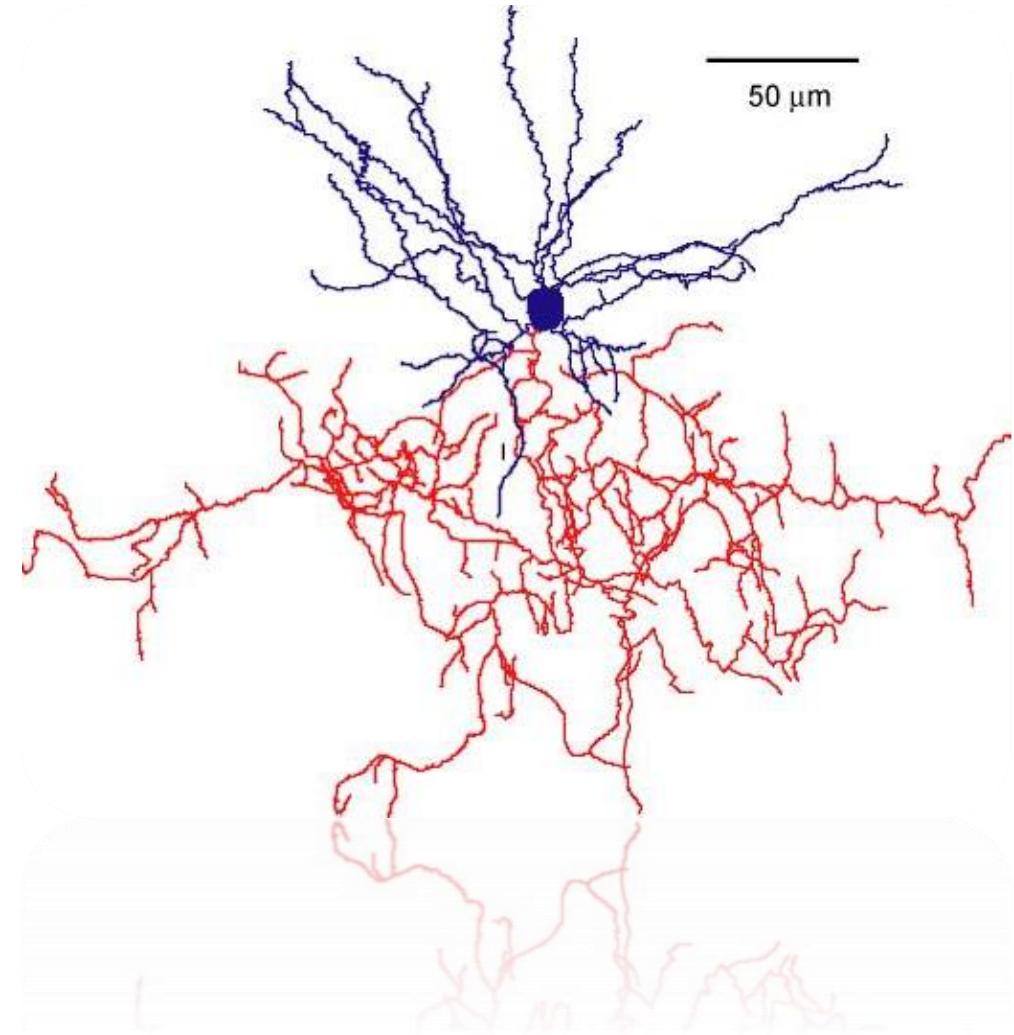


# **Chandelier Cells of the Mouse Visual Cortex**

MICrONS Minnie65 Cubic Millimeter EM Volume

# Chandelier cells

Specialized inhibitory interneurons in Layer 2/3 of the cortex, so named for having an extensive axonal arbor below the cell body reminiscent of a light chandelier.



# Thank you

Bethanny Danskin and Forrest Collman from the Allen Institute for  
providing example code notebooks and for coding assistance

# Process



Selection from data table



Review in Neuroglancer



Download cell meshes and synapse table



Visualize Chandelier-target neuron pairs

# Selection from data table



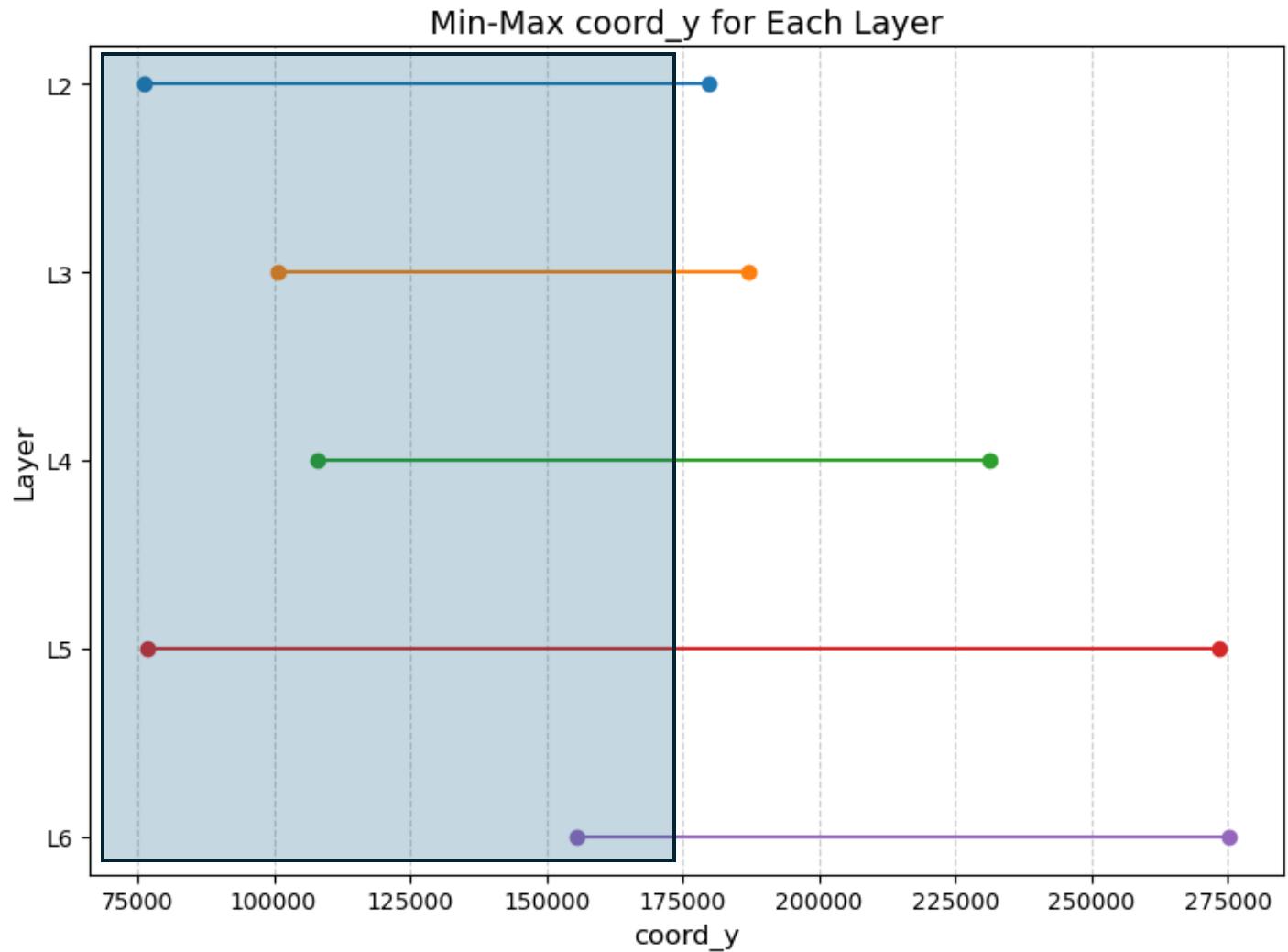
Download the full `aibs.metamodel.celltypes_v661_v2` data table from the MICrONs [Cubic Millimeter Table Viewer](#)



Filter by cell type (e.g., PTC) and location in the volume

See  
[`aibs.metamodel.celltypes\_v661\_v2`](#)  
[`layer\_positions.ipynb`](#) (Jupyter)

Filtering by  
y-position to  
select  
Layer 2/3  
neurons



# Review in Neuroglancer



Use the spelunker caveclient statebuilder to materialize a list of root ids of interest

See:

[minnie65\\_statebuilder\\_query\\_root\\_id\\_by\\_list\\_colab.ipynb](#) (Colab)



Manually review neurons by morphology with or without synapses



Query synaptic outputs of a root id of interest and review in Neuroglancer



Colab version helps reduce local environment issues

# Download cell meshes and synapse table



Download cell meshes of interest



See: [minnie65\\_mesh\\_download\\_colab.ipynb](#) (Colab)



Download synapse table for a root id of interest



See: [minnie\\_download\\_synapse\\_tables\\_colab.ipynb](#) (Colab)

# Visualize Chandelier-target neuron pairs



Show the Chandelier cell (or any cell of interest) with all its input and output synapses



