Dymecki lab update

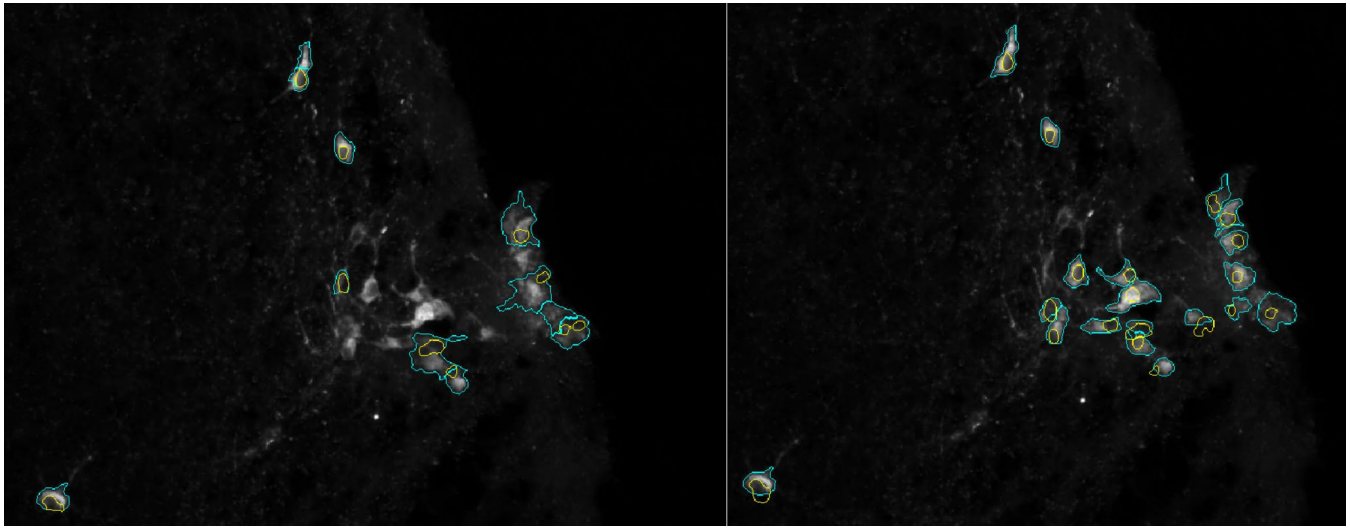
2022 08 23

Outline

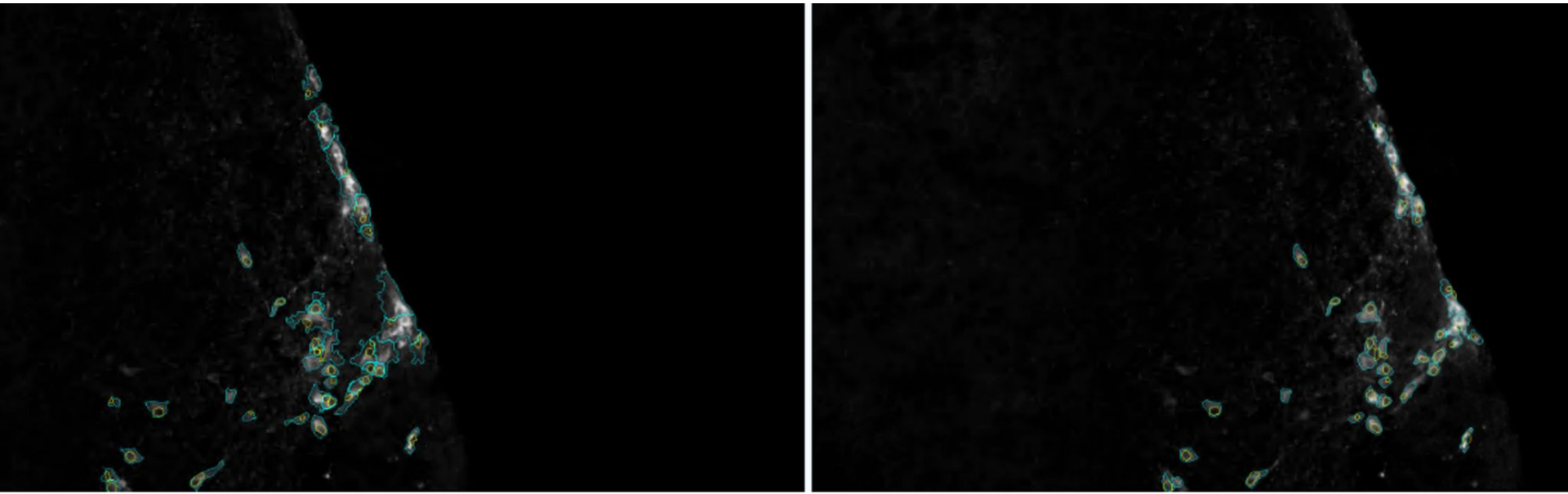
- Some examples of segmentation
  - Biggest regions of improvement: LPGI and R4
- Graphs
- Where the project stands in terms of time left and potential future directions

New model

- New model uses a custom Cellpose 2.0 model trained on Tph2 images.
- Works much better!

