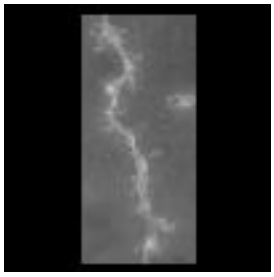
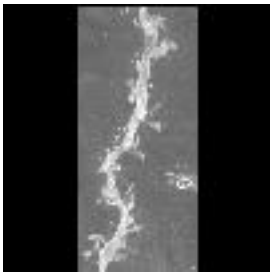
Cell Centered Database
University of California, San Diego
maryann@ncmir.ucsd.edu

Microscopy Product #:31 wt1_g16

For the most updated information, please visit
http://ccdb.ucsd.edu/CCDBWebSite/main?event=displaySum&mpid=31

Image2D	Reconstruction	Segmentation
		

Project Information:

PROJECT_ID	P1207
PROJECT_NAME	Correlative microscopic characterization of dendritic spines in a transgenic mouse model of hyperdopaminergia: The dopamine transporter knockout mouse
PROJECT_DESCRIPTION	Multiscale characterization of DAT KO transgenic mouse
LEADER	Diana Price
FUNDING_AGENCY	NIH
PROJECT_START_DATE	2003-01-01 00:00:00.0
PROJECT_END_DATE	
COLLABORATORS	Aki Laakso, Michele Cyr, Maryann Martone, Naoko Yamada, Andrea Thor, Monica Berlanga
PUBLICATION1	
PUBLICATION2	
PUBLICATION3	

Experiment Information -	
PURPOSE	EMT reconstructions of medium spiny neuron dendrites
TITLE	P1207 Experiment 5
EXPERIMENTER	Diana Price, Masako Terada, Andrea Thor
EXPERIMENT_NAME	
EXPERIMENT_DATE	2003-04-22 00:00:00.0

Subject Information -	
GROUP_BY	genetic manipulation
SUBJECT_NAME	wildtype/control
FIXATION_METHOD_ID	11
SCIENTIFIC_NAME	mus musculus
SPECIES	mouse
STRAIN	C57BL/129SvJ
AGE	7 months
AGECLASS	adult
ANIMAL_NAME	
LITTER_ID	
SEX	male
VENDOR	
WEIGHT	32 grams

Tissue -	
ANATOMIC_LOCATION	neostriatum
MICROTOME	vibratome
ORIENTATION	coronal
THICKNESS	100 um
TISSUE_PROD_STORAGE	p1207 Slide Box 1
EXTERNAL_FILE_NAME	NA
TISSUE_GROUP_TYPE	NA

Microscopy Product Information -	
MICROSCOPY_PRODUCT_ID	31
IMAGE_BASENAME	wt1_g16
CREATE_DATE	2003-10-10 00:00:00.0
INSTRUMENT	Hitachi UHVEM
MICROSCOPE_TYPE	UHVEM
PLANE_COUNT	
PRODUCT_TYPE	single axis tilt series
PURL	NA
SESSION_NAME	
TELESCIENCE_SRB	P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31
X_RESOLUTION	.022 um/pixel
Y_RESOLUTION	.022 um/pixel
XSIZE	1024
YSIZE	1024

Protocol:

Experiment #5 DAT KO mouse 04/22/03

Description: Photoconverted dye-filled striatal medium spiny

neurons for EM

Animal Info: ID# wt3 wt4
Weight: 34g 32g
DOB: 9/30/02 9/30/02
Protocol

1. Perfusion (at Duke)
Nembutal; 4% paraformaldehyde + 0.1% gluteraldehyde

2. Sectioned on Vibratome (at NCMIR)
Thickness = 100 microns
Store in 1X PBS in fridge

3. Fill cells with Lucifer yellow
4. Store slices with filled cells in 4% para in fridge

5. Wash 6x with PBS 1X (on ice)

6. When ready to begin photoconversion, turn on the chiller in confocal room. Set at ~4?C. The refrigerator unit should be set at TEMP < 45?C. Switch ON. Stage needs around 20 minutes to come to temperature. Pull unit out into hallway (to avoid increase in temperature).

6. Place slices in 2% glut/PBS on ice for 15 minutes

0.8 ml 25% gluteraldehyde
2 ml 5x PBS
6.2 ml ddH20

7. Briefly wash slices in PBS
8. Place slices in PBS/glycine for a few minutes

38 mg glycine
10 ml 1x PBS

9. Follow instructions for Photoconversion of Lucifer Yellow-filled cells
10. After photoconversion, remove DAB solution and wash slice 3x 10 minutes in generous volumes of PBS on ice. Must remove all DAB before beginning osmification.

