

Materials List for:

# Analyzing Dendritic Morphology in Columns and Layers

Chun-Yuan Ting<sup>1</sup>, Philip G. McQueen<sup>2</sup>, Nishith Pandya<sup>3</sup>, Evan S. McCreedy<sup>3</sup>, Matthew McAuliffe<sup>3</sup>, Chi-Hon Lee<sup>1</sup>

<sup>1</sup>Section on Neuronal Connectivity, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health (NIH)

<sup>2</sup>Mathematical and Statistical Computing Laboratory, Center for Information Technology, National Institutes of Health (NIH)

<sup>3</sup>Biomedical Imaging Research Services Section, Center for Information Technology, National Institutes of Health (NIH)

Correspondence to: Chi-Hon Lee at [leechih@mail.nih.gov](mailto:leechih@mail.nih.gov)

URL: <https://www.jove.com/video/55410>

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## Materials

Name	Company	Catalog Number	Comments
<b>Software</b>			
Huygens Professional	Scientific Volume Imaging	version 16.05	for image deconvolution ( <a href="https://svi.nl">https://svi.nl</a> ). commercial software
MIPAV		version 7.3.0	for image recombination and registration ( <a href="http://mipav.cit.nih.gov/">http://mipav.cit.nih.gov/</a> ); freeware
MIPAV plugin: PlugInDrosophilaRetinalRegistration.class			freeware
MIPAV plugin: PlugInDrosophilaStandardColumnRegistration.class			freeware
Imaris	Bitplane		for tracing neurites and assigning reference points for image registration ( <a href="http://www.bitplane.com">http://www.bitplane.com</a> ); commercial software
Vaa3D			for visualizing swc files ( <a href="https://github.com/Vaa3D/release/releases/">https://github.com/Vaa3D/release/releases/</a> ); freeware
Matlab	Mathworks	R2014b	for morphometric analysis of dendrites ( <a href="http://www.mathworks.com">http://www.mathworks.com</a> ); commercial software
Matlab toolbox: TREES1.14		v1.14	for analyzing dendritic morphometric parameters ( <a href="http://www.treestoolbox.org/download.html">http://www.treestoolbox.org/download.html</a> ); freeware
Matlab toolbox: Dendritic_Tree_Toolbox		v1.0	For calculating morphometric parameters ( <a href="https://science.nichd.nih.gov/confluence/display/snc/Data+collections+for+imagines+combination+and+standardize+column+registration">https://science.nichd.nih.gov/confluence/display/snc/Data+collections+for+imagines+combination+and+standardize+column+registration</a> ). Freeware
<b>Name</b>	<b>Company</b>	<b>Catalog number</b>	<b>Comments</b>
<b>Sample files</b>			
SWC file definition			<a href="http://www.neuronland.org/NLMorphologyConverter/MorphologyFormats/SWC/Spec.html">http://www.neuronland.org/NLMorphologyConverter/MorphologyFormats/SWC/Spec.html</a>
The codes and sample files for image combination and registration			<a href="https://science.nichd.nih.gov/confluence/display/snc/Data+collections+for+imagines">https://science.nichd.nih.gov/confluence/display/snc/Data+collections+for+imagines</a>

			+combination+and+standardize +column+registration
Reference point example			<a href="https://science.nichd.nih.gov/confluence/download/attachments/117216914/points.csv?version=1&amp;modificationDate=1471880596000&amp;api=v2">https://science.nichd.nih.gov/confluence/download/attachments/117216914/points.csv?version=1&amp;modificationDate=1471880596000&amp;api=v2</a>
<b>Name</b>	<b>Company</b>	<b>Catalog number</b>	<b>Comments</b>
<b>Computer system</b>			
MS Windows Windows 7 x64 or Macintosh OS X 10.7 or later			3GHz 64-bit quad-core processor, 16G RAM (minimal)
Optional: Quadro4000 (or above) graphic card	Nvidia		for stereographic visualization of dendrites.
Optional: NVIDIA 3D vision2	Nvidia		<a href="http://www.nvidia.com/object/3d-vision-main.html">http://www.nvidia.com/object/3d-vision-main.html</a>
Optional: 120 Hz LCD display for NVIDIA 3D vision2			<a href="http://www.nvidia.com/object/3d-vision-system-requirements.html">http://www.nvidia.com/object/3d-vision-system-requirements.html</a>
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<b>Reagents for imaging</b>			
24B10 antibody	The Developmental Studies Hybridoma Bank	24B10	
GFP Tag Antibody	Thermofisher Scientific	G10362	
Goat anti-Rabbit (H+L), Alexa Fluor 488	Thermofisher Scientific	A11034	
Goat anti-Mouse (H+L), Alexa Fluor 568	Thermofisher Scientific	A21124	
VECTASHIELD Antifade Mounting Medium	Vector Laboratories	H-1000	
Mounting Clay	Fisher	S04179	
70% glycerol in 1x PBS			
Cover glasses, high performance, D = 0.17 mm	Zeiss	474030-9000-000	