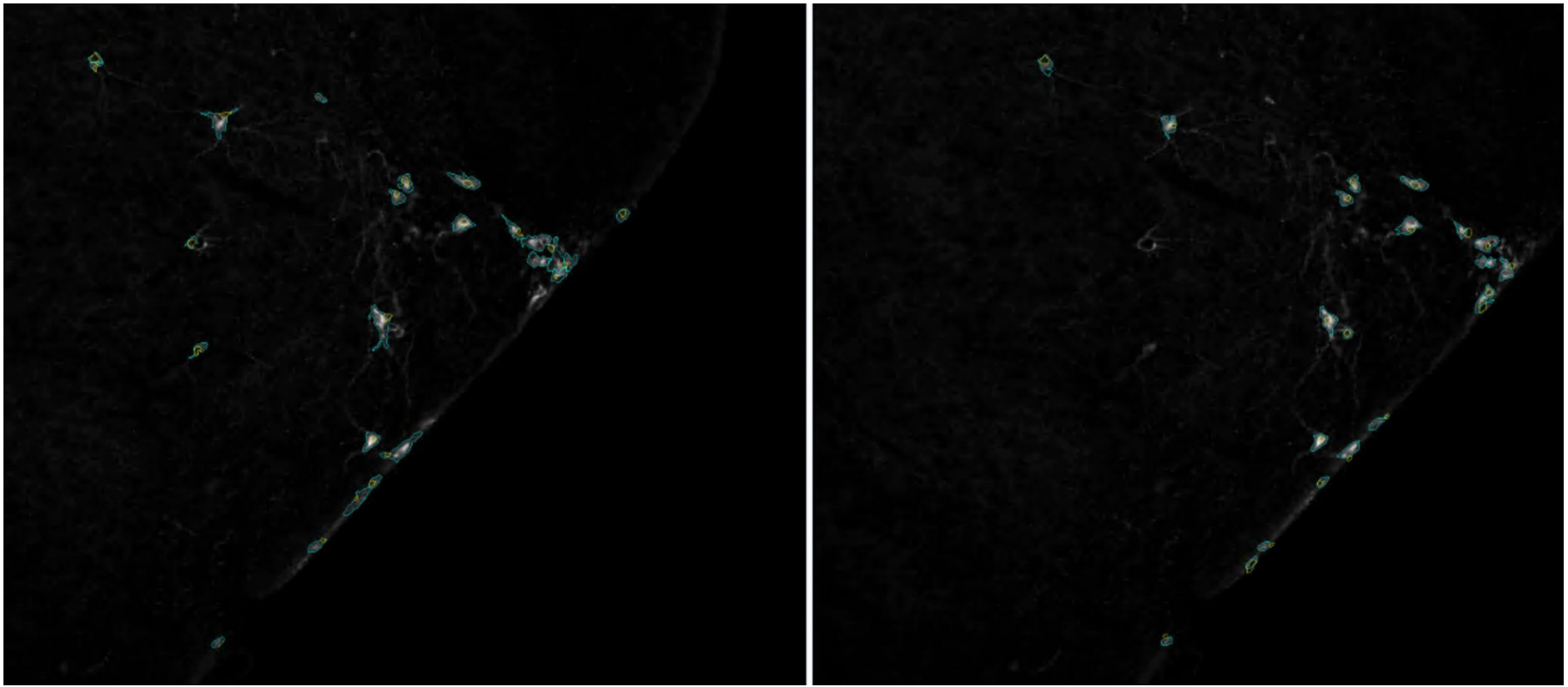


More examples of old vs. new performance



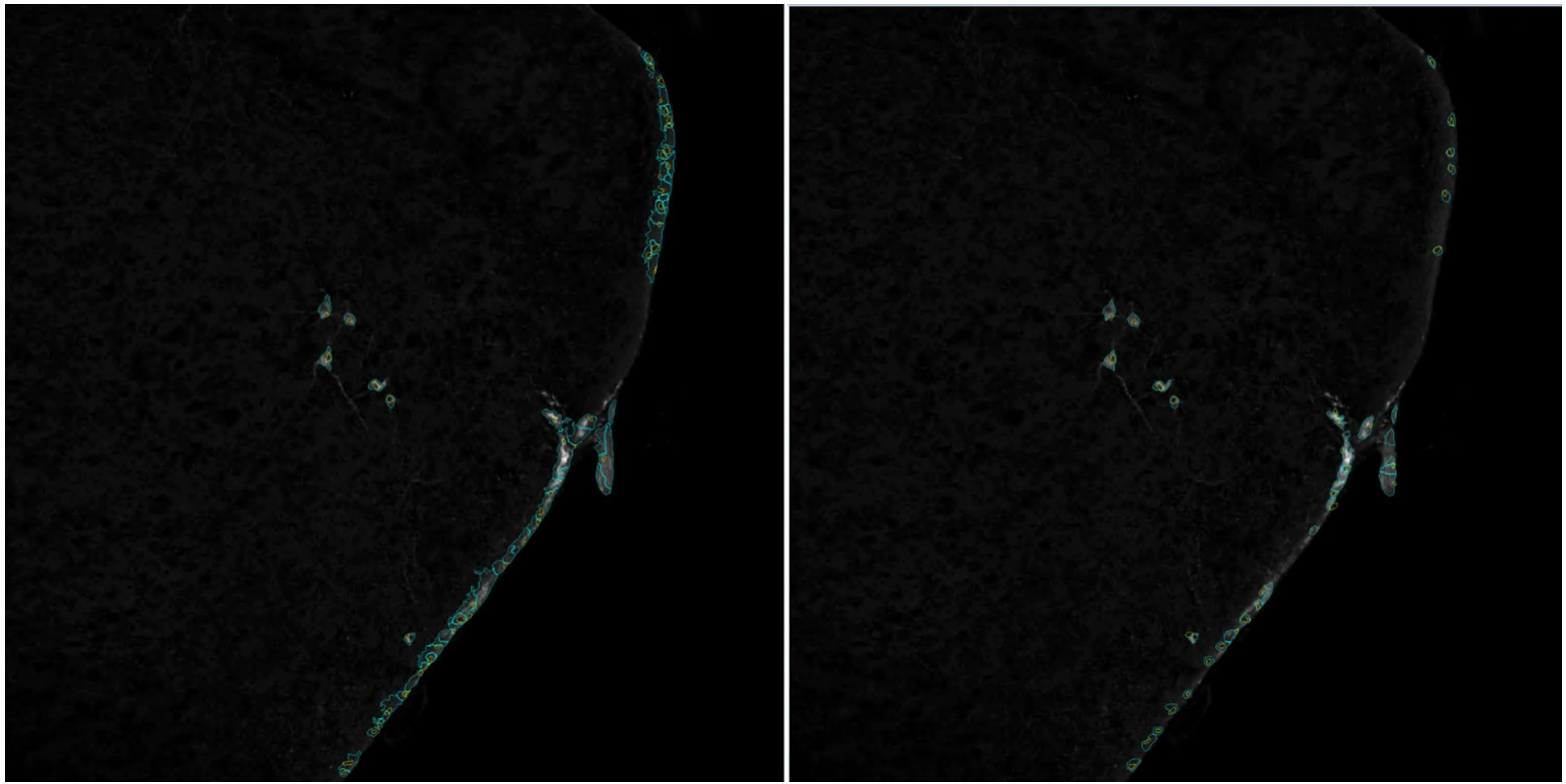
LPGI

More examples of old vs. new performance