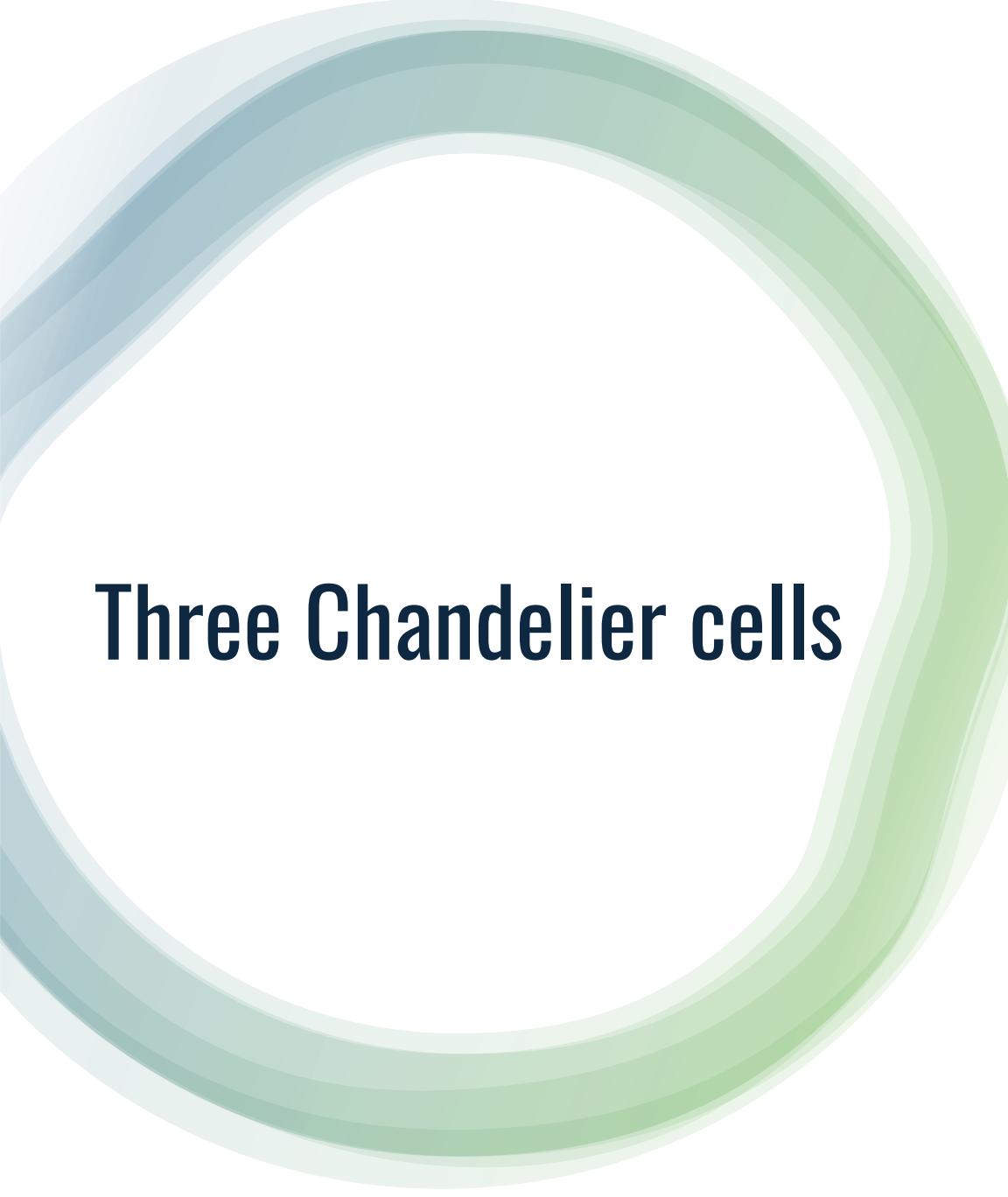
See: [vtk dynamic cell meshes minnie withsynapses.ipynb](#) (Jupyter)



Show pairwise rendering of Chandelier-target pairs



See: [minnie\\_plotly and vtk visualizer chandelier.ipynb](#) (Jupyter)



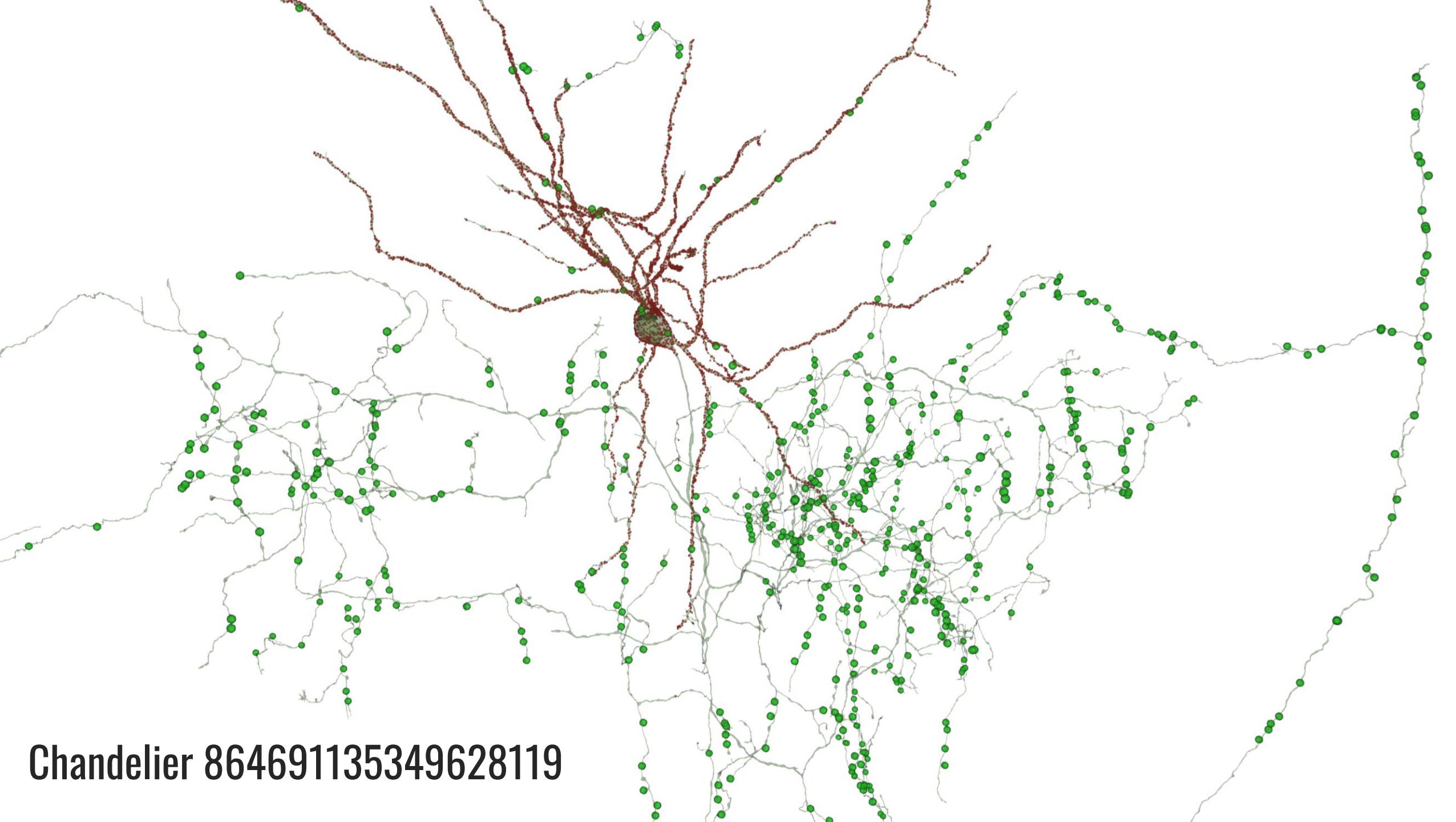
# Three Chandelier cells

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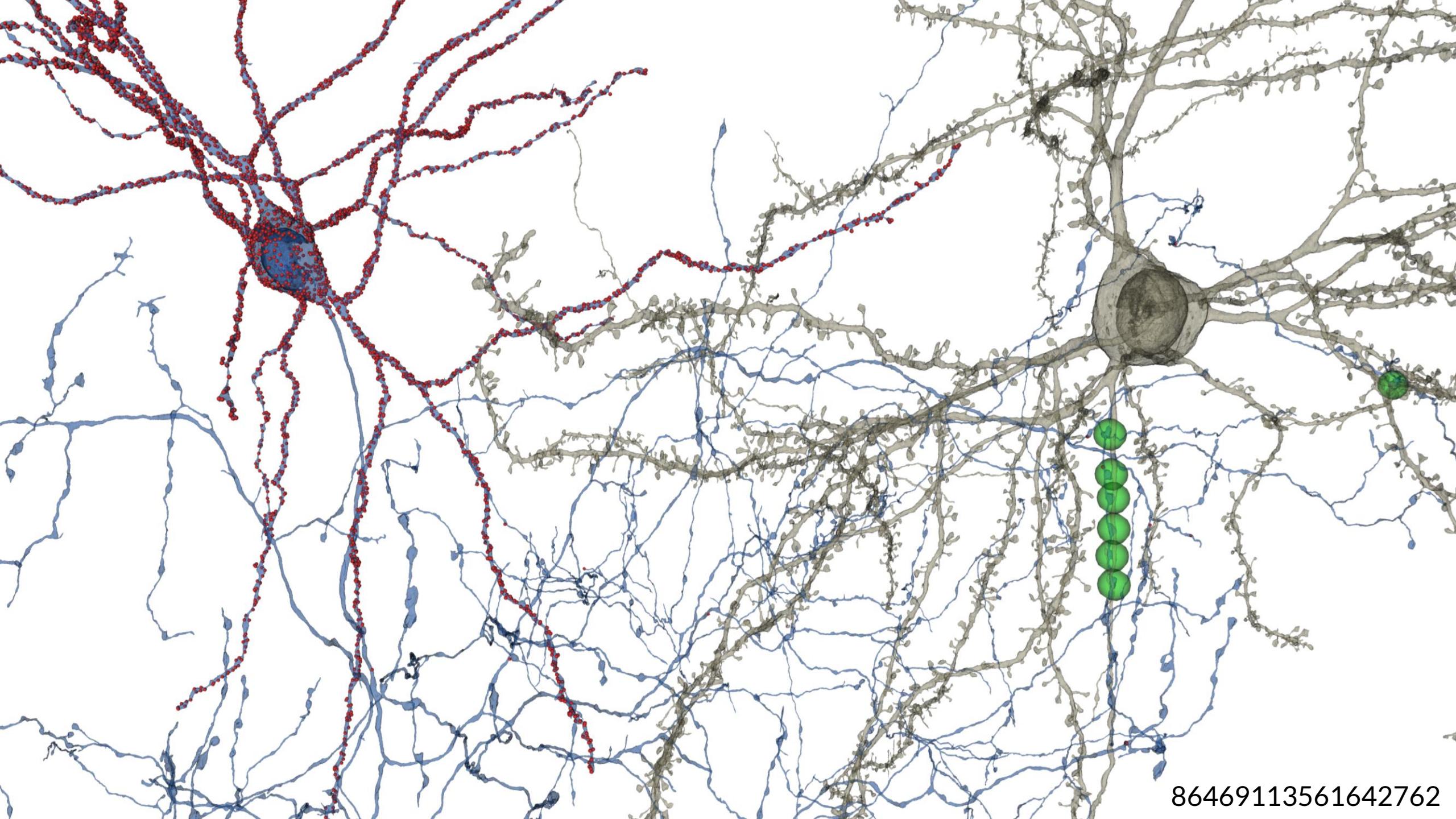
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864691135397985569