Microwaving protocol for osmication, dehydration, and embedding of photoconverted slices

* Prepare Resin mix and let it sit covered and undisturbed until needed (instructions by fume hood in embedding area).

* Rinse slices with a generous amount of cold 1X PBS on ice for ~ 10 min.

* Turn on circulating bath (over 20?C, ~ RT): water bath (left hand side) will fill.

* Insert temperature probe

* Fill other T-beaker with water

* Set temperature to 35?C

* Open new bottle of 100% ethanol and prepare following dilutions:

90% ethanol
70% ethanol
50% ethanol

* Make up osmium solution under fume hood and chill on ice

* 1% osmium tetroxide in PBS on ice.

2.0 ml PBS 5X
then 5.5 2x distilled H2O
2.5 ml Osmium 4%

* Rinse w/ 2x distilled H2O ? 3 x 5min

* Warm up microwave for 2 minutes on high

* Label tubes & place in rack on ice

* Fill tubes with osmium solution (w/ meniscus at 0.5)

* Using glass hooks, transfer slices to tubes

* Remove temperature probe & set temp above 50?C.

* Put rack w. tubes in for 40 sec at full power

* Change rear water load in T-beaker

* Change osmium solution on ice and microwave for another 40 seconds at full power

* Rinse samples for 2 minutes in distilled water on benchtop (at RT)

* Insert petri bath with H2O under rack

* Dehydration steps (2 x 40 seconds per step; all @ 35?C)

1st
2nd

50% EtOH

70% EtOH

90% EtOH

100% EtOH

100% Acetone

* All of the dehydration steps should be carried out in microcentrifuge tubes filled with 600 ml of solution. Temperature probe should be in petri dish and set for 35. Change water in rear water load when warm to touch.

* Change from water to acetone in petri bath under rack ? check acetone bath level every 3 minutes

* Infiltration steps (both @ 50?C):

With a 50/50 mixture of resin and acetone:

1 x 15
min
1:1 Resin:acetone

* Check rear water load at
7.5 minutes

Switch to 100% resin for 3 x 10 minutes:

1st
2nd
3rd
100% Resin

*Periodically check rear water
load

* Flat embed samples between mould release slides and place in embedding oven under vacuum.