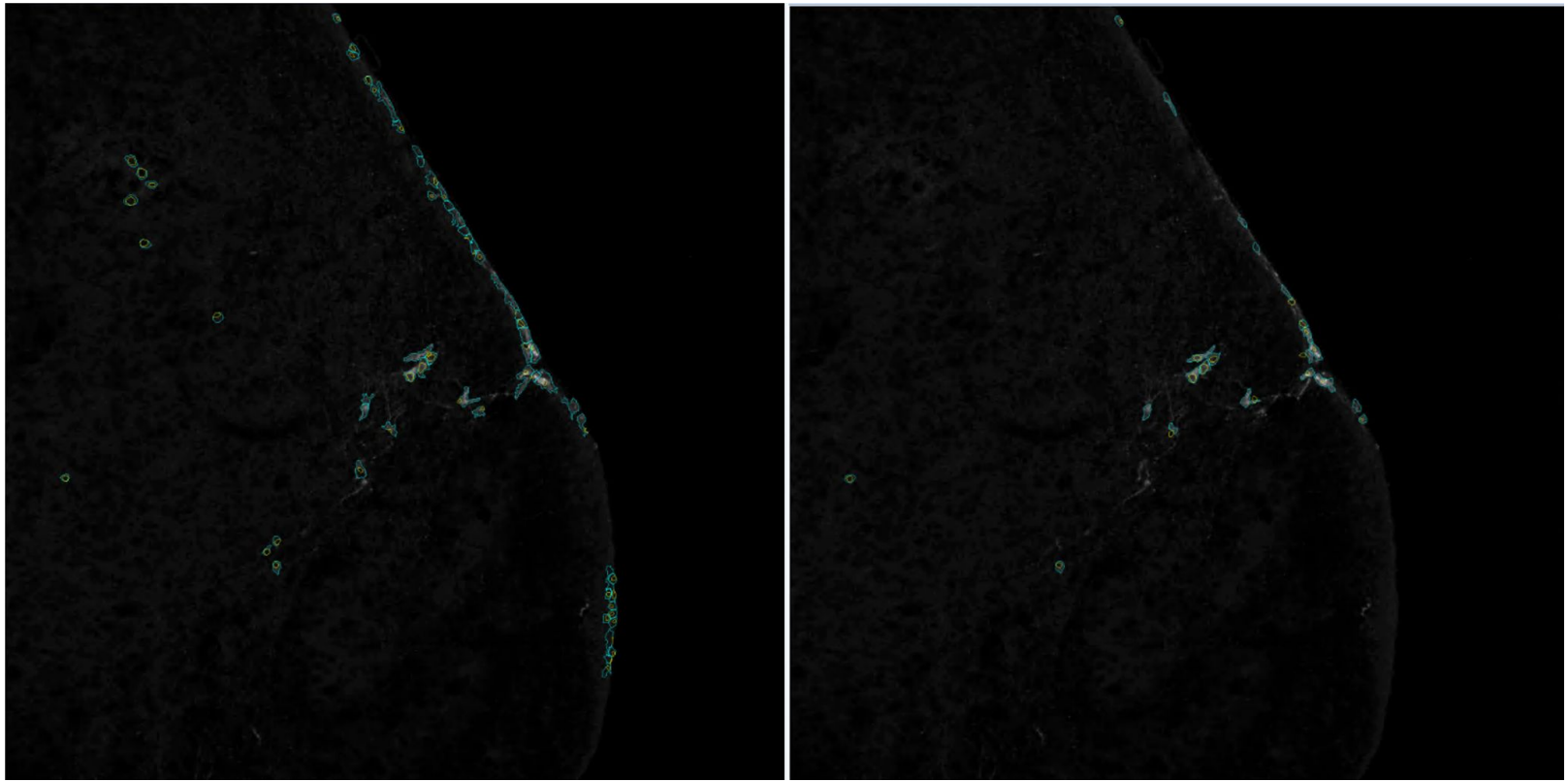
LPGI

More examples of old vs. new performance



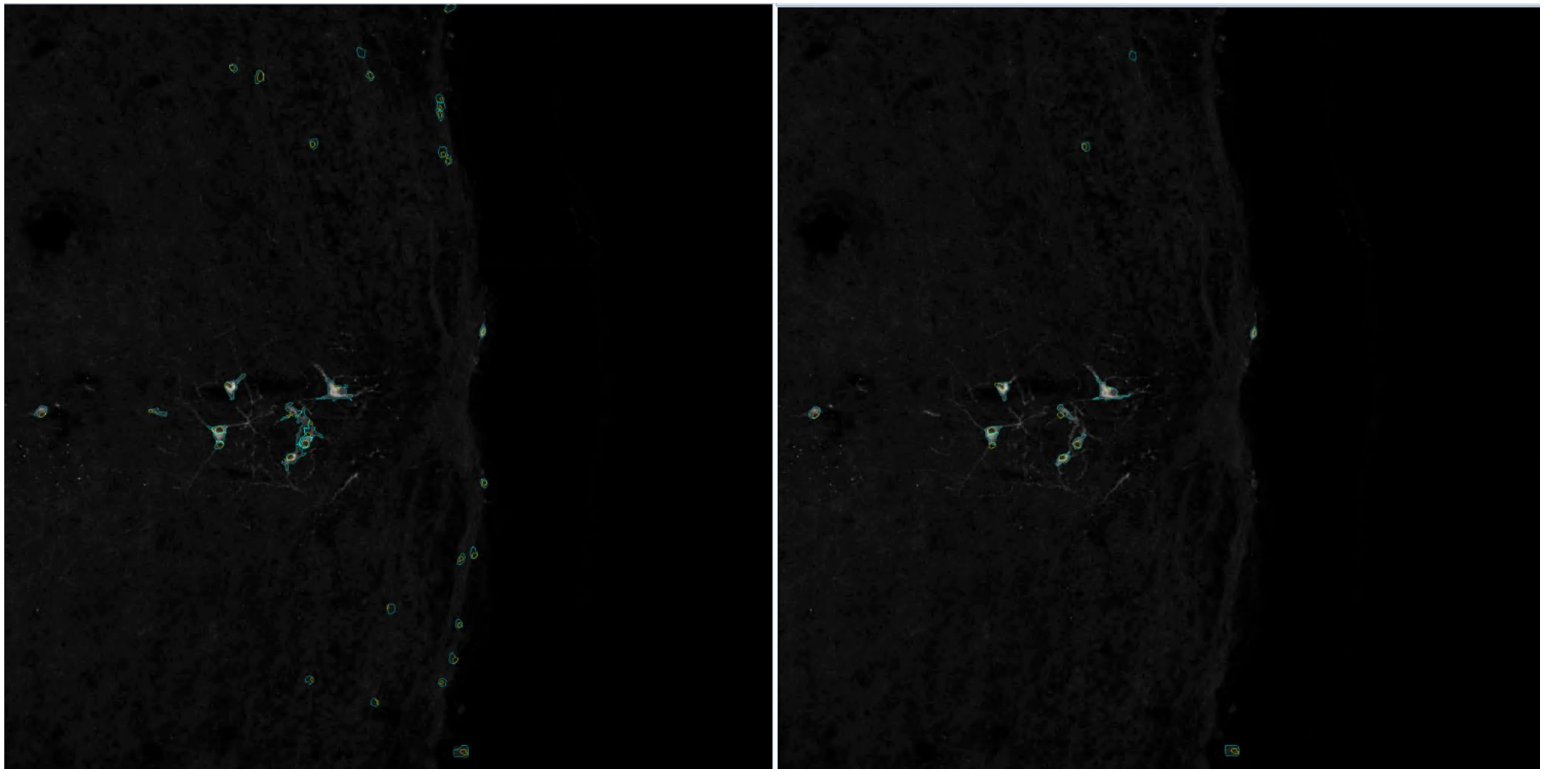
LPGI