# Chandelier 1



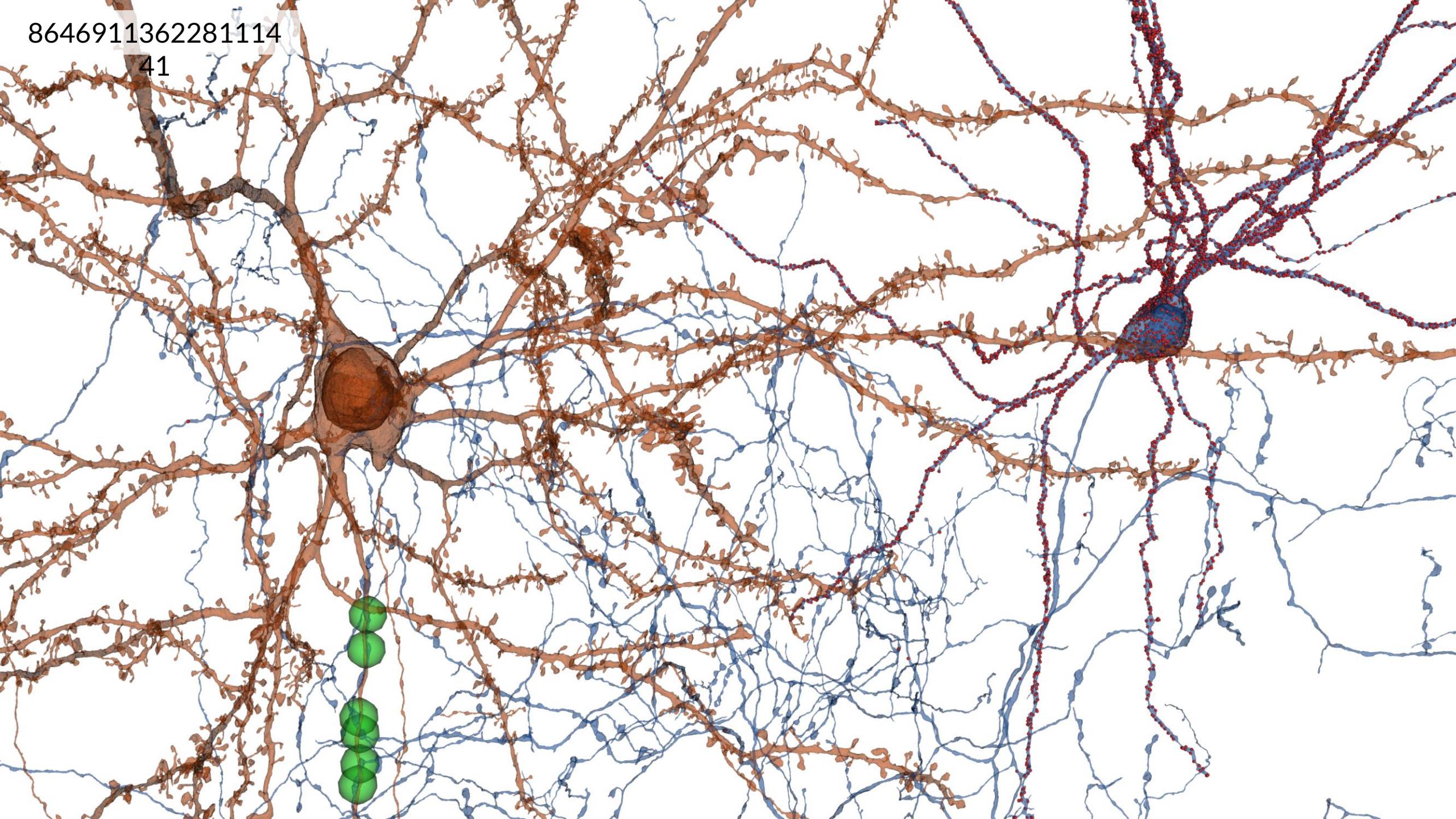
Chandelier 864691135349628119

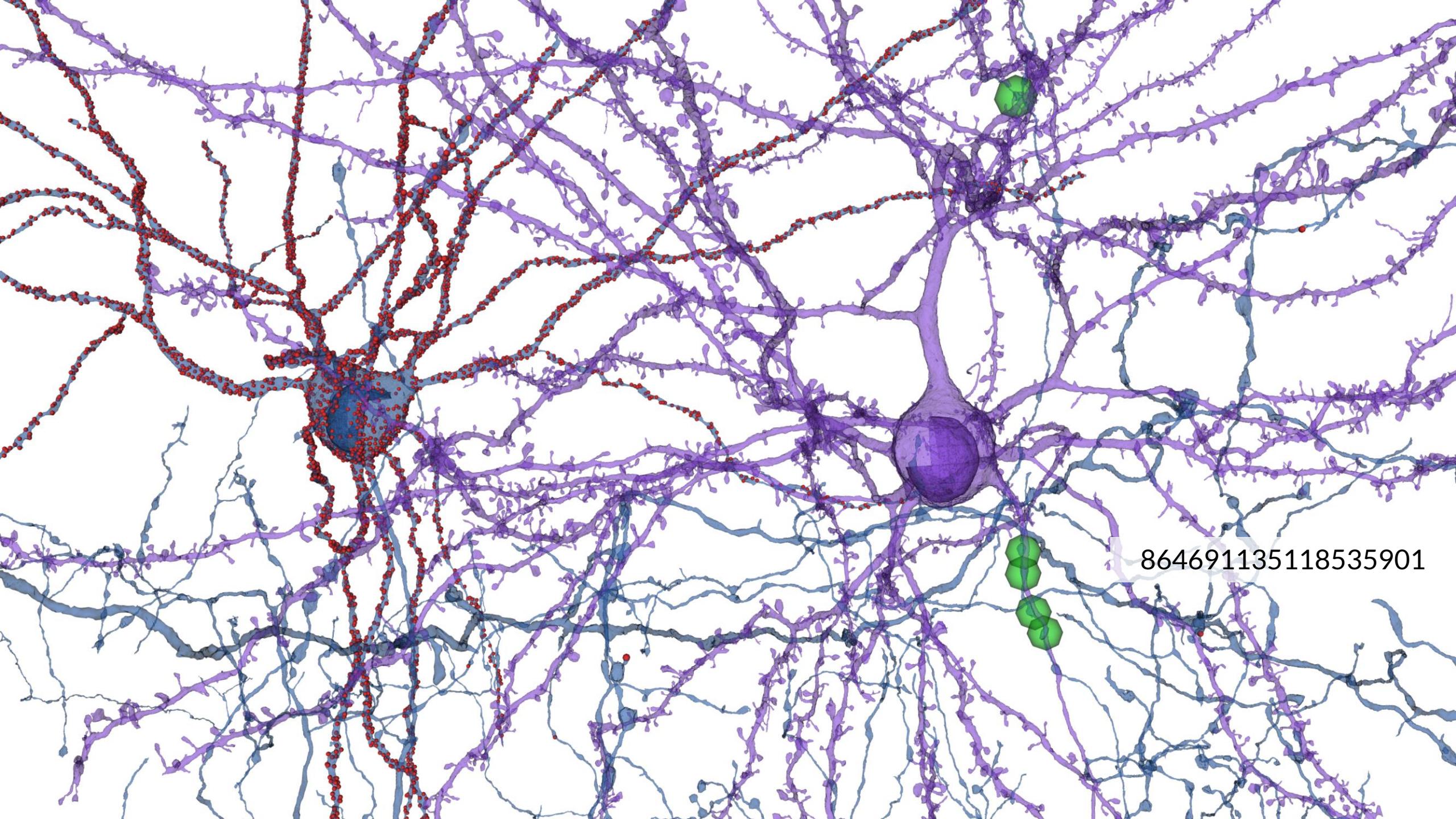


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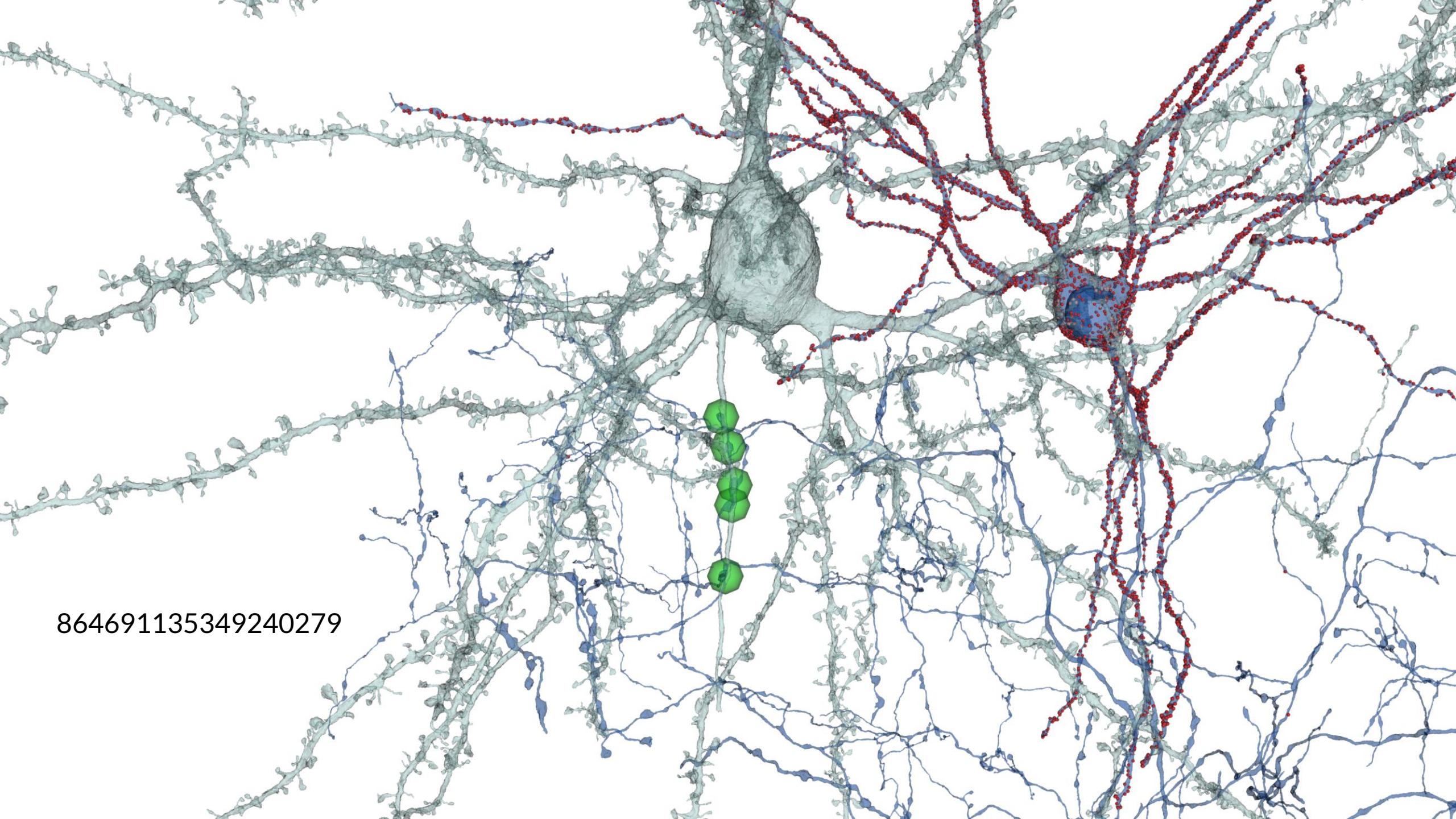
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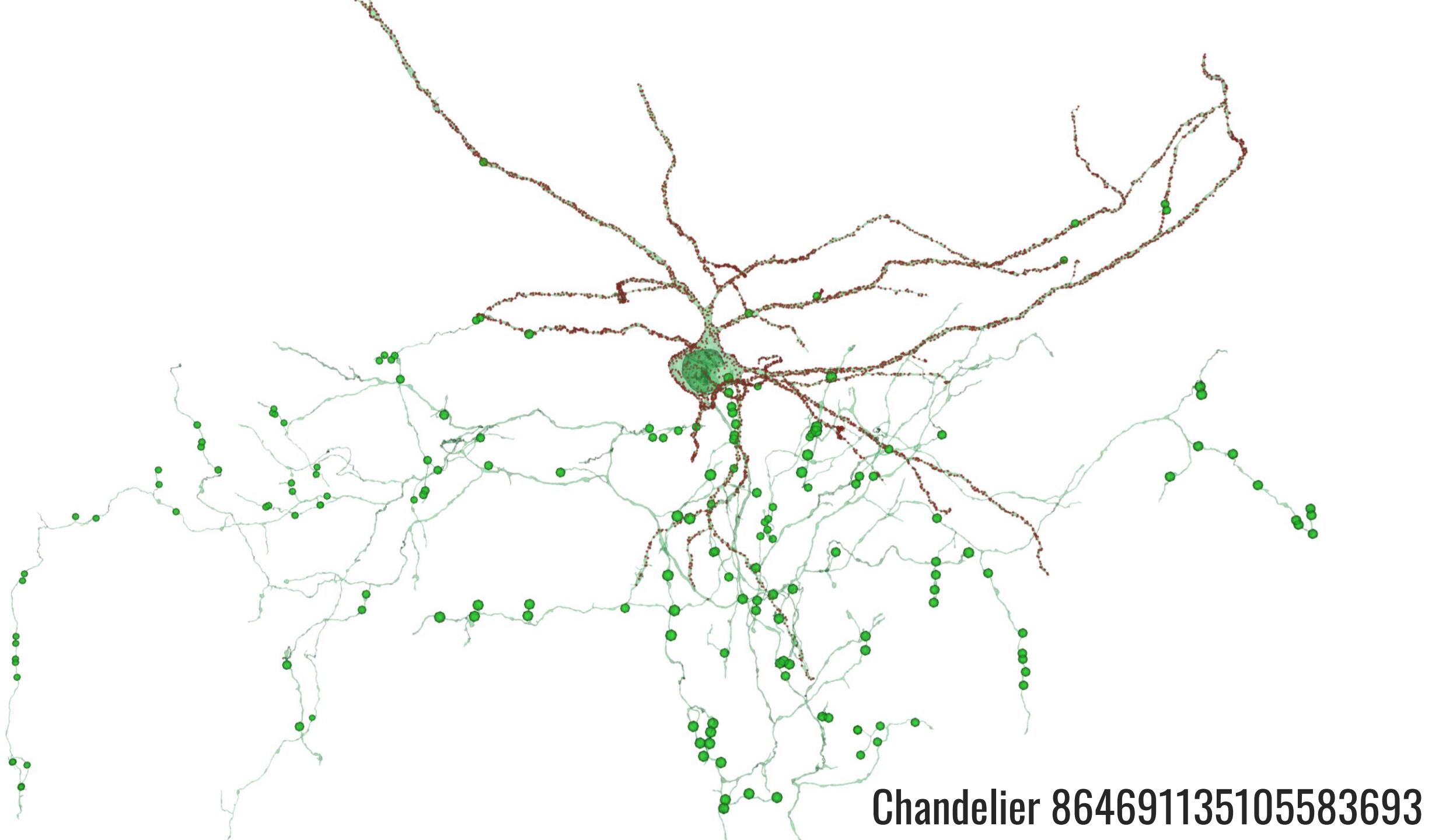


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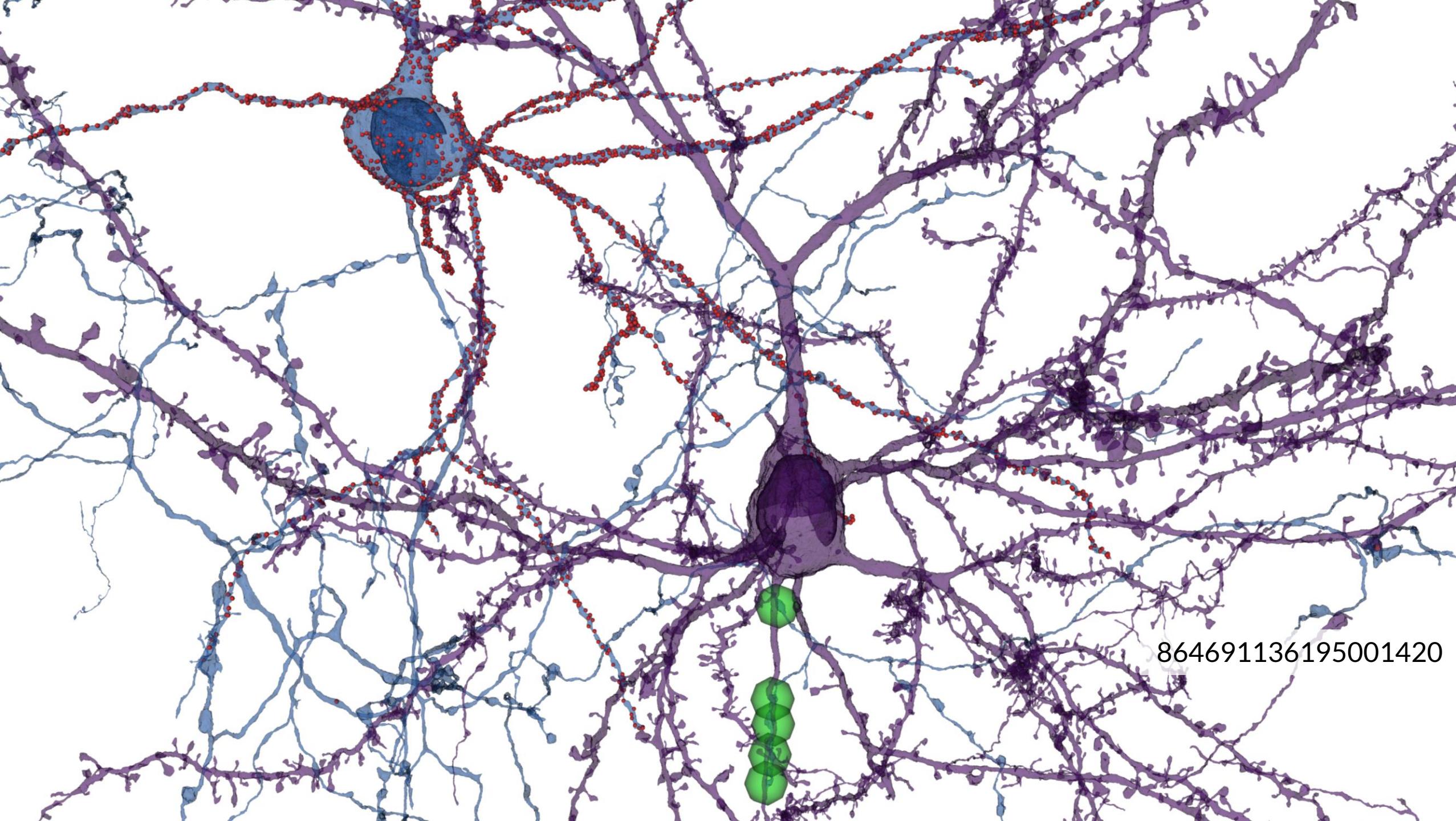