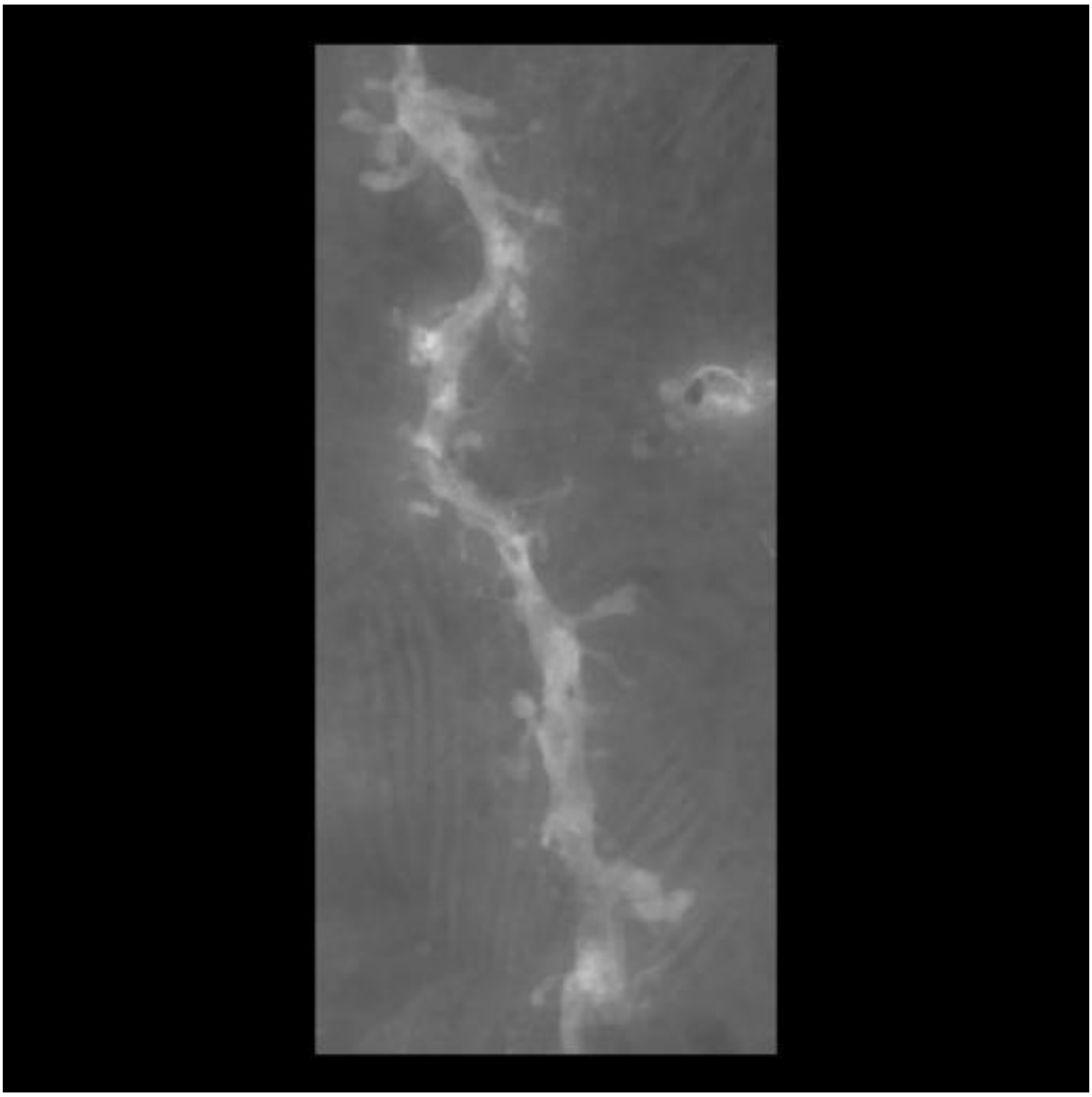
Image Type -	
SINGLE_TILT_IMAGE_SEQ_ID	6131
SINGLET_DESC	Spiny Dendrite Tomo
THROUGH_FOCUS_SERIES_ID	6020
ZSTEP	.25microns
THROUGH_PSFFILE	061603B
THROUGH_DESC	transmitted light z series through photoconverted medium spiny neuron
THROUGH_NOTES	subject id: WT2A#2 experiment 5 two injected cells on slide: 061603C and 061603B
SINGLETILTIMAGESEQ_ID	8
TILT_INCREMENT	2 degrees
RANGE_MAX	66 degrees
RANGE_MIN	-66 degrees

Specimen Description -	
ANATOMICAL_DETAIL	6044
ATLAS	Paxinos and Franklin
ATLAS_COORD	3.125, 2.375, .02
CELL_TYPE	medium spiny neuron
ORGAN	brain
REGION	neostriatum
STRUCTURE	spiny dendrite
SYSTEM	central nervous
ANATOMICAL_NOTES	WT1 grid 16 tomo7 coordinate reference: Bregma atlas plate figure: 31

Electron Microscopy Product -	
EM_PRODUCT_ID	8
ACCELERATING_VOLTAGE	3 Mev
EMBEDDING_MEDIUM	resin
MAGNIFICATION	3000
RECORDING_MEDIUM	film
LMPRODUCT_ID	24
COVER_SLIP_THICKNESS	1 um
IMMERSION_MEDIUM	air
LENS_MAGNIFICATION	20 X
MOUNTING_MEDIUM	resin
NUMERICAL_APERTURE	0.5

Raw 2D Image

Raw Low Resolution 2D Image -



Raw 2D Image -	
IMAGE2D_ID	6132
IMAGE_DATE	2003-11-03 00:00:00.0
IMAGE_DESC	a .tar file containing the .preali, .ali, .fid and .seed file for an IMOD volume reconstruction.
IMAGE_FILE_FORMAT	imod mrc
IMAGE_FILE_NAME	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/wt1_g16_img.jpg
MAGNIFICATION	3000 X
RAW_ANIMATION_DESC	a .mpg file of the tilt series used for tomographic reconstruction
RAW_ANIMATION_FILE	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/wt1_g16_img.mpg
RAW_DATA_FILE	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/wt1_g16_image.tar
THUMBNAIL_DESC	A 512 by 512 image of a spiny dendrite from the tilt series for a tomographic reconstruction.
THUMBNAIL_FILE	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/wt1_g16_img_thumb.jpg
X_SIZE	1024 pixels
Y_SIZE	1024 pixels