More examples of old vs. new performance



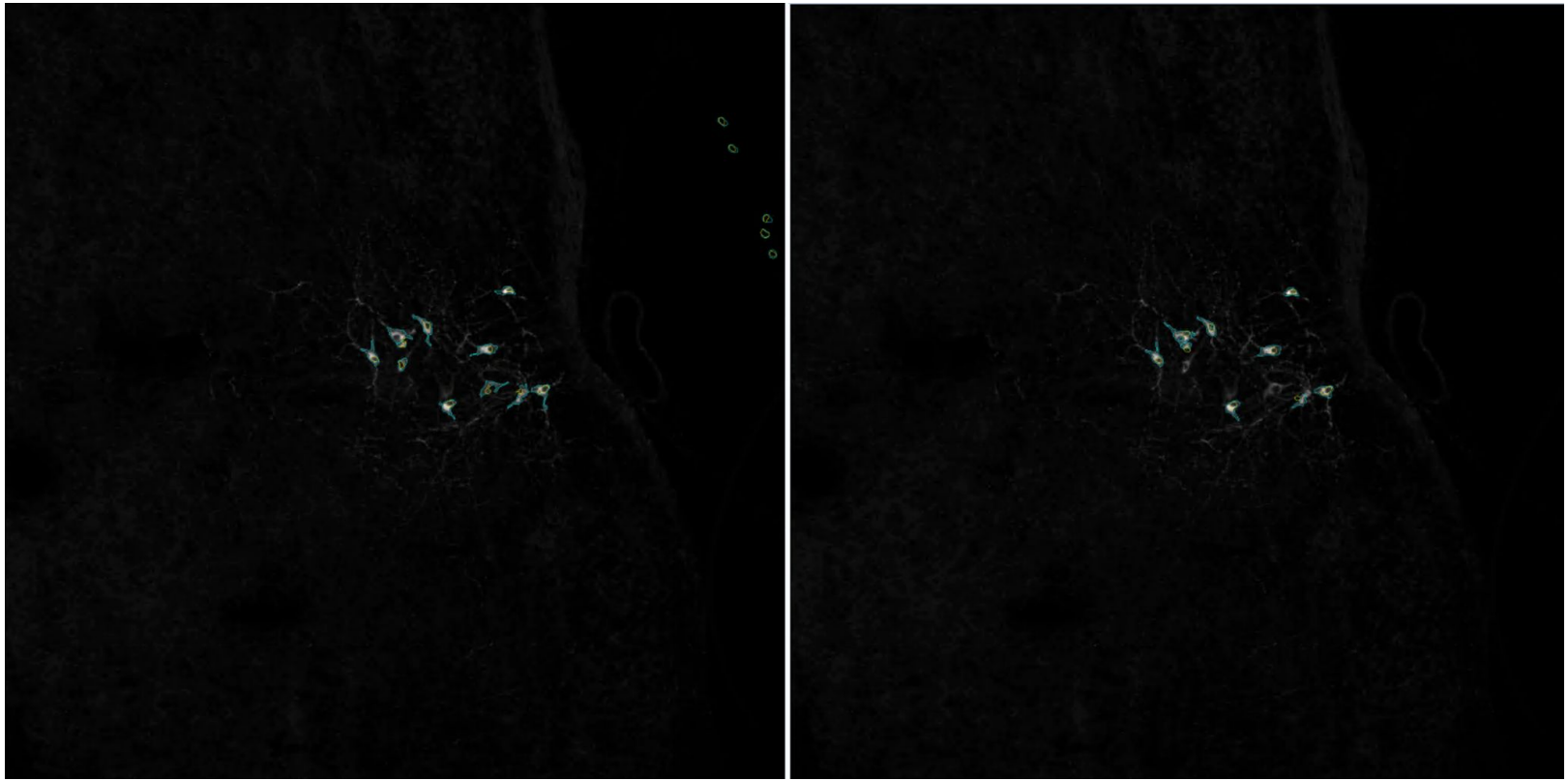
LPGI

More examples of old vs. new performance



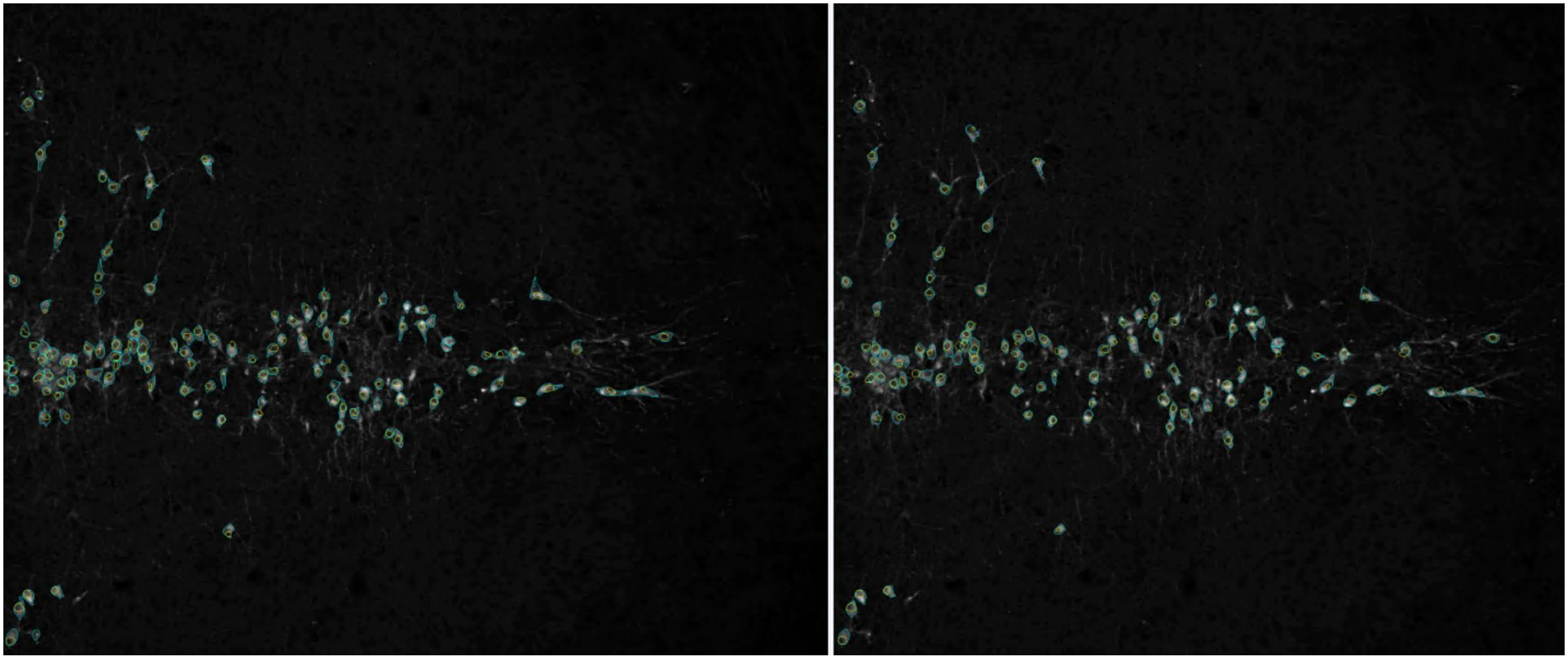