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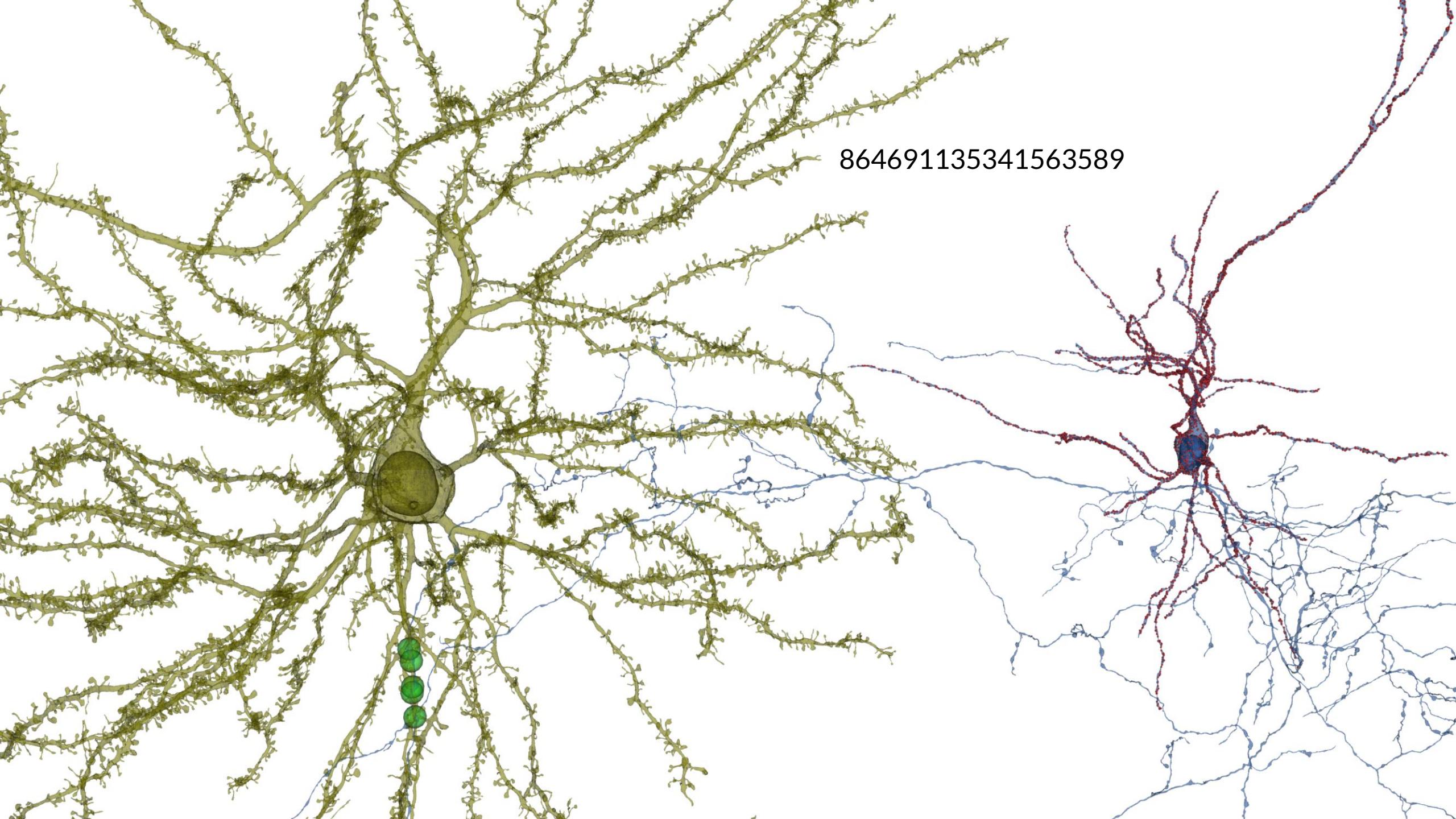
# Chandelier 2



