

Stereo Investigator

Cavalieri Estimator Guide

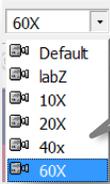
Version 11



How do I use the Cavalieri Estimator?

Use the Cavalieri method of point counting to calculate areas and volumes of regions of interest.

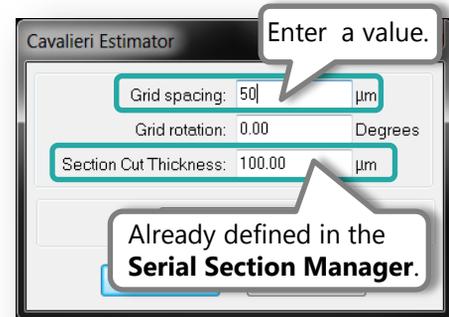
1. Place a reference point.



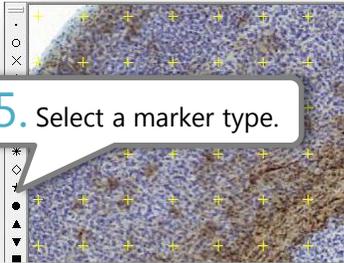
2. Select the lens that matches the objective.

3. Use **Tools>Serial Section Manager** to define sections.

4. Click **Probes>Cavalieri Estimator**.



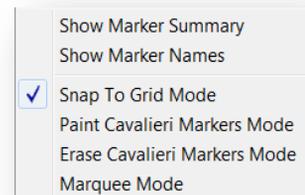
5. Select a marker type.



To change the shape and color of the grid points:
Use the **Options>Stereology Preferences>Colors And Tick Marks** tab.

6. **Snap To Grid** is the default marking mode. Right-click to select another marking mode.

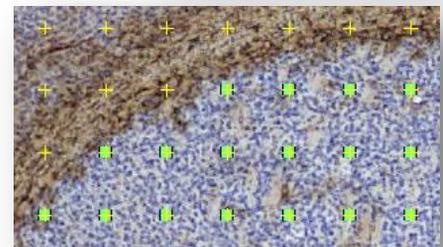
(See page 3 for a list of marking modes.)



7. Mark all the points that overlay the area of interest on the section.

Consistent marking is critical!

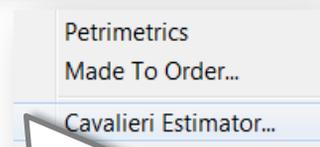
Approach each grid point from the same quadrant to determine whether the grid point is over the area of interest.



8. Move to the next section and mark points as needed.

9. When finished with all the sections, end the probe run.

10. Use **Probes>Display Probe Run List** to view results.

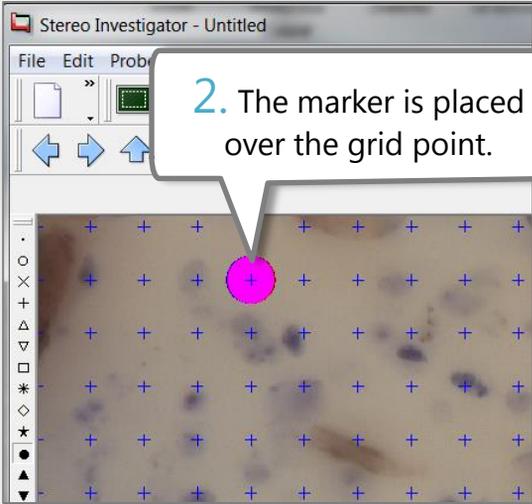
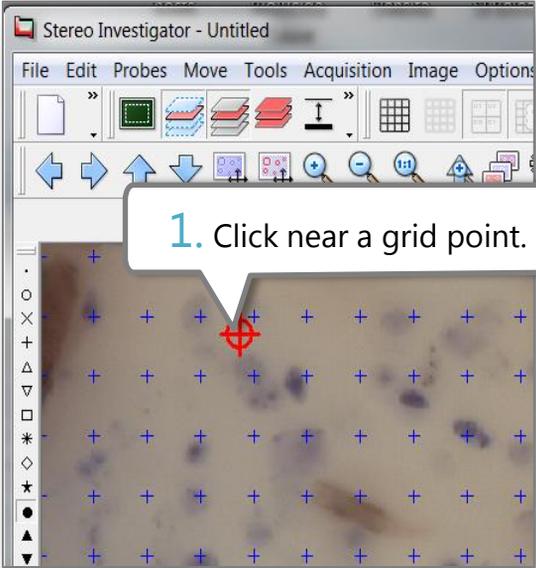


In the **Probes** menu, uncheck **Cavalieri Estimator**.