R4

More examples of old vs. new performance



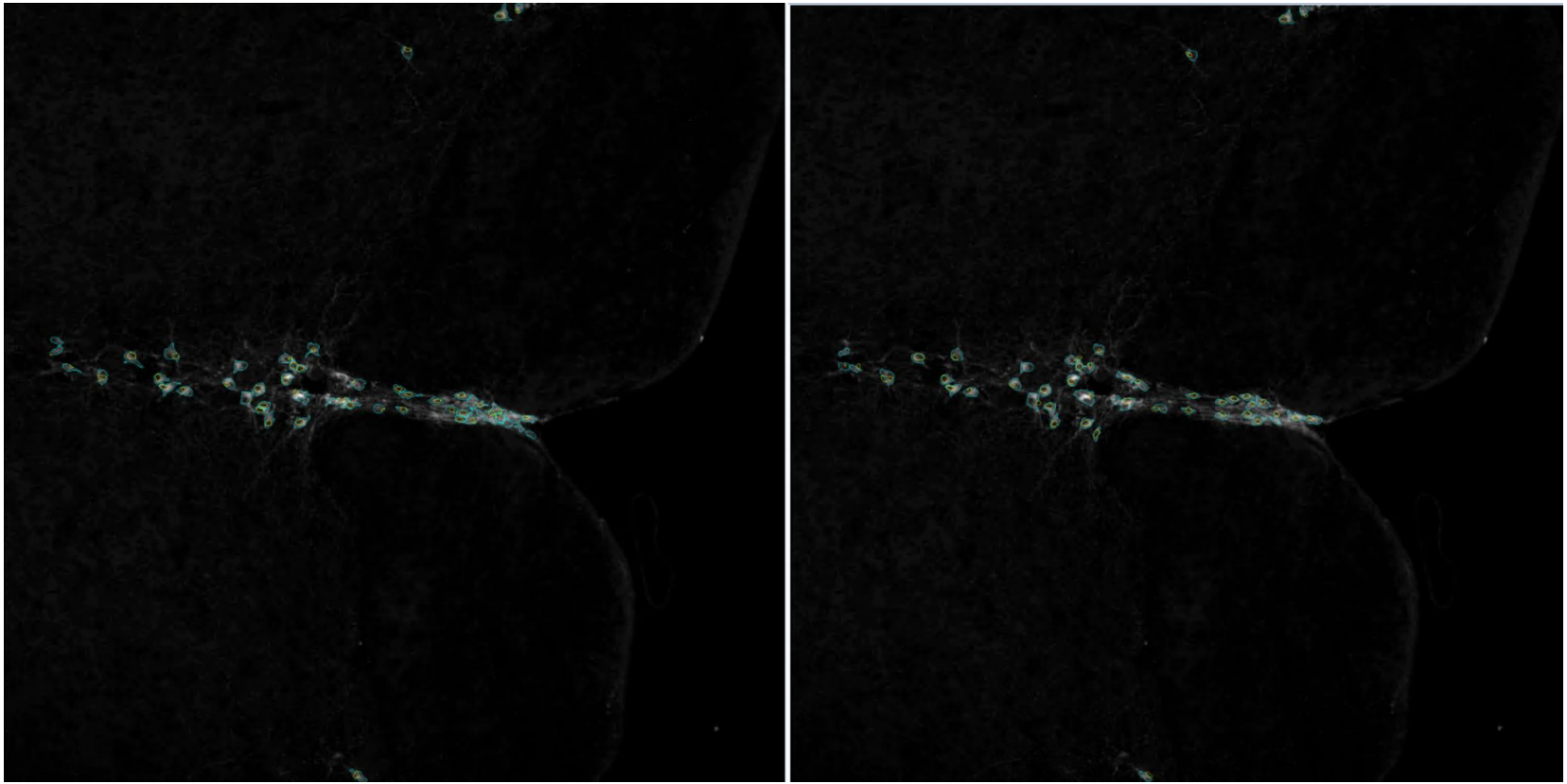
R4

More examples of old vs. new performance (both good!)