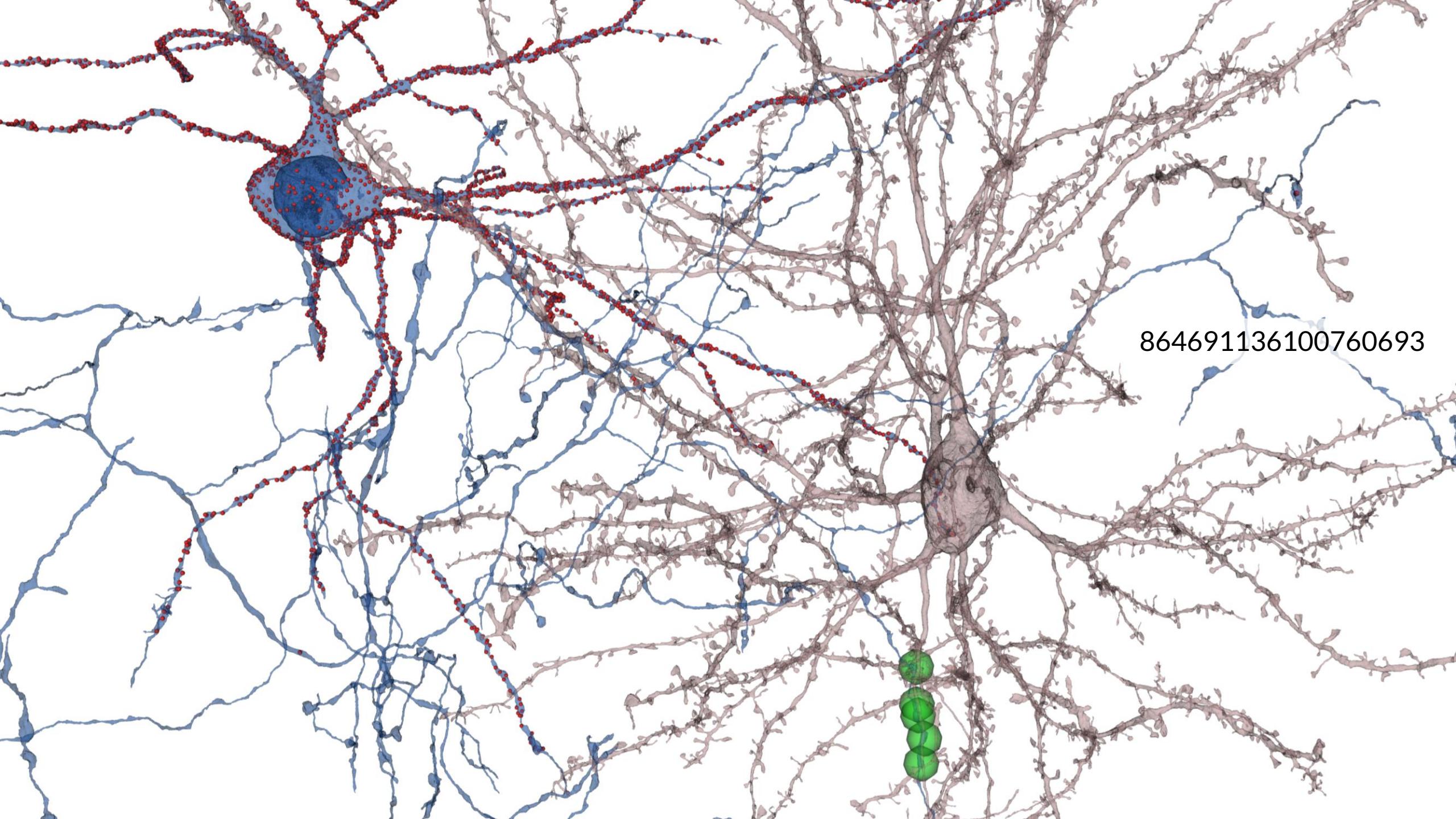
**Chandelier 864691135105583693**



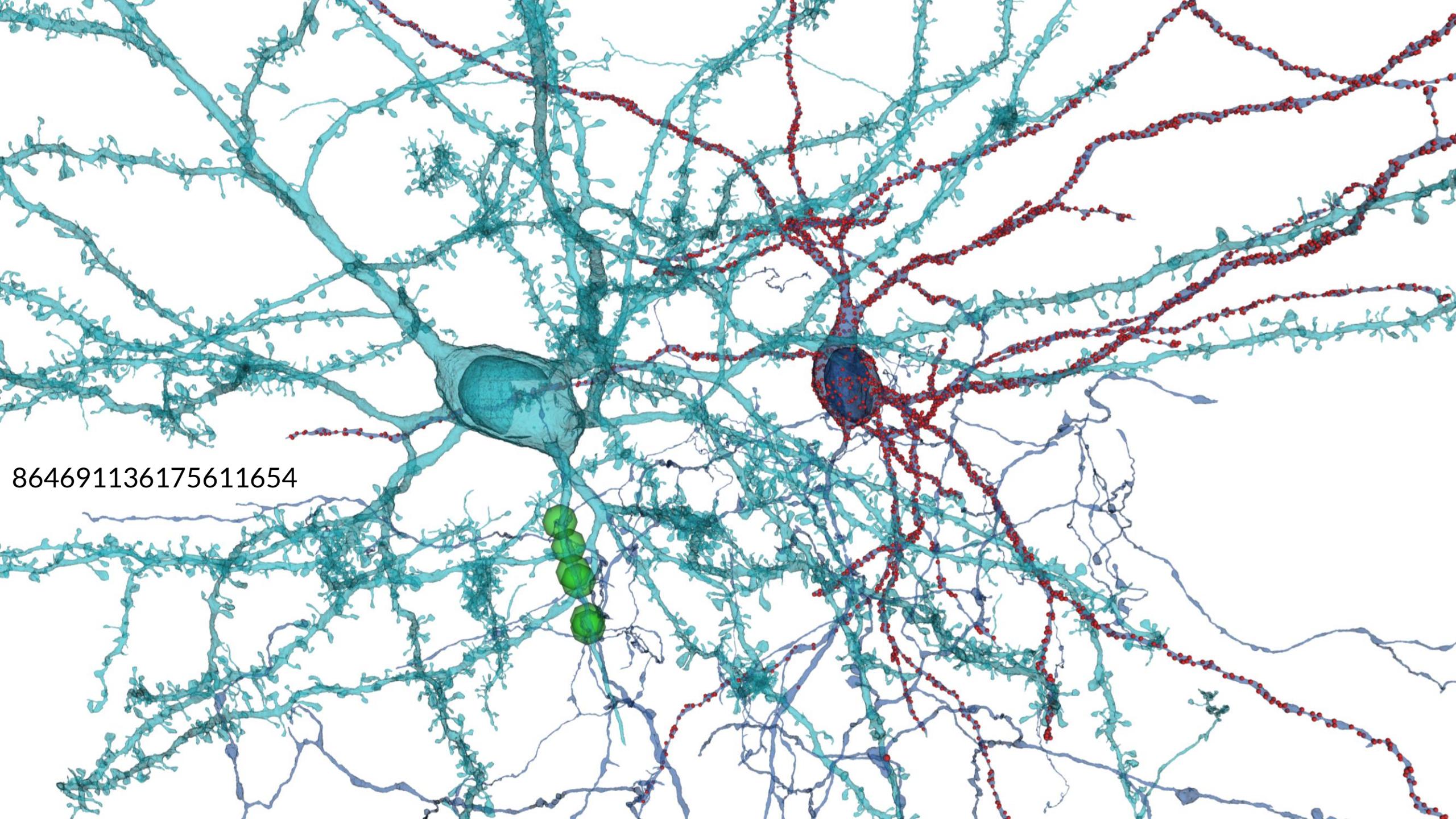
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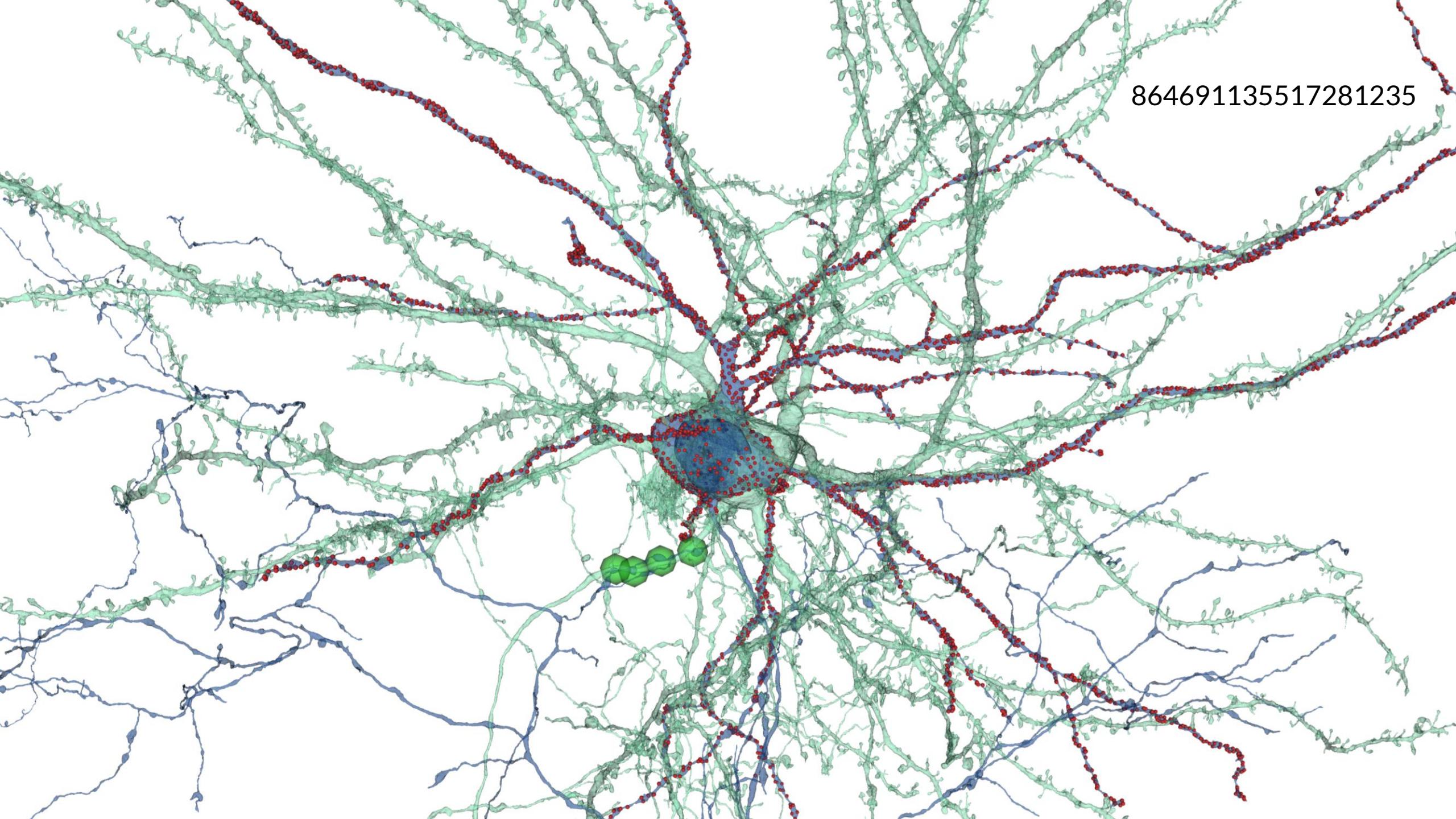