CAVALIERI MARKING MODES

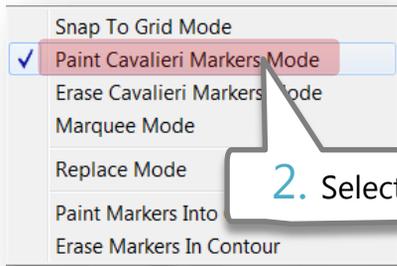
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SNAP TO GRID MODE

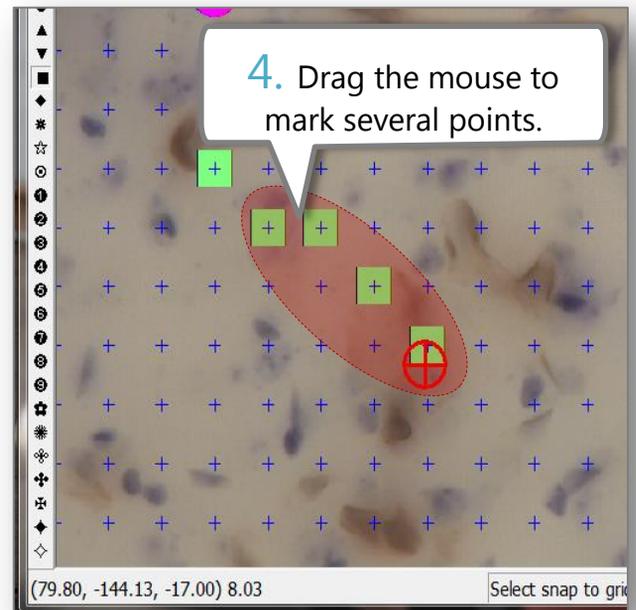


PAINT CAVALIERI MARKERS MODE

1. Right-click in the Tracing window.

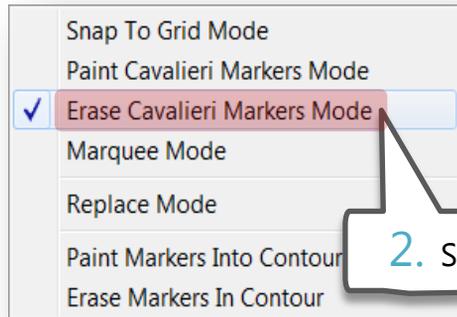


3. Adjust the size of the circular cursor with the mouse wheel to increase the number of points marked at a time.

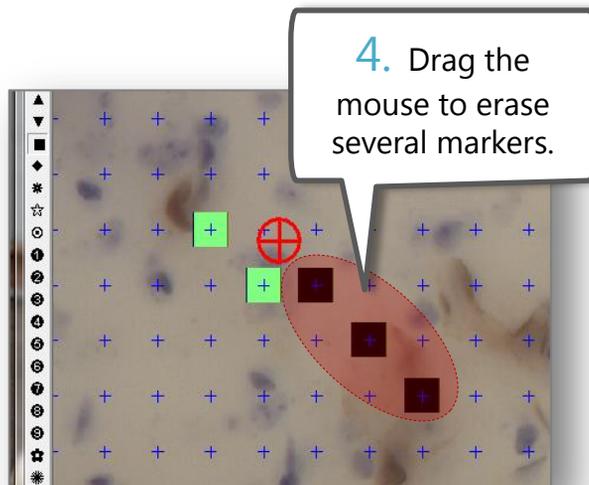


ERASE CAVALIERI MARKERS MODE

1. Right-click in the Tracing window.



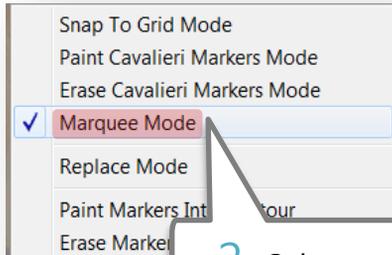
3. Adjust the size of the circular cursor with the mouse wheel to increase the number of points erased at a time.



 Deleted markers appear black for a few seconds.

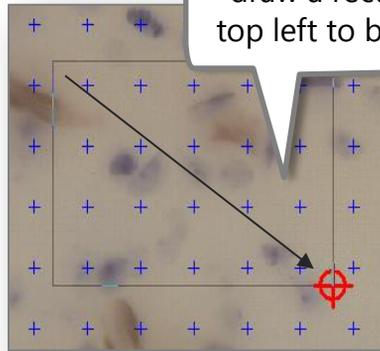
MARQUEE MODE

1. Right-click in the Tracing window.

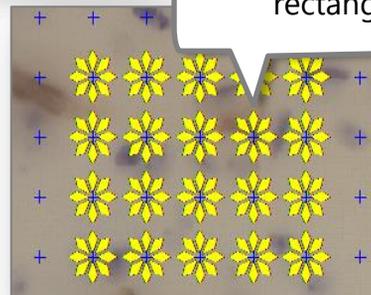


2. Select.

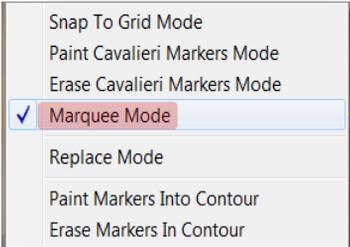
3. Drag the mouse to draw a rectangle (from top left to bottom right).