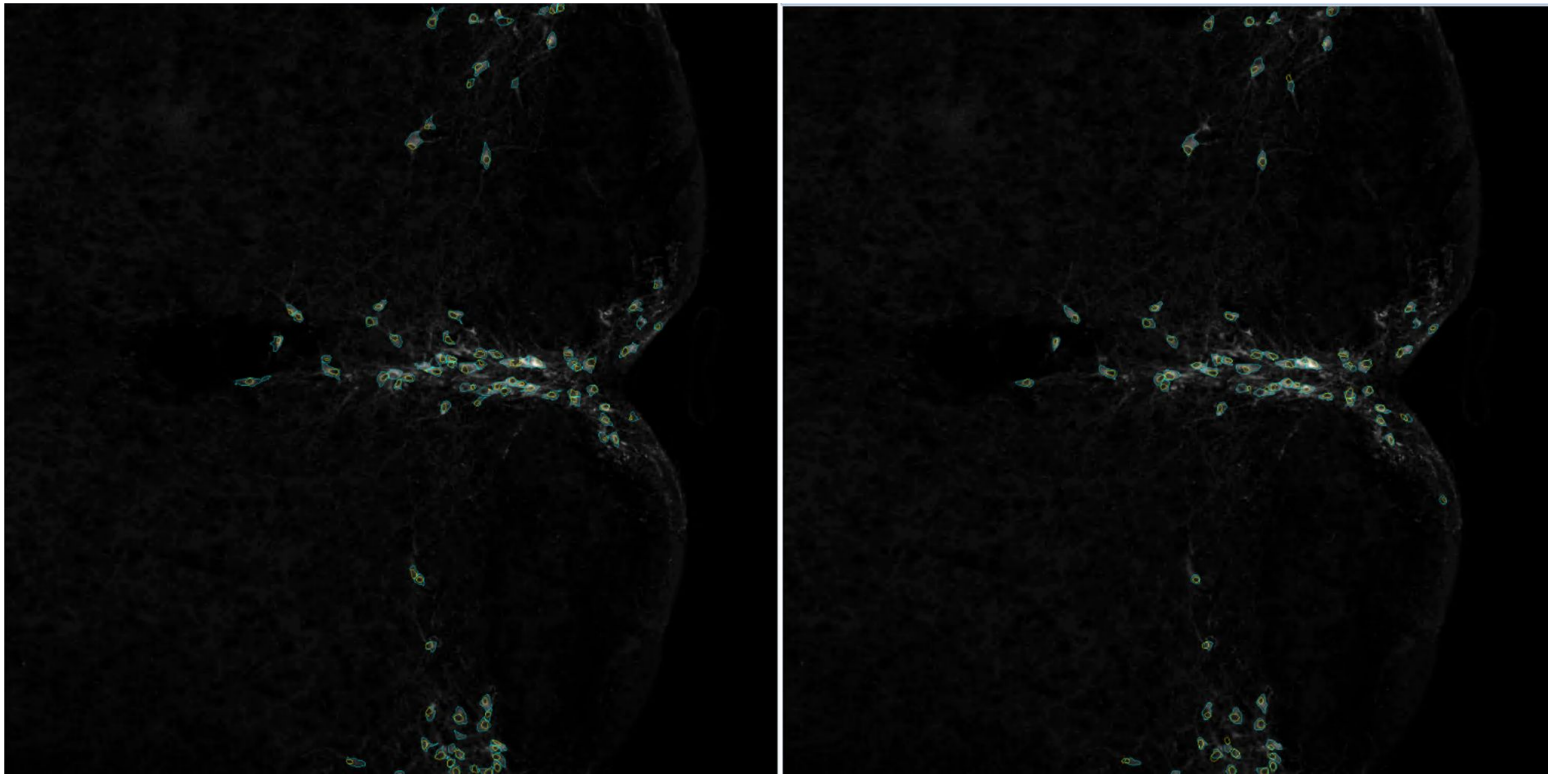
MR

More examples of old vs. new performance (both good!)



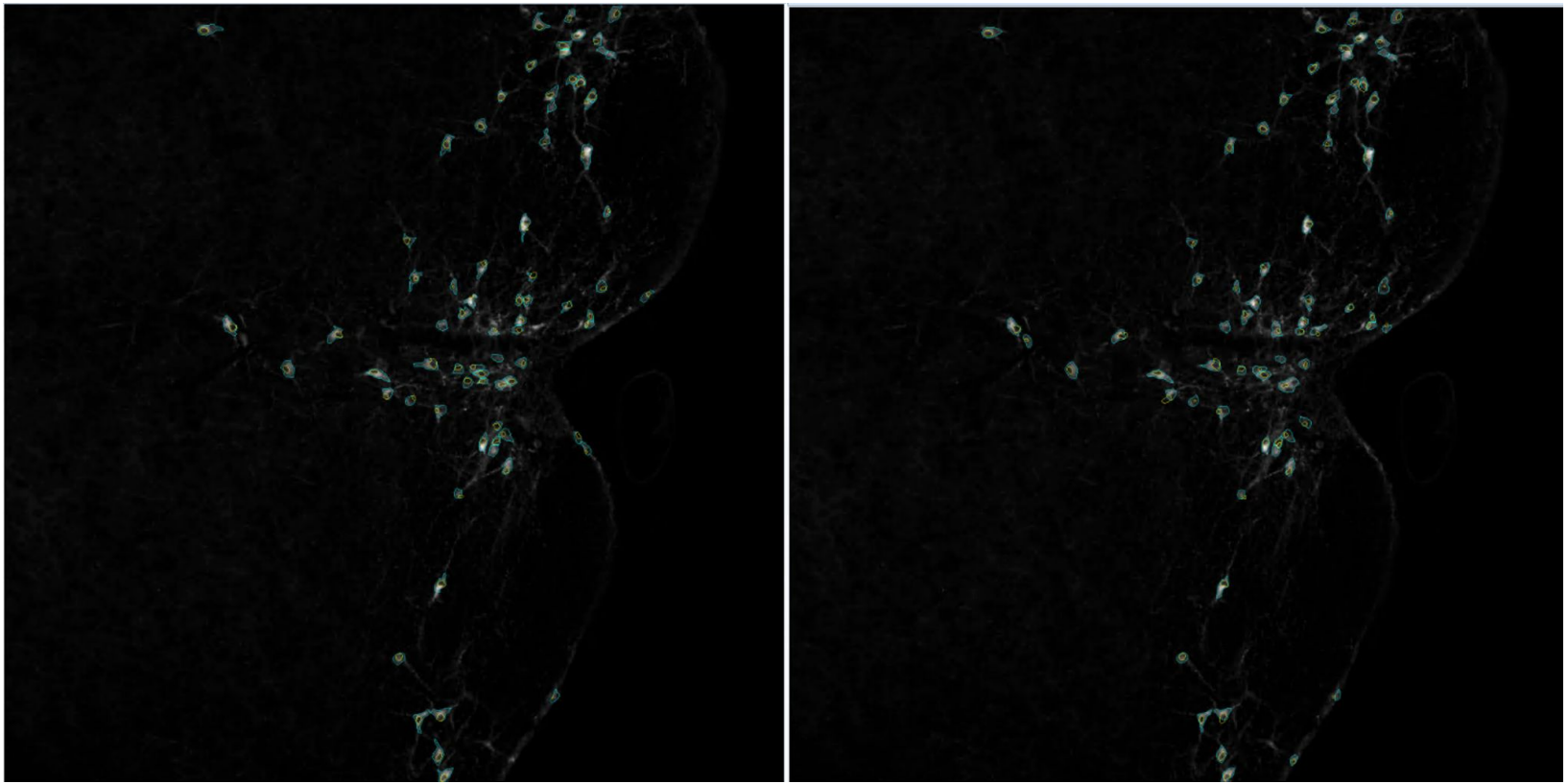
RPa

More examples of old vs. new performance (both good!)