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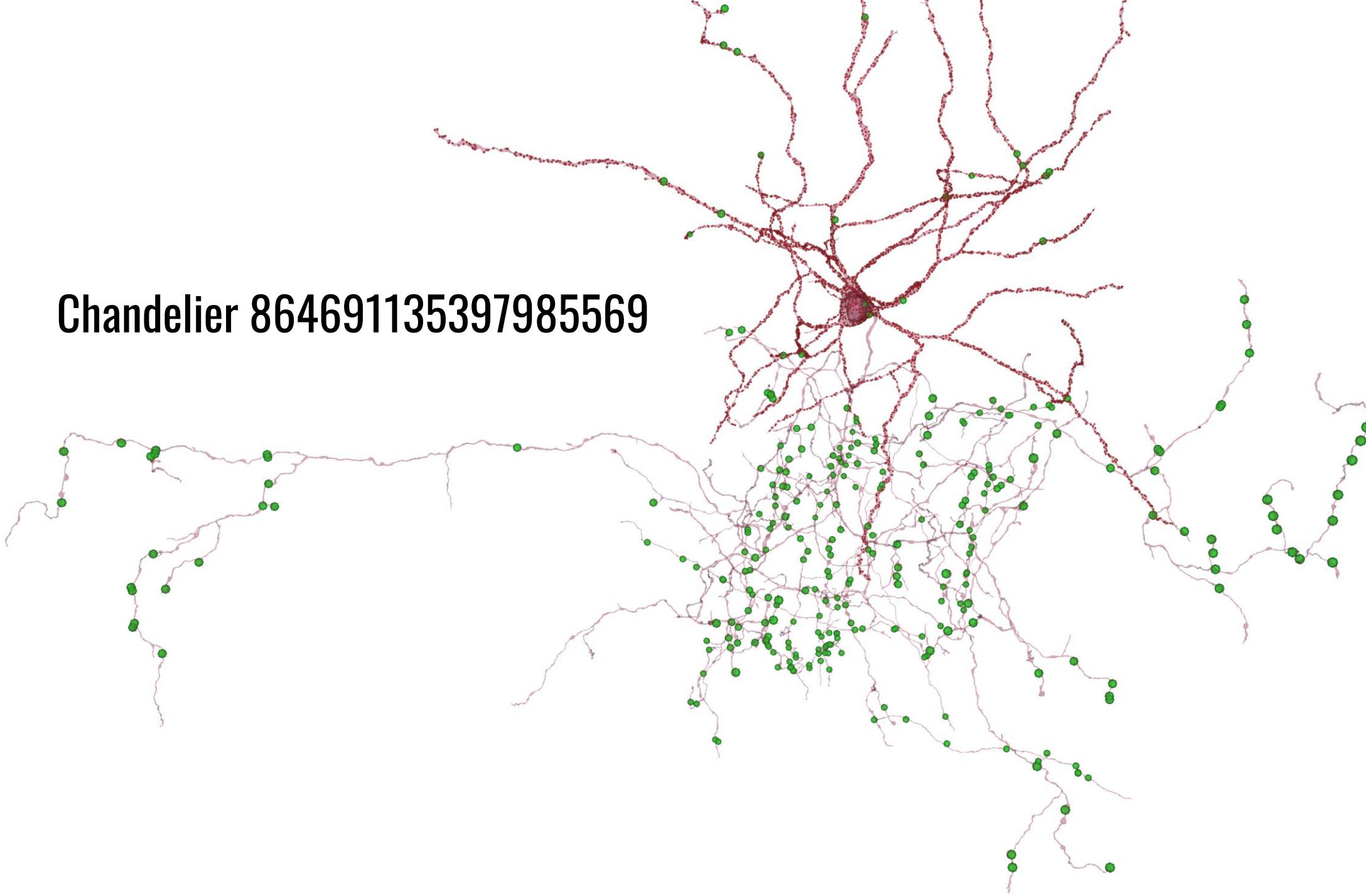
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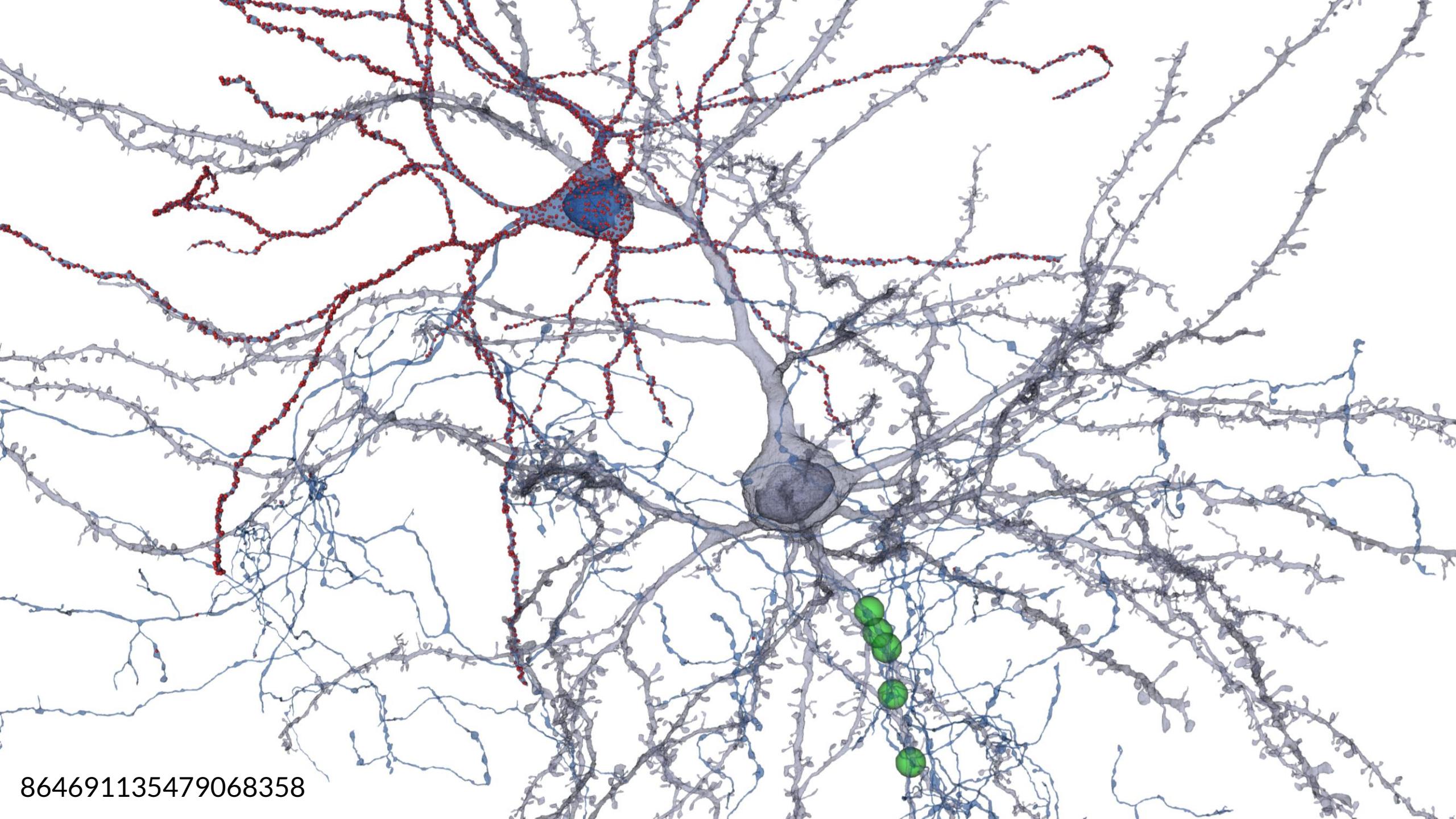


