## OVERVIEW OF THE DIFFERENT DATASETS

| Name | Node | Zone | Pos. | $N$ | $L$ | $\rho$ | $\langle k \rangle$ | $r$ | $\bar{c}$ | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|
| C. Elegans | cell | nervous system | yes | 279 | 2287 | 0.060 | 16.4 | -0.09 | 0.34 | [1, 2][1] |
| Cat1 | area | cortex | no | 65 | 730 | 0.351 | 22.5 | -0.03 | 0.66 | [3, 4][2] |
| Cat2 | area | cortex and thalamus | no | 95 | 1170 | 0.262 | 24.6 | -0.09 | 0.62 | [5][3] |
| Cat3 | area | cortex | no | 52 | 515 | 0.388 | 19.8 | -0.04 | 0.66 | [5][3] |
| Drosophila1 | cell | optic medulla | yes | 350 | 2887 | 0.047 | 16.5 | -0.02 | 0.24 | [6][4] |
| Drosophila2 | cell | optic medulla | yes | 1781 | 8911 | 0.006 | 10.0 | -0.09 | 0.26 | [6][5] |
| Macaque1 | area | cortex | yes | 94 | 1515 | 0.347 | 32.2 | -0.15 | 0.77 | [7][6] |
| Macaque2 | area | cortex | no | 71 | 438 | 0.176 | 12.3 | 0.09 | 0.50 | [8][7] |
| Macaque3 | area | cortex | no | 242 | 3054 | 0.105 | 25.2 | -0.05 | 0.45 | [9][8] |
| Macaque4 | area | cortex | yes | 29 | 322 | 0.793 | 22.2 | -0.15 | 0.87 | [10, 11][9] |
| Mouse1 | area | whole brain | yes | 213 | 2969 | 0.132 | 27.9 | -0.05 | 0.45 | [12][10] |
| Mouse2 | cell | retina | yes | 916 | 77585 | 0.185 | 169.4 | -0.18 | 0.60 | [13][11] |
| Mouse3 | cell | retina | no | 1076 | 90811 | 0.157 | 168.8 | -0.20 | 0.59 | [13][11] |
| Human1 | area | cortex (1 hemishpere) | yes | 493 | 7773 | 0.064 | 31.5 | 0.21 | 0.49 | [14, 15][12] |
| Human2 | area | cortex (1 hemisphere) | yes | 496 | 8037 | 0.065 | 32.4 | 0.25 | 0.48 | [14, 15][12] |
| Human3 | area | cortex (2 hemispheres) | yes | 256 | 9103 | 0.279 | 71.1 | 0.09 | 0.68 | [16, 17][13] |
| Human4 | area | cortex (2 hemispheres) | yes | 360 | 12100 | 0.187 | 67.2 | 0.05 | 0.66 | [16, 17][13] |
| Human5 | area | cortex (2 hemispheres) | yes | 1024 | 36553 | 0.070 | 71.4 | 0.09 | 0.60 | [16, 17][13] |
| Human6 | area | whole brain | no | 110 | 966 | 0.161 | 17.6 | 0.20 | 0.61 | [18][14] |
| Human7 | area | whole brain | no | 116 | 1165 | 0.175 | 20.1 | 0.27 | 0.63 | [18][15] |
| Human8 | area | whole brain | yes | 246 | 11060 | 0.367 | 89.9 | -0.01 | 0.69 | [19][16] |
| Rat1 | area | nervous system | no | 503 | 23030 | 0.182 | 91.6 | -0.73 | 0.89 | [20][17] |
| Rat2 | area | nervous system | no | 502 | 24647 | 0.196 | 98.2 | -0.74 | 0.89 | [20][18] |
| Rat2 | area | nervous system | no | 493 | 25979 | 0.214 | 105.4 | -0.70 | 0.88 | [20][19] |
| ZebraFinch1 | cell | basal-ganglia (Area X) | yes | 582 | 2210 | 0.013 | 7.6 | -0.16 | 0.04 | [21][20] |
| ZebraFinch2 | cell | basal-ganglia (Area X) | no | 610 | 15342 | 0.083 | 50.3 | -0.26 | 0.11 | [21][21] |

TABLE I. Overview of the different datasets. For each connectome, the definition of nodes, the zone of the brain covered as well as whether geometrical information (i.e., positions) is available is indicated. The number of nodes ($N$), the number of links ($L$), the density of links ($\rho = 2L/N(N-1)$), its average degree ($\langle k \rangle = 2L/N$), the assortativity coefficient ($r$) and the average local clustering coefficient ($\bar{c}$).