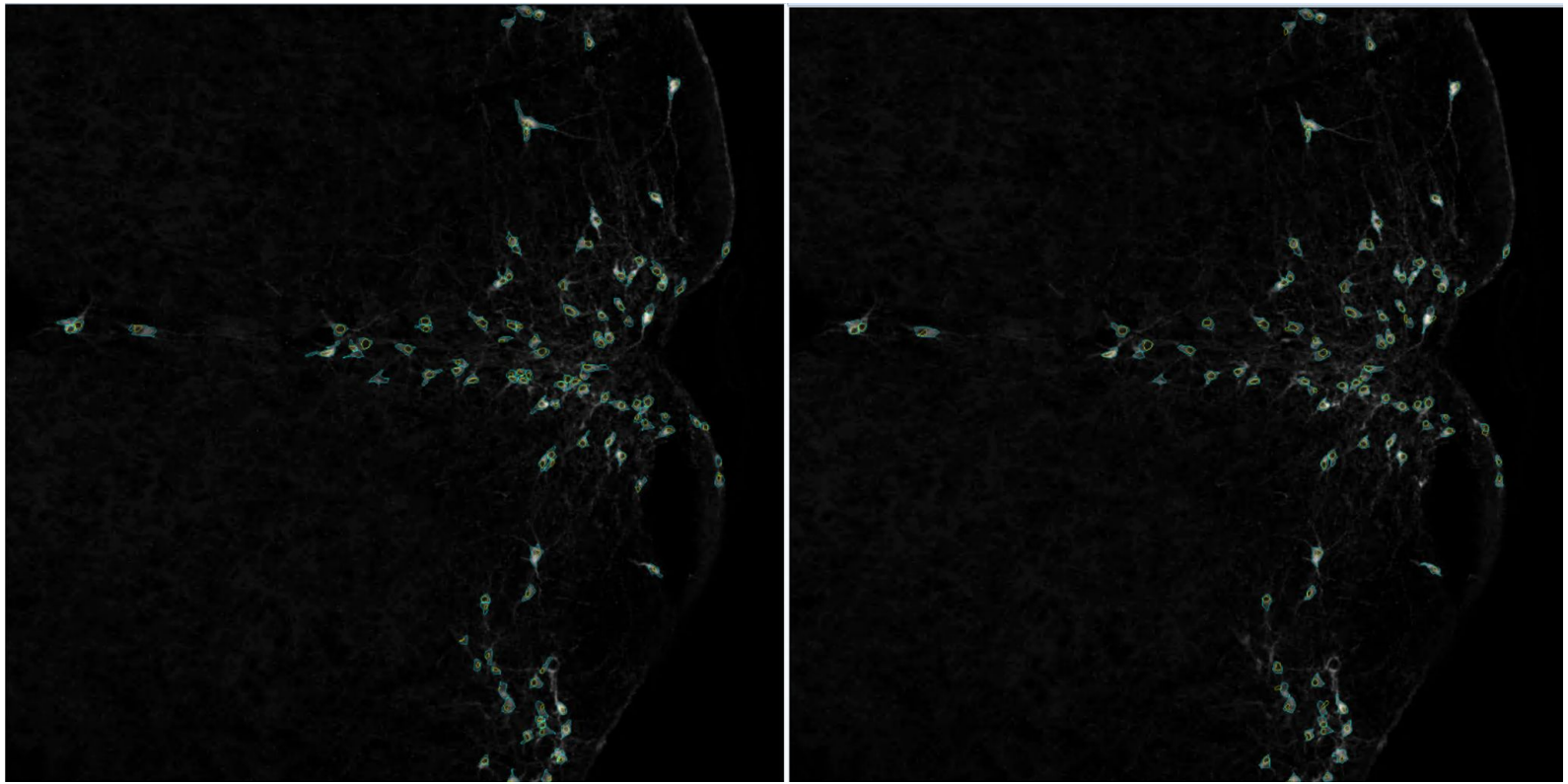
RPa

More examples of old vs. new performance (both good!)



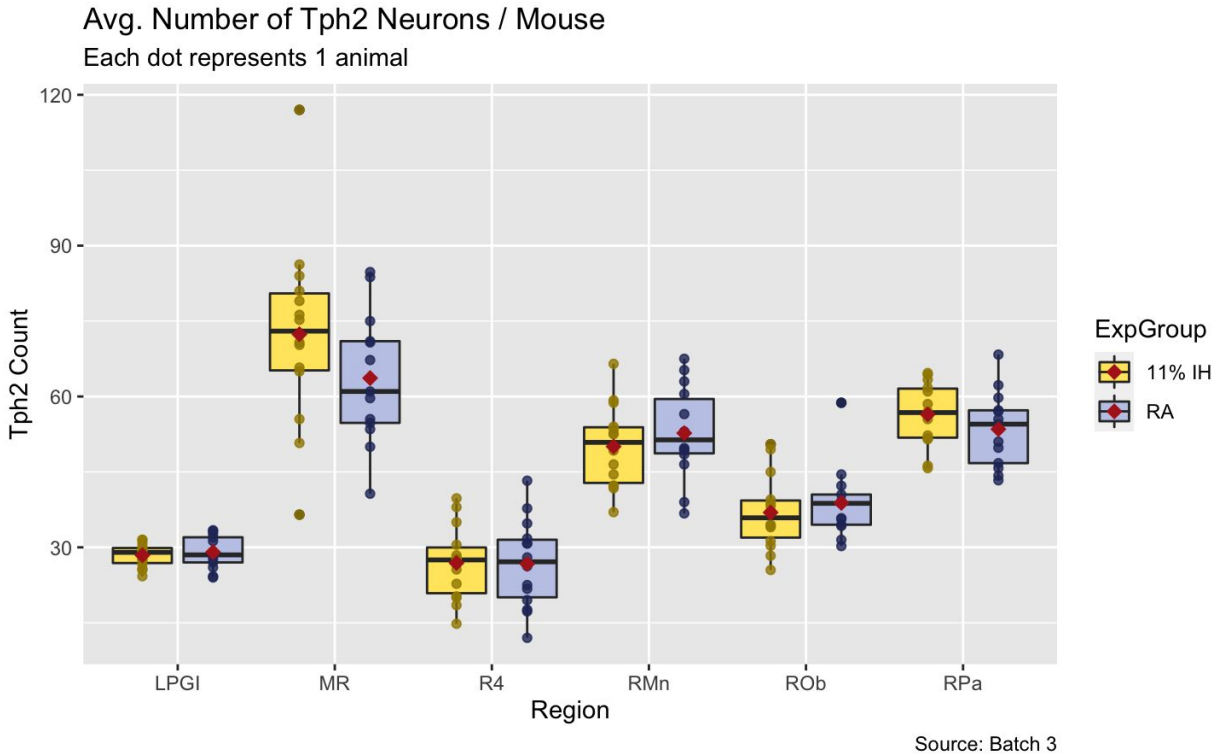
RMn

More examples of old vs. new performance (both good!)

