**Files to Download from Codex before running this script:**

<https://codex.flywire.ai/api/download?dataset=fafb>

If files have \*not\* been downloaded, the code will prompt you to do so.

Files needed from Codex download are:

1. Synapse Table: fafb\_v783\_princeton\_synapse\_table.csv
2. Classification / Hierarchical Annotations: classification.csv
3. Neurotransmitter Type Predictions: neurotransmitters.csv

* \*Note\*: we **renamed** the filename to be **neurotransmitters (not neurons)**

1. Cell Types: consolidated\_cell\_types.csv

Place the files in the 'input' directory: ITP connectome/**input**/

Folders provided

**input**

* version.csv – provided w/repo
* ITP\_v783.csv – provided w/repo
  + Also available directly from paper (Gera et al.)
* Supplementary Table 3: <https://doi.org/10.7554/eLife.97043>
* NSC\_v783.csv – provided w/repo
  + Available from McKim et al. (2024) NSC connectome paper
  + Provided in Supplementary Table 3 - Supporting Information section:
  + <https://doi.org/10.7554/eLife.102684>
* brainmesh.obj – provided w/repo

\*Note: If you download the repo from github, this folder should already exist with the files above provided

A screenshot of a computer

AI-generated content may be incorrect.The code checks to see if input/output folders exist, and will make them if they do not. However, without the input files provided (or needed from codex download), the rest of the script will not run

**output**

**scripts**

Figure\_13.R

Before you run the script, the ITP connectome folder should look like this:

A screenshot of a computer

AI-generated content may be incorrect.

* This shows the downloaded .csv files from Codex and that they are located in the **input** folder for the Figure\_13.R script to locate
* Files and figures will be saved automatically from the Figure\_13.R script into **output**

After you run the Figure\_13.R script, the folders should contain the following files (more info after image):

**A screenshot of a computer

AI-generated content may be incorrect.**

**Files, figures, and where they are saved:**

**output**

Full path: ITP connectome/**output**/

1. ITP\_input\_synthresh5\_v783.csv
2. ITP\_output\_synthresh5\_v783.csv

**Figure\_13**

Full path: ITP connectome/output/**Figure\_13**

Files:

1. Figure\_13B\_ITP\_input\_all\_synapses\_v783.html
2. Figure\_13B\_ ITP\_input\_all\_synapses\_v783.png
3. Figure\_13B\_ ITP\_output\_all\_synapses\_v783.html
4. Figure\_13B\_ ITP\_output\_all\_synapses\_v783.png
5. Figure\_13C\_ITP\_input\_synapses\_prop\_v783.csv
6. Figure\_13C\_ ITP\_PropInputSynapses\_v783.pdf
7. Figure\_13D\_ITP\_input\_by\_superclass\_v783.csv
8. Figure\_13D\_ITP\_output\_by\_superclass\_v783.csv

**ITP\_all\_inputs**

Full path: ITP connectome/output/Figure\_13/**ITP\_all\_inputs**

* # of files depends on what exists in data

Files:

1. Figure\_13D\_synthresh5\_all\_input\_to\_5th\_LNv\_from\_central\_v783.csv
2. Figure\_13D\_synthresh5\_all\_input\_to\_5th\_LNv\_from\_optic\_v783.csv
3. Figure\_13D\_synthresh5\_all\_input\_to\_5th\_LNv\_from\_visual\_centrifugal\_v783.csv
4. Figure\_13D\_synthresh5\_all\_input\_to\_5th\_LNv\_from\_visual\_projection\_v783.csv
5. Figure\_13D\_synthresh5\_all\_input\_to\_l\_NSC\_ITP\_from\_endocrine\_v783.csv
6. Figure\_13D\_synthresh5\_all\_input\_to\_LNd\_ITP\_from\_central\_v783.csv
7. Figure\_13D\_synthresh5\_all\_input\_to\_ LNd\_ITP\_from\_optic\_v783.csv
8. Figure\_13D\_synthresh5\_all\_input\_to\_LNd\_ITP\_from\_visual\_centrifugal\_v783.csv
9. Figure\_13D\_synthresh5\_all\_input\_to\_LNd\_ITP\_from\_visual\_projection\_v783.csv

**Top\_inputs\_ITP**

Full path: ITP connectome/output/Figure\_13/**Top\_inputs\_ITP**

* # of files depends on what exists in data

Files:

1. Figure\_13D\_top10\_input\_to\_5th\_LNv\_from\_central\_v783.csv
2. Figure\_13D\_top10\_input\_to\_5th\_LNv\_from\_optic\_ v783.csv
3. Figure\_13D\_top10\_input\_to\_5th\_LNv\_from\_visual\_centrifugal\_ v783.csv
4. Figure\_13D\_top10\_input\_to\_5th\_LNv\_from\_visual\_projection\_ v783.csv
5. Figure\_13D\_ top10\_input\_to\_l\_NSC\_ITP\_from\_endocrine\_v783.csv
6. Figure\_13D\_ top10\_input\_to\_LNd\_ITP\_from\_central\_v783.csv
7. Figure\_13D\_ top10\_input\_to\_ LNd\_ITP\_from\_optic\_v783.csv
8. Figure\_13D\_ top10\_input\_to\_LNd\_ITP\_from\_visual\_centrifugal\_v783.csv
9. Figure\_13D\_ top10\_input\_to\_LNd\_ITP\_from\_visual\_projection\_v783.csv

**ITP\_all\_outputs**

Full path: ITP connectome/output/Figure\_13/**ITP\_all\_outputs**

* # of files depends on what exists in data

Files:

1. Figure\_13D\_synthresh5\_all\_output\_from\_5th\_LNv\_to\_ascending\_v783.csv
2. Figure\_13D\_synthresh5\_all\_output\_from\_5th\_LNv\_to\_central\_v783.csv
3. Figure\_13D\_synthresh5\_all\_output\_from\_5th\_LNv\_to\_descending\_v783.csv
4. Figure\_13D\_synthresh5\_all\_output\_from\_5th\_LNv\_to\_endocrine\_v783.csv
5. Figure\_13D\_synthresh5\_all\_output\_from\_5th\_LNv\_to\_optic\_v783.csv
6. Figure\_13D\_synthresh5\_all\_output\_from\_5th\_LNv\_to\_visual\_centrifugal\_v783.csv
7. Figure\_13D\_synthresh5\_all\_output\_from\_5th\_LNv\_to\_visual\_projection\_v783.csv
8. Figure\_13D\_synthresh5\_all\_output\_from\_l\_NSC\_ITP\_to\_central\_v783.csv
9. Figure\_13D\_synthresh5\_all\_output\_from\_l\_NSC\_ITP\_to\_endocrine\_v783.csv
10. Figure\_13D\_synthresh5\_all\_output\_from\_LNd\_ITP\_to\_central\_v783.csv
11. Figure\_13D\_synthresh5\_all\_output\_from\_LNd\_ITP\_to\_descending\_v783.csv
12. Figure\_13D\_synthresh5\_all\_output\_from\_LNd\_ITP\_to\_endocrine\_v783.csv
13. Figure\_13D\_synthresh5\_all\_output\_from\_LNd\_ITP\_to\_visual\_centrifugal\_v783.csv
14. Figure\_13D\_synthresh5\_all\_output\_from\_LNd\_ITP\_to\_visual\_projection\_v783.csv

**Top\_outputs\_ITP**

Full path: ITP connectome/output/Figure\_13/**Top\_outputs\_ITP**

* # of files depends on what exists in data

Files:

1. Figure\_13D\_top10\_output\_from\_5th\_LNv\_to\_ascending\_v783.csv
2. Figure\_13D\_ top10\_output\_from\_5th\_LNv\_to\_central\_v783.csv
3. Figure\_13D\_ top10\_output\_from\_5th\_LNv\_to\_descending\_v783.csv
4. Figure\_13D\_ top10\_output\_from\_5th\_LNv\_to\_endocrine\_v783.csv
5. Figure\_13D\_ top10\_output\_from\_5th\_LNv\_to\_optic\_v783.csv
6. Figure\_13D\_ top10\_output\_from\_5th\_LNv\_to\_visual\_centrifugal\_v783.csv
7. Figure\_13D\_ top10\_output\_from\_5th\_LNv\_to\_visual\_projection\_v783.csv
8. Figure\_13D\_ top10\_output\_from\_l\_NSC\_ITP\_to\_central\_v783.csv
9. Figure\_13D\_ top10\_output\_from\_l\_NSC\_ITP\_to\_endocrine\_v783.csv
10. Figure\_13D\_ top10\_output\_from\_LNd\_ITP\_to\_central\_v783.csv
11. Figure\_13D\_ top10\_\_output\_from\_LNd\_ITP\_to\_descending\_v783.csv
12. Figure\_13D\_ top10\_output\_from\_LNd\_ITP\_to\_endocrine\_v783.csv
13. Figure\_13D\_ top10\_output\_from\_LNd\_ITP\_to\_visual\_centrifugal\_v783.csv
14. Figure\_13D\_ top10\_output\_from\_LNd\_ITP\_to\_visual\_projection\_v783.csv

**lib**

Full path: ITP connectome/output/Figure\_13/**lib**

* Subfolders from brain mesh plots of synapses