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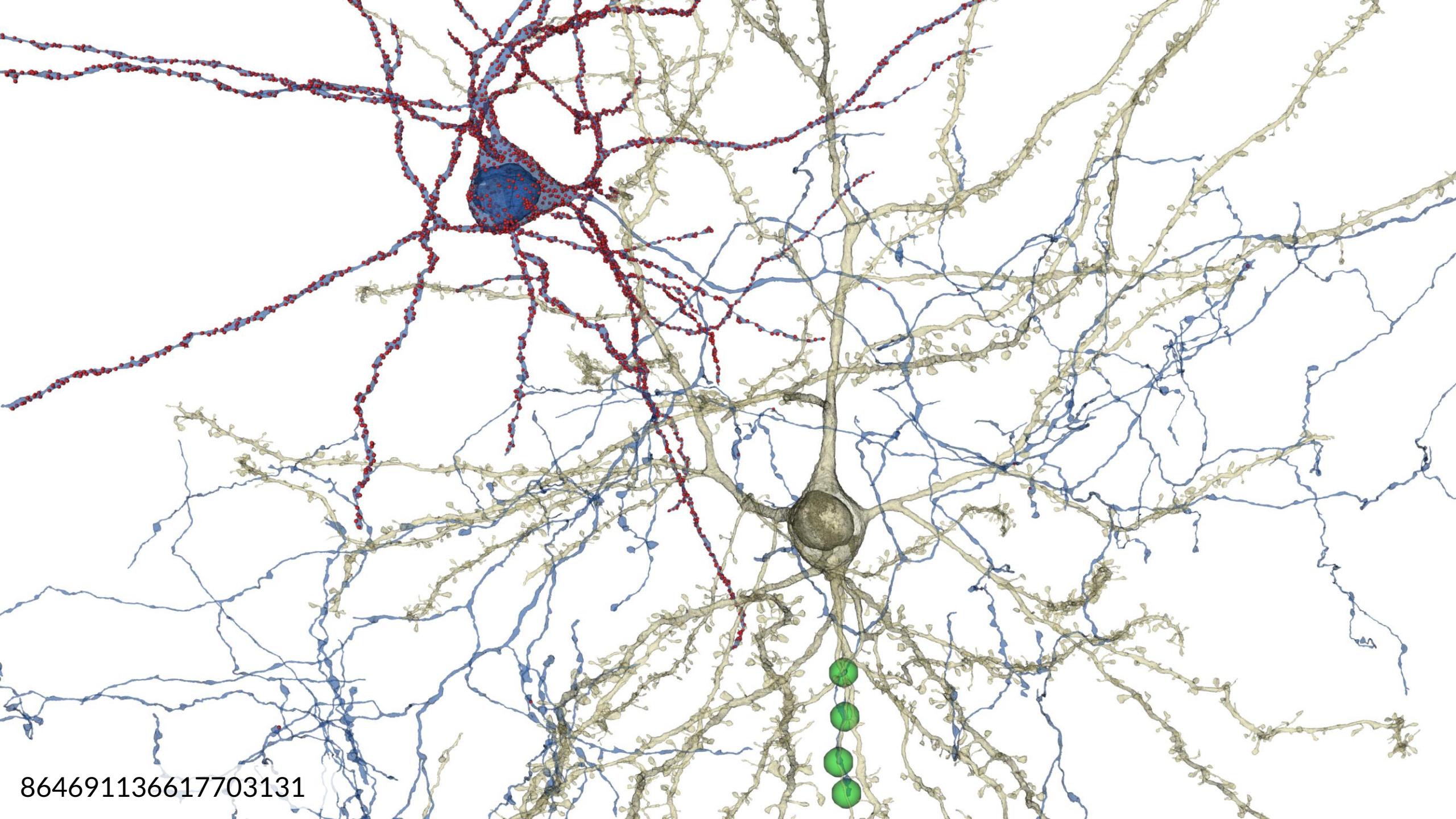
# Chandelier 3