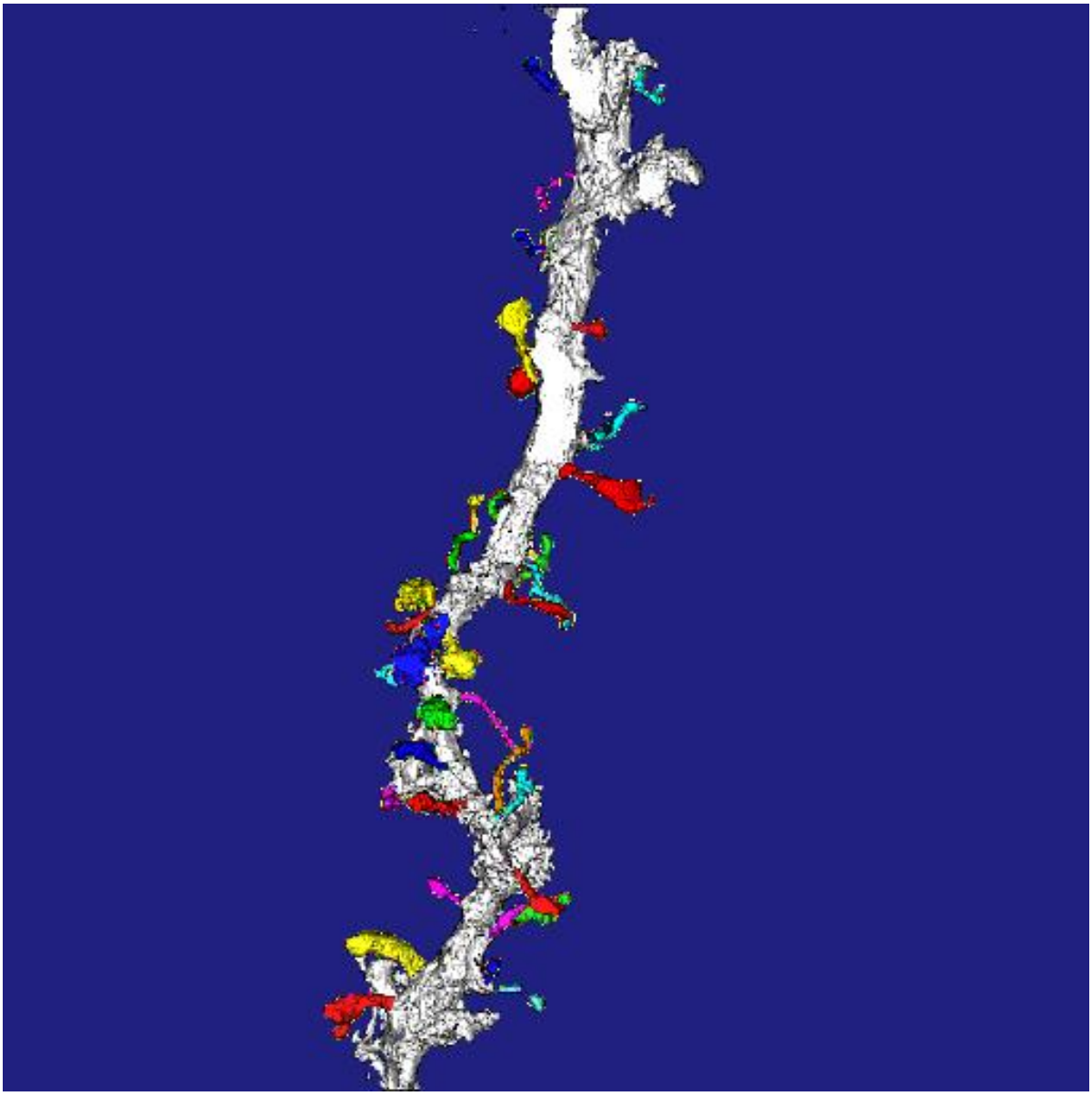
Reconstruction

Reconstruction Image -

Reconstruction -	
RECONSTRUCTION3D_ID	31
ALIGNMENT_METHOD	semi-automatic
ALIGNMENT_PROGRAM	IMOD
BASENAME_ORIGFILE	NA
CORRELATED_VOLUME_NAME	wt1_g16.240.rec2
CROPPING_COORDINATE1	,
CROPPING_COORDINATE2	,
FIDUCIAL_MARK_FILE	Mar2004DATKOM/WT/WT1/wt1_g16.fid
IMAGE_MAP_FILE	wt1_g16_imagemap.tiff
RECON_ALGORITHM	R-weighted back projection
RECON_DATE	2003-11-24 00:00:00.0
RECON_DESC	Reconstruction of selectively stained spiny dendrite from single axis tilt tomography
RECON_PROGRAM	IMOD
RECON_TYPE	single tilt electron tomography
THUMBNAIL	P1207/wt1_g16_vt.jpg
VOLUME_DIMENSION	424, 924, 171
VOLUME_NAME	Mar2004DATKOM/WT/WT1/wt1_g16_vol.tar
VOXEL_SCALE	, ,
RECONSTRUCTION_IMAGES_ID	31
RECON_IMAGE_DESC	Maximum intensity project of a tomographic reconstruction of a spiny dendrite from a 4 ?m thick section throuh medium spiny neuron of mouse caudateputamen
RECON_FILE_NAME	Mar2004DATKOM/WT/WT1/wt1_g16_MIP.gif
VOLUME_THUMBNAIL	P1207/wt1_g16_vt.jpg
ANIMATION_FILE	Mar2004DATKOM/WT/WT1/wt1_g16_rotmovie.qt
ANIMATION_DESC	maximum intensity projection of selectively stained spiny dendrite rotated along the y axis

Segmentation

Segmentation Image -



Segmentation -	
SEGMENTED_OBJECT_ID	6430
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6439
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6454
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6426
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6447
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6420
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6427
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6442
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6445
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6428
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6429
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6432
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6433
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6435
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6436
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6440
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6443
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6444
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6446
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6448
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6450
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6451
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6415
ANALYSIS_FILE_NAME	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/segmented_object_input_template_wt1_g16.xls
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENTED_OBJ_2D_IMAGE	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/wt1_g16_seg.jpg
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold
SEG_FILE_NAME	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/wt1_g16_seg.tar
THUMBNAIL	/telescience/home/CCDB_DATA_USER.portal/P1207/Experiment_19/Subject_19/Tissue_24/Microscopy_31/wt1_g16_seg_thumb.jpg

