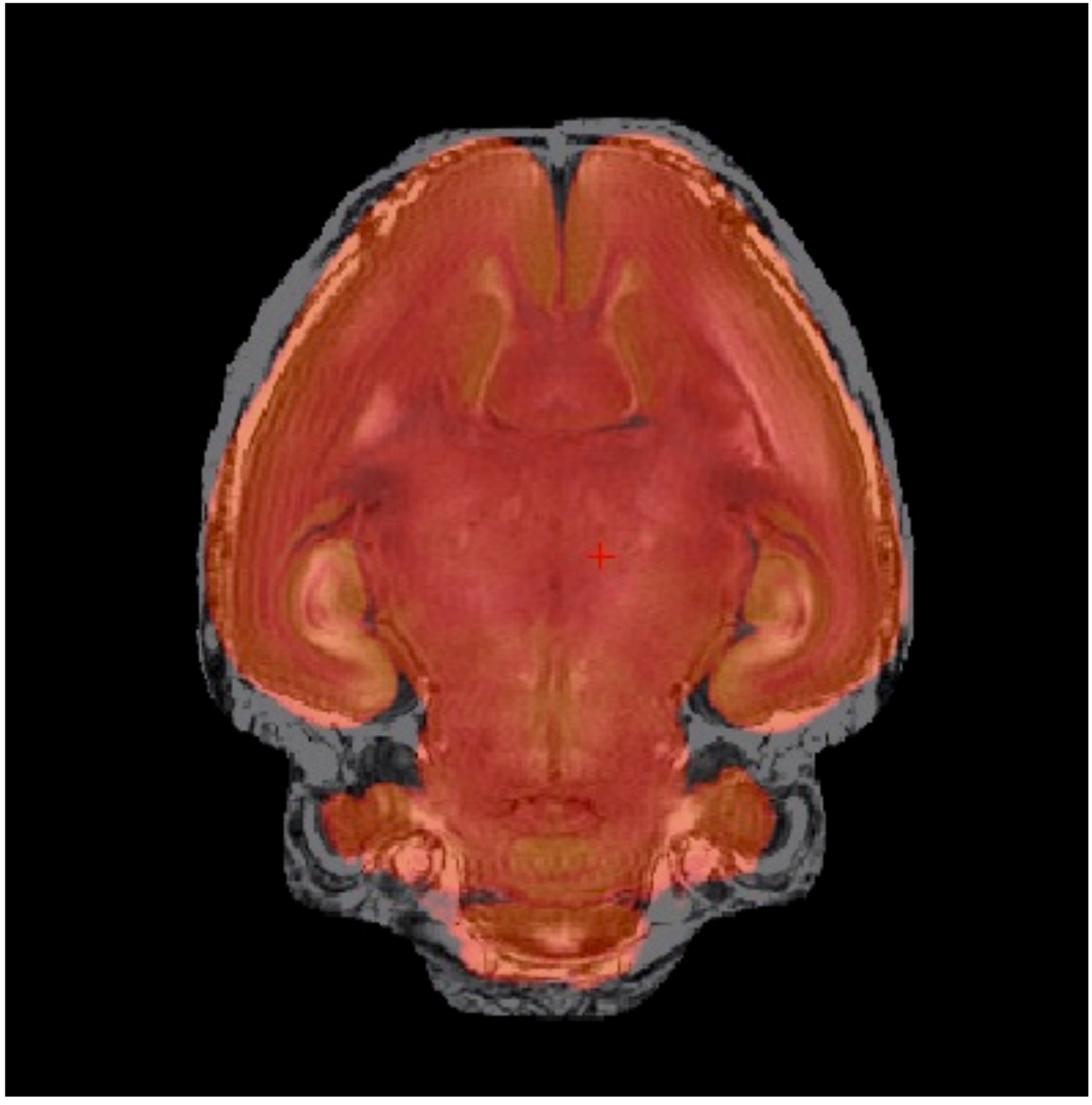
Morfological differences between the ex-skull template and the subject in skull



PROBLEM:

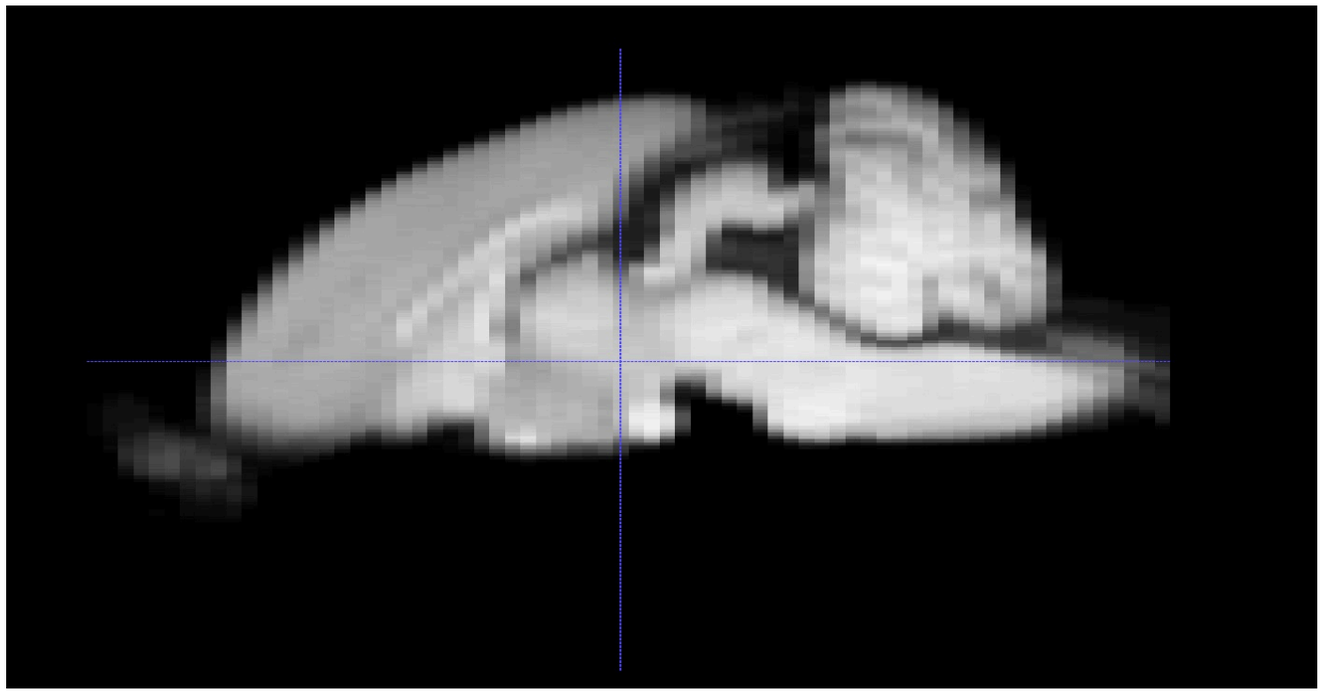


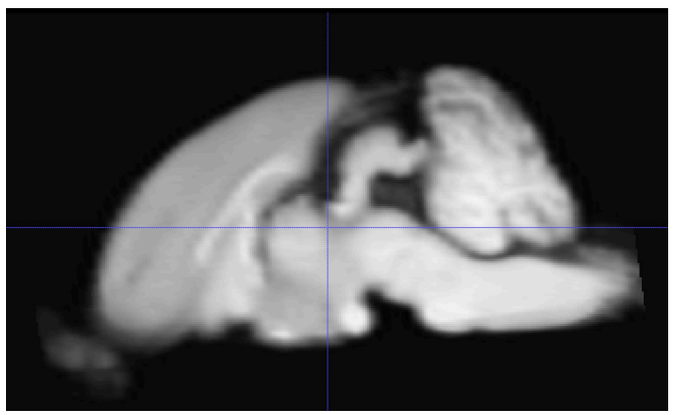
PROBLEM:

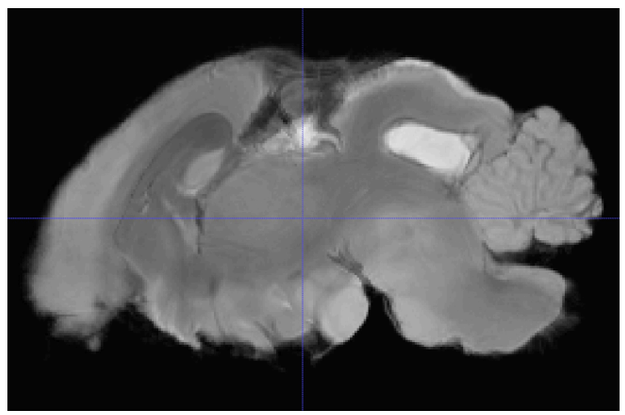


PROBLEM:

Morfological differences between the adult (adultino) and pediatric brain.