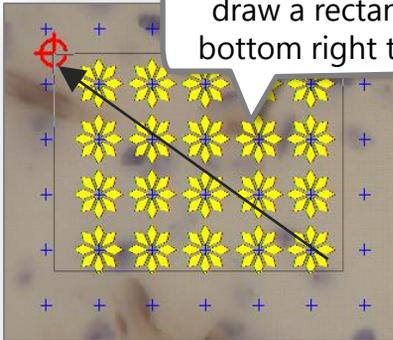
4. Markers fill the rectangle.



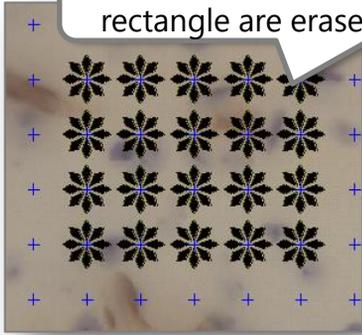
MARQUEE MODE: DELETING MARKERS



1. Drag the mouse to draw a rectangle from bottom right to top left.



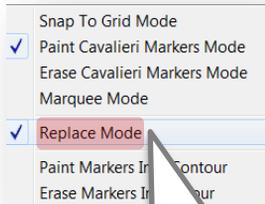
2. Markers in the rectangle are erased.



 Deleted markers appear black for a few seconds.

REPLACE MODE

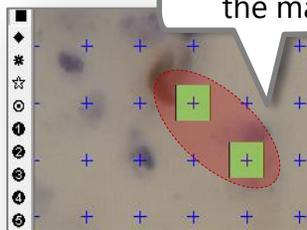
1. Right-click in the Tracing window.



2. Select.

3. Select a different marker in the Markers toolbar.

4. Drag the mouse over the markers to replace.



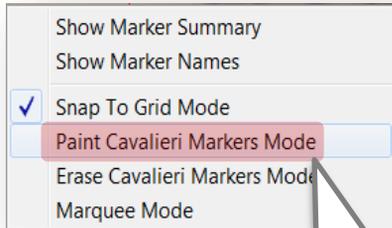
5. The markers are replaced.



 Deleted markers appear black for a few seconds.

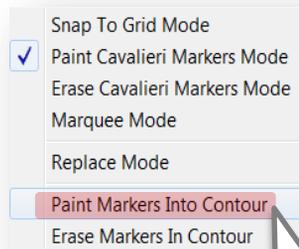
PAINT MARKERS INTO CONTOUR

1. Right-click in the Tracing window.



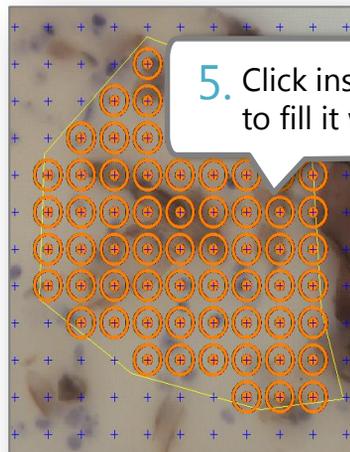
2. Select.

3. Right-click again.



4. Select.

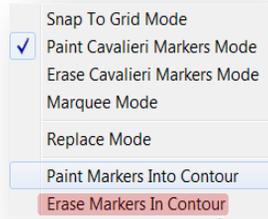
5. Click inside the contour to fill it with markers.



Useful when contours are already **accurately** traced for another task (e.g., Optical Fractionator, highlighting anatomical regions).
It is easy to identify and correct errors.

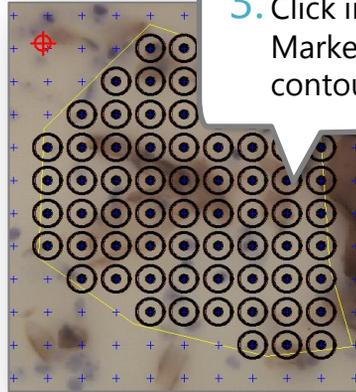
ERASE MARKERS INTO CONTOUR

1. Right-click in the Tracing window.



2. Select.

3. Click inside the contour.
Markers inside the contour are deleted



 Deleted markers appear black for a few seconds.

RESOURCES

User Guide: *Cavalieri Estimator* protocol

http://www.mfbioscience.com/help/si11/Default.htm#SI_SPECIFIC/Probes/Cavalieri_Estimator.htm

Webinar: *Stereological Techniques for Area & Volume Estimation*

http://youtu.be/huWr_jQNozY

Stereology.info: *Cavalieri Estimator* page

<http://www.stereology.info/cavalieri-estimator/>