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## Sholl analysis

In 1 collection

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### ABSTRACT

Protocol for Sholl analysis by Neurolucida software

### MATERIALS

- Neurolucida 2020.1.2 (MicroBright-Field, Vermont, USA)

- Neurolucida Explorer 2019.2.1 (MicroBright-Field, Vermont, USA).

OPEN ACCESS



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## cell body and branching tracing

- 1** Select the center for the analysis and the structures or markers to be compared
  - 1.1** Select one cell body that you want to use as the center for the analysis
  - 1.2** Select one or more process/group of processes, puncta, and/or markers to be analyzed in relation to the cell body
- 2** Trace cell body contour and branching from the cell body in continuous mode

## Analysis

- 3** Go to Analyze-> Neuron data -> Spatial and click SHOLL ANALYSIS
  - 3.1** Spheres: Choose the starting radius (0 $\mu$ m) and radius increment (10 $\mu$ m) for the spheres
  - 3.2** Analyses: Choose the analyses that you want to include (e.g branching)

- 4 Analyze at least fifteen cells per animal (randomly selected from 3 serial coronal sections/animal) and subsequently average all data for each animal

## Analysis results

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  - Radius: Each radius corresponds to a shell. The number shown is the position of the shell in  $\mu\text{m}$  from the designated center point
  - Intersections: Number of intersections between process and sphere at the given radius
  - Length: Total length in  $\mu\text{m}$  of all processes passing through a shell
  - Nodes: Total number of nodes in the shell
  - Endings: Total number of endings in the shell