Segmentation -	
SEGMENTED_OBJECT_ID	6419
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6423
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6434
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6437
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6441
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6449
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6453
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6425
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6431
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6438
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6452
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6416
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6417
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6418
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6421
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6422
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	6424
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
ANALYZE_DESC	Analyze was used to measure surface area and volume for each of the spines.
DISPLAY_IMAGE_DESC	A 512 by 512 image of the segmented model file of a spiny dendrite specimen.
DOWNLOADABLE_FILE_DESC	a .tar file containing the segmented objects from this spiny dendrite specimen.
IS_MANUAL	N
LABELING_RANK	none
NOTES	partial spines were not measured - these spines are noted with a "p" in their object names.
NUMBER_OF_OBJECT	0
SEGMENT_PERSON_NAME	Masako Terada
SEG_ALGORITHM	simple threshold
SEG_DESC	Shaft and spines of spiny dendrite specimen extracted by using the object tools in Analyze and then applying a simple threshold

Segmentation -	
SEGMENTED_OBJECT_ID	181
OBJECT_DESC	spiny dendrite with individual spines segmented
OBJECT_TYPE	surface
SEGMENTED_OBJ_2D_IMAGE	Mar2004DATKOM/thumbnails/wt_g16_seg.jpg
SEGMENT_PERSON_NAME	Masako Terada
SEG_DESC	Spine necks were manually defined using Analyze image edit functions. Segmentation was then performed using morphology and object definition tools provided by Analyze; segmented objects are contained in the Analyze .obj file
SEG_FILE_NAME	Mar2004DATKOM/WT/WT1/wt1_g16_seg.tar

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ACKNOWLEDGEMENT

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Martone, M. E., Gupta, A., Wong, M., Qian, X., Sosinsky, G., Ludaescher, B., and Ellisman, M. H. A cell centered database for electron tomographic data. J. Struct. Biology 138: 145-155, 2002.

In addition, the support for the Cell Centered Database should be included in the acknolwedgement section of any publication:

The Cell Centered Database is supported by NIH grants from NCRR RR04050, RR RR08605 and the Human Brain Project DA016602 from the National Institute on Drug Abuse, the National Institute of Biomedical Imaging and Bioengineering and the National Institute of Mental Health, and NSF grants supporting the National Partnership for Advanced Computational Infrastructure NSF-ASC 97-5249 and MCB-9728338.

Maryann Martone