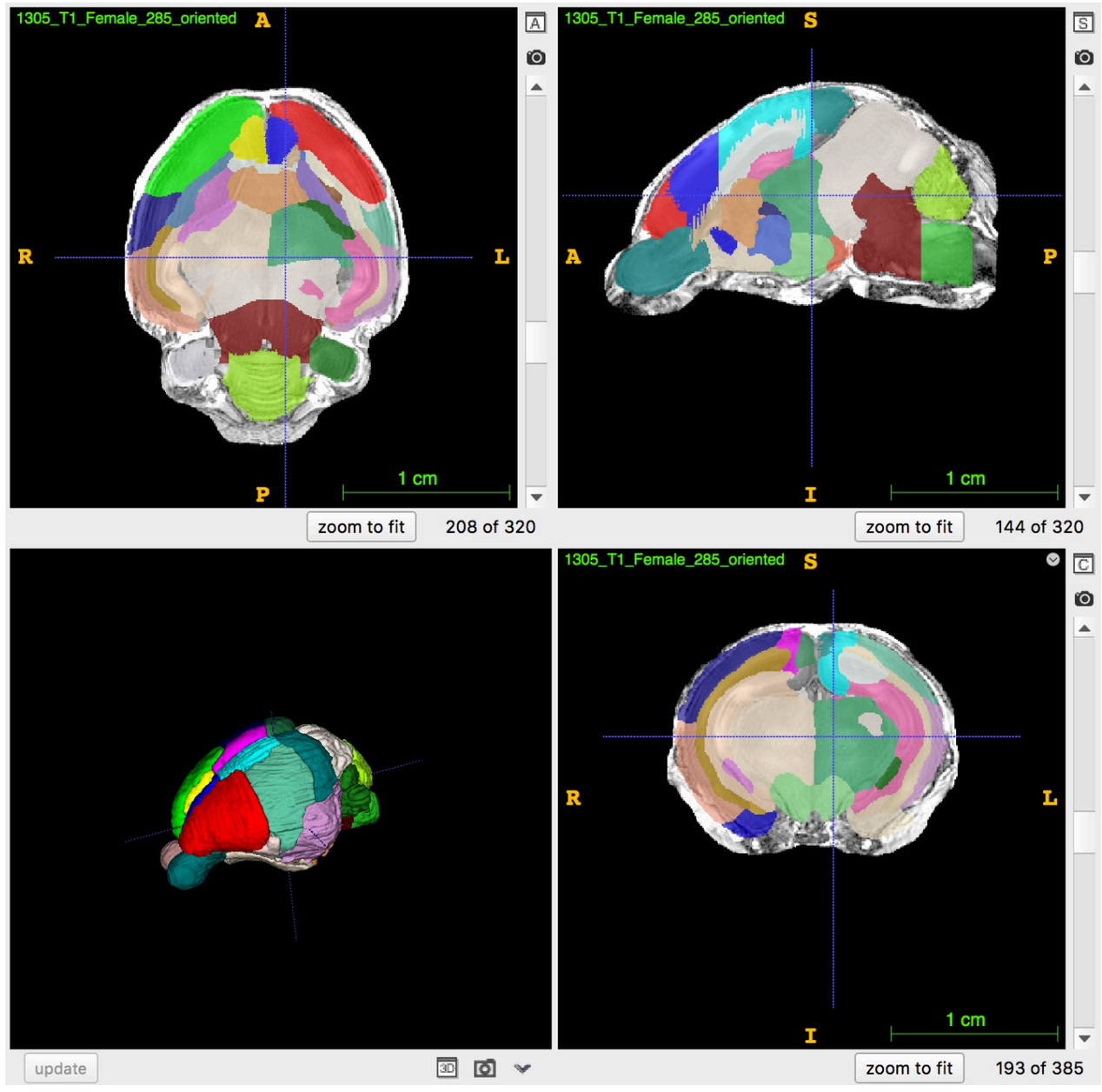






E.G. See position of vermis relative to mesencephalon

Final hints



At the moment Hannes is doing the manual refinement of the preliminary segmentation (by night). I'm doing small refinement in the morning and evening.

Does anyone have better idea of how to solve the issue?
(not involving manual segmentation?)

…A last piece of news.

Hannes van der Merwe <hannes.vandermerwe@kuleuven.be>

Sebastiano Ferraris <sebastiano.ferraris@gmail.com>

5 December 2016 at 12:23

Re: [rabbit project]: true or false

Secondly we should have had our last term group this weekend with all the enviro and invivo in the same subjects this week. But we ran into some incubator problems yesterday and all of the newborns died. This is a massive back blow and this means all the planning has to be done from the beginning. So sorry no term finalised acquisitions…
Research can be soooo frustrating at times!

H.

Lastly: upgrade:

Outline check.

Images from other publications?

Ethical approval?