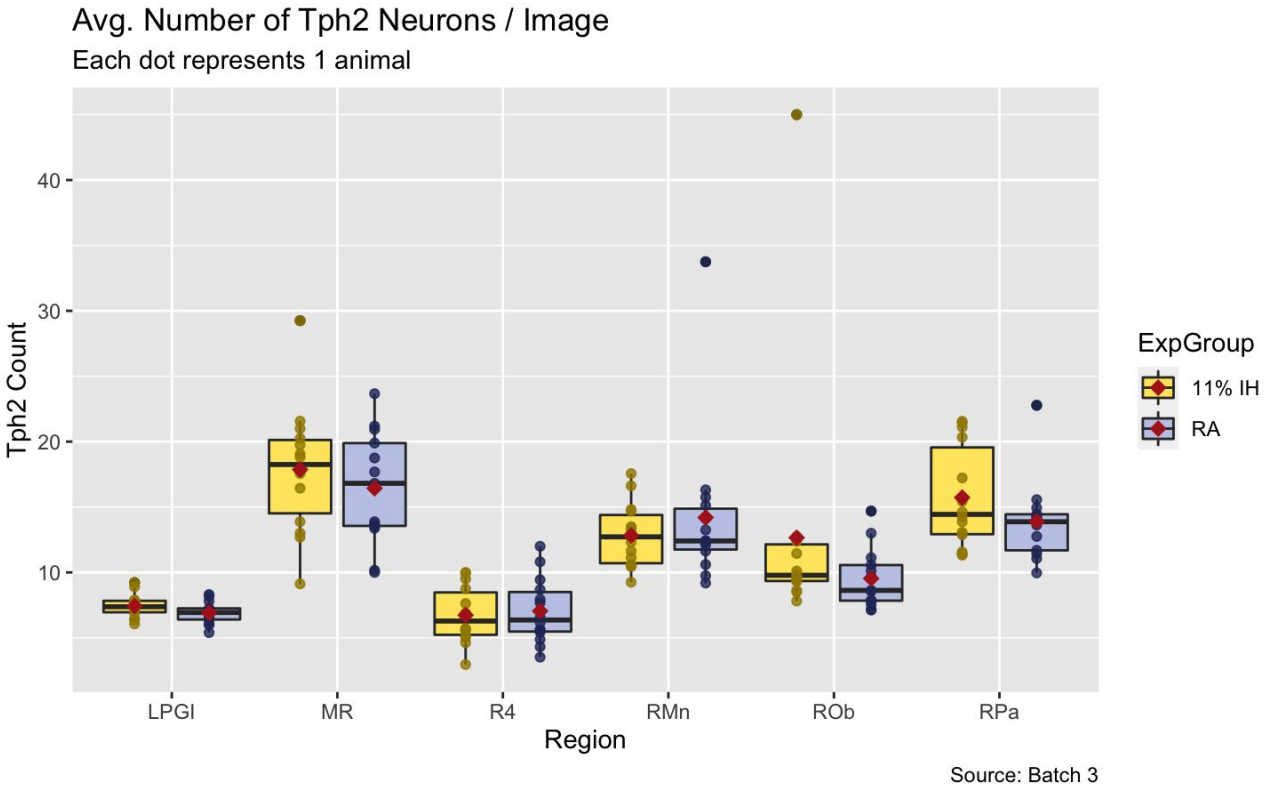


RMn

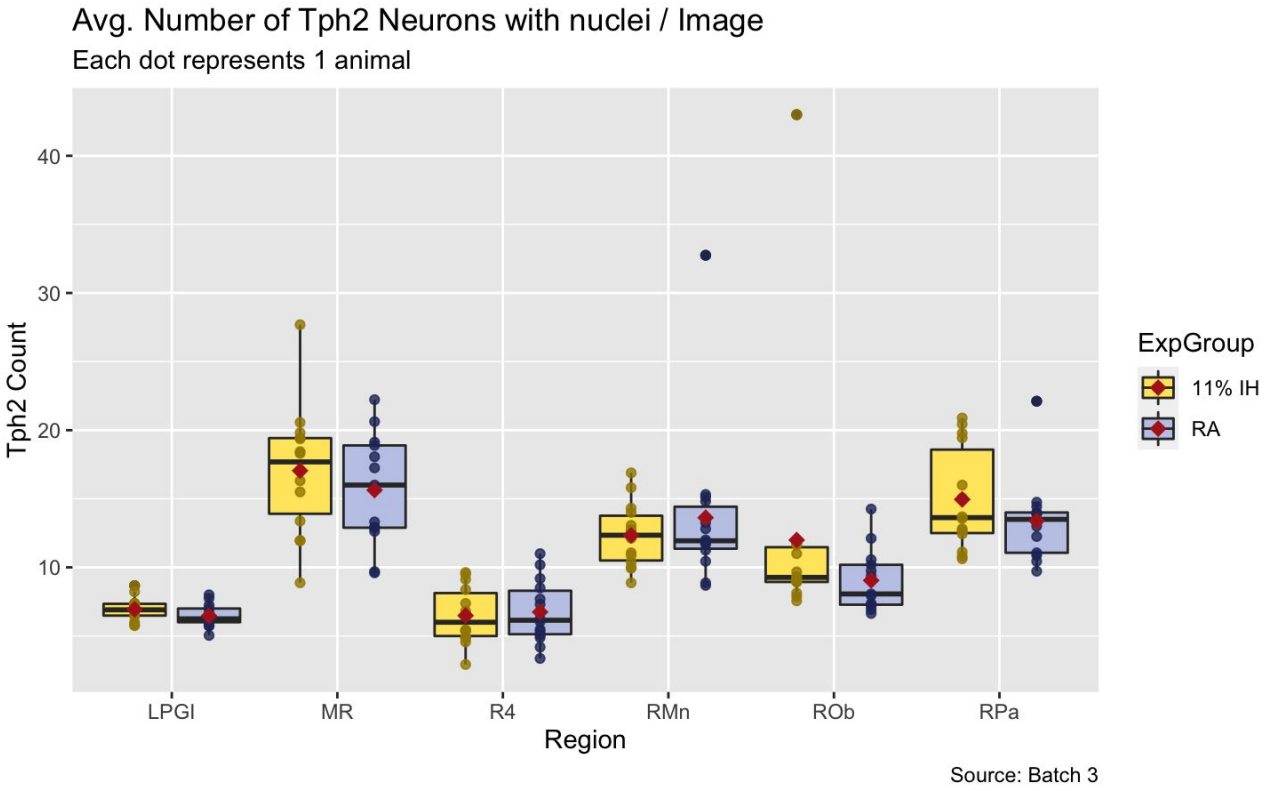
Graphs


Avg. Number of Tph2 Neurons / Mouse
Each dot represents 1 animal
Tph2 Count
120
90
60
30
LPGI
MR
R4
RMn
RObl
RPa
Region
ExpGroup
11% IH
RA
Source: Batch 3

Graphs


Avg. Number of Tph2 Neurons / Image
Each dot represents 1 animal
Tph2 Count
40
30
20
10
LPGI
MR
R4
RMn
RObb
RPa
Region
ExpGroup
11% IH
RA
Source: Batch 3

Graphs


Avg. Number of Tph2 Neurons with nuclei / Image
Each dot represents 1 animal
Tph2 Count
40
30
20
10
LPGI
MR
R4
RMn
RObb
RPa
Region
ExpGroup
11% IH
RA
Source: Batch 3

Potential future analyses

- Examine morphological measurements (solidity, eccentricity) as a proxy for ‘maturity’ of neurons
- Examine whether density of cells differs between treatments (are the cells that are there more closely packed?)

Remaining project time:

- ~2 hrs
- Enough time to do some basic analysis (like above) if desired