**Chandelier 864691135397985569**



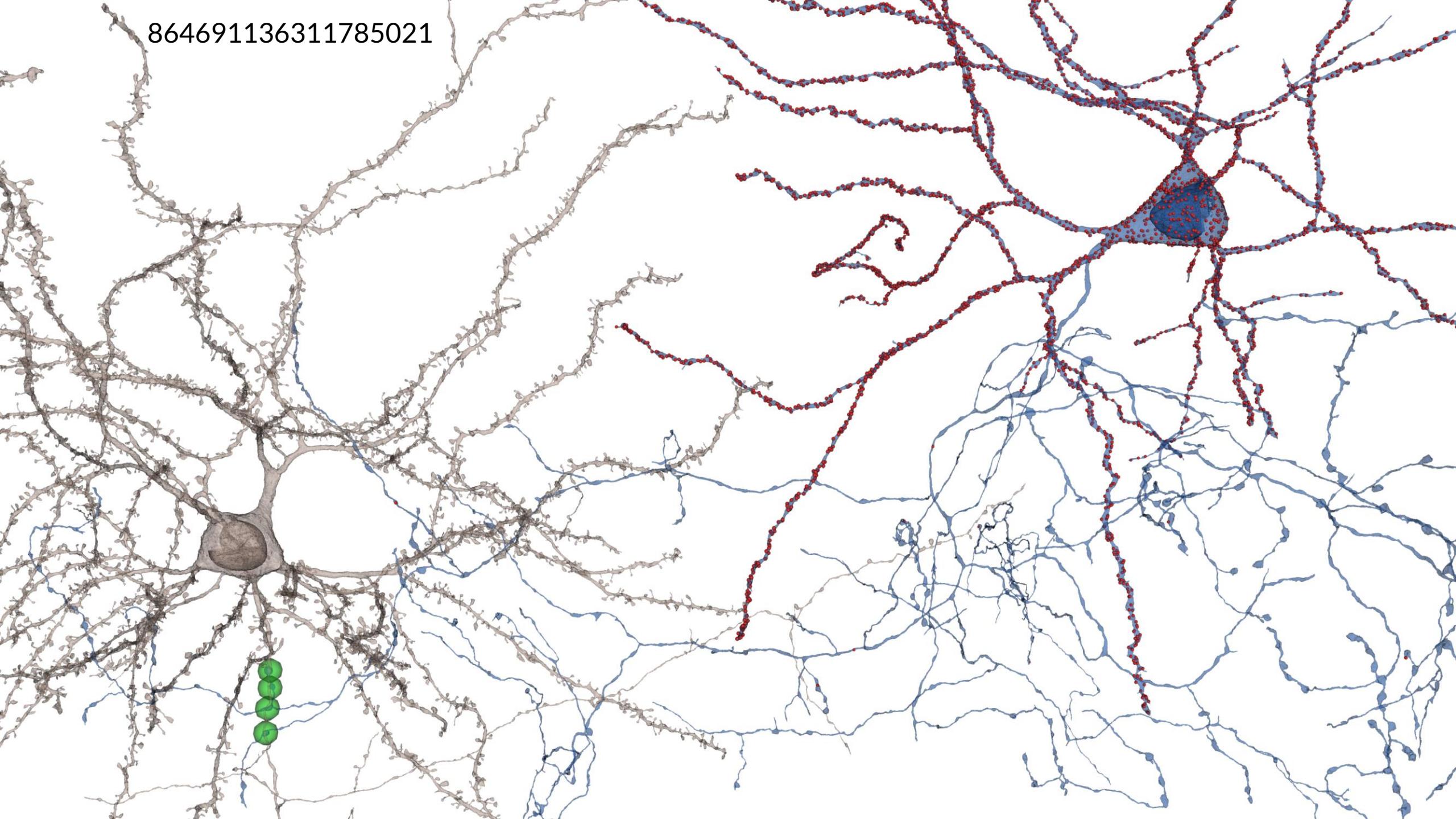


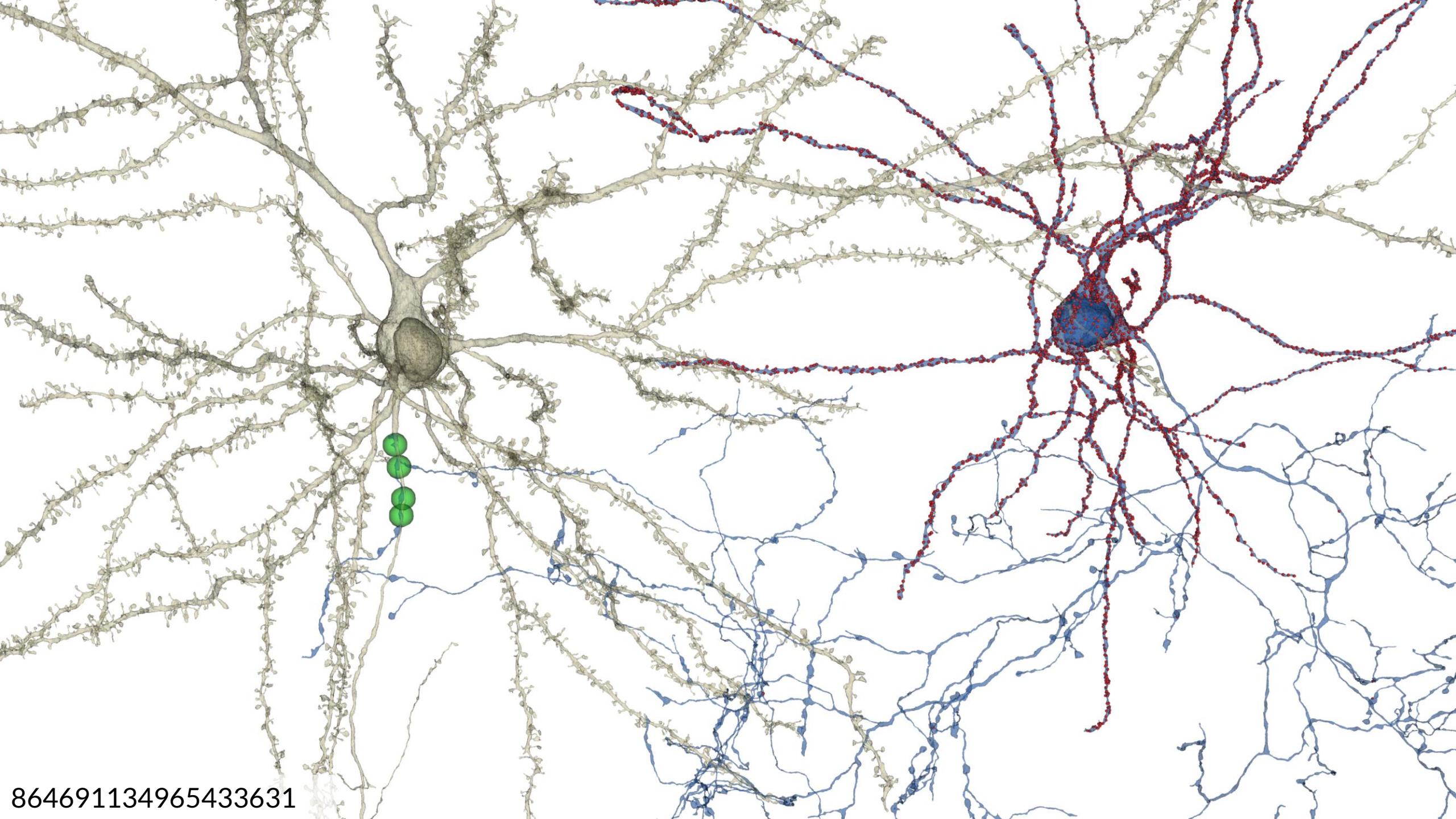
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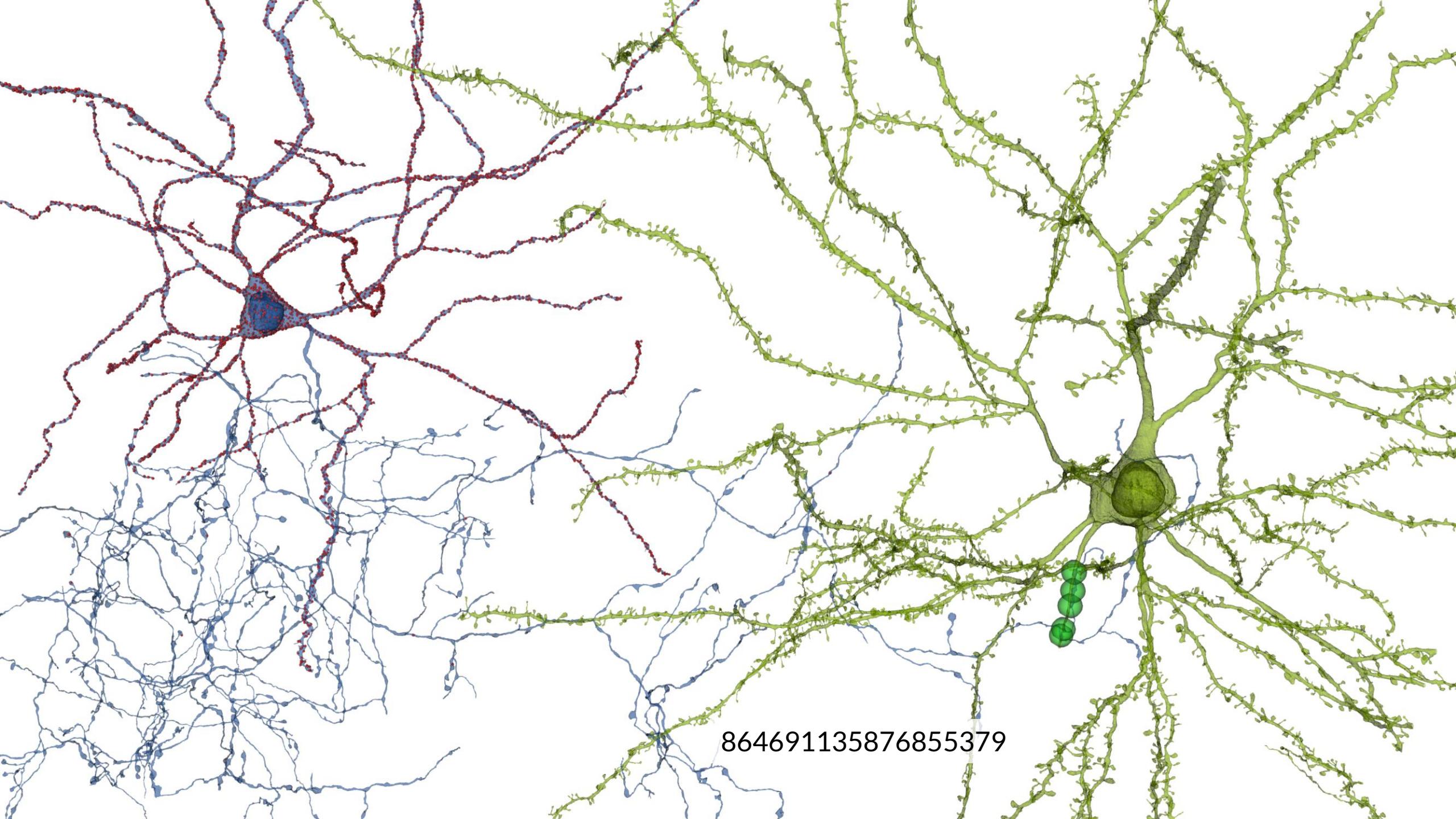
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864691135876855379

# Acknowledgements



Read the original research papers on the [Citation](#) page at Allen Institute



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# Code Availability

Visit my [minnie repository](#) on Github to view how the images and data in this presentation were generated