**Table footnotes**

1. The 3D positions were downloaded from Yong-Yeol Ahn's professional website (http://yongyeol.com/data/celegans.net) and the connectivity data were downloaded from http://www.wormatlas.org/images/NeuronConnect.xls.

2. Downloaded from the NeuroData's Graph DataBase (https://neurodata.io/project/connectomes): https://s3.amazonaws.com/connectome-graphs/cat/mixed.species_brain_1.graphml.

3. Dataset is hosted on the Brain Connectivity Toolbox website (https://sites.google.com/site/bctnet/datasets): https://sites.google.com/site/bctnet/Home/functions/cat.mat.

4. Extracted from Supplementary Table 1 of Ref. [6].

5. Downloaded from the NeuroData's Graph DataBase (https://neurodata.io/project/connectomes): https://s3.amazonaws.com/connectome-graphs/fly/drosophila_medulla_1.graphml.

6. Downloaded from Dynamic Connectome Lab website (https://www.dynamic-connectome.org/): https://www.dynamic-connectome.org/pubs/suppl/mac95.mat.

7. Downloaded from the Brain Connectivity Toolbox website (https://sites.google.com/site/bctnet/datasets): https://sites.google.com/site/bctnet/Home/functions/macaque71.mat.

8. Downloaded from the NeuroData's Graph DataBase (https://neurodata.io/project/connectomes): https://s3.amazonaws.com/connectome-graphs/macaque/rhesus_brain_1.graphml.

9. Based on information provided by the authors of Ref. [16], the connectivity data were extracted from the supplementary data of Ref. [11] (can be downloaded in xls formal from http://core-nets.org/download/Cercor_2012%20Table.xls) and the distances published alongside Ref. [10] (can be downloaded in xls format from http://core-nets.org/download/PNAS_2013_Distance_Matrix.xlsx).

10. The distances were extracted from Supplementary Table 4 from Ref. [12] and the connectivity data were kindly provided by the authors of Ref. [12].

11. Downloaded from the NeuroData's Graph DataBase (https://neurodata.io/project/connectomes): https://s3.amazonaws.com/connectome-graphs/mouse/mouse_retina_1.graphml. Mouse2 consists in the subset of Mouse3 for which spatial coordinates of the nodes were provided.

12. Downloaded from https://ndownloader.figshare.com/files/10446582. Human1 and Human2 correspond to the left and right hemispheres, respectively.

13. Dataset was kindly provided by the authors of Ref. [16].

14. Downloaded from http://openconnecto.me/mrdata/share/dti/ndmg_v0011/NKIENH/AAL/NKIENH_0197456_1_DTI_AAL.graphml.

15. Downloaded from http://openconnecto.me/mrdata/share/dti/ndmg_v0011/NKIENH/HarvardOxford/NKIENH_0198051_1_DTI_HarvardOxford.graphml.

16. Extracted from files `BNA_matrix_binary_246x246.csv`, `BNA_subregions.xlsx` and `subregion_func_network_Yeo.csv` downloaded from http://atlas.brainnetome.org/download.html.

17. Downloaded from the NeuroData's Graph DataBase (https://neurodata.io/project/connectomes): https://s3.amazonaws.com/connectome-graphs/rat/rattus.norvegicus_brain_1.graphml.

18. Downloaded from the NeuroData's Graph DataBase (https://neurodata.io/project/connectomes): https://s3.amazonaws.com/connectome-graphs/rat/rattus.norvegicus_brain_2.graphml.

19. Downloaded from the NeuroData's Graph DataBase (https://neurodata.io/project/connectomes): https://s3.amazonaws.com/connectome-graphs/rat/rattus.norvegicus_brain_3.graphml.

20. Dataset was kindly provided by the authors of Ref. [21].

21. Connectivity data were extracted from Supplementary Figure 7 of Ref. [21] (an excel file is provided on the corresponding Nature Methods page).

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