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🌐 Neuromelanin-positive Neuron Density in Substantia Nigra Image Analysis

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ABSTRACT

The protocol covers the steps to measure neuromelanin-positive neuron density in substantia nigra using image analysis tools including NZConnect (Hamamatsu), a web-based whole-slide image (WSI) viewer, Cellpose and QuPath.

Annotation and Deconvolution

1 Manually annotate the substantia nigra on NZConnect (Hamamatsu), a web-based whole-slide image (WSI) viewer.

2 Download the annotations using a Python script, and then import into QuPath [1] using a Groovy script

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3 Segment neuromelanin cells using Cellpose [2,3] via the QuPath Cellpose extension [4], followed by an object classifier to filter out non-specific detections.

4 Calculate neuromelanin-positive cell density by the number of neuromelanin-positive cells divided by the area of the region of interest (neuromelanin-positive cells per mm^2).

> **Note**
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> **References**
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