

## Cell Tracking – ( Manual cell tracking in Fiji )

[Fiji](#) is an image processing package based on [ImageJ](#)  
[http://pacific.mpi-cbg.de/wiki/index.php/Main\\_Page](http://pacific.mpi-cbg.de/wiki/index.php/Main_Page)

Cell Tracking is a quick way to analyze a series of images, looking for cell motion over time. Download [Manual\\_Tracking.class](#) to the plugins folder, the added feature is available the next time you start Fiji or ImageJ.

After restarting Fiji or ImageJ and selecting a series of images:

File>Import>Image Sequence

Select the Manual Tracking Plugin: Plugins>Manual Tracking

First you need to calibrate the image series. Input the time between images and the size of each pixel in the image. This pixel size is available from the camera and the optics used. You can measure the distance with a graduated scale that you image.

Tracking :

Add track      Delete last point      End track

Delete track n\*      Delete all tracks

Show path ?

Centring Correction:

Centring option : Local maximum

Use centring correction ?

Directionality :

Add reference      Delete reference      No reference set

Show reference ?       Use directionality ?

Drawing :

Dots      Progressive Lines      Dots & Lines

Overlay Dots      Overlay Lines      Overlay Dots & Lines

Show text ?

Load Previous Track File       Show parameters ?      Retrieve Z Coordinates

Parameters :

Time Interval : 15 min

x/y calibration : 1 µm

z calibration : 0.3

Search square size for centring: 5.0 pixels

Dot size : 5.0

Line width : 1.0

Font size : 12.0

Time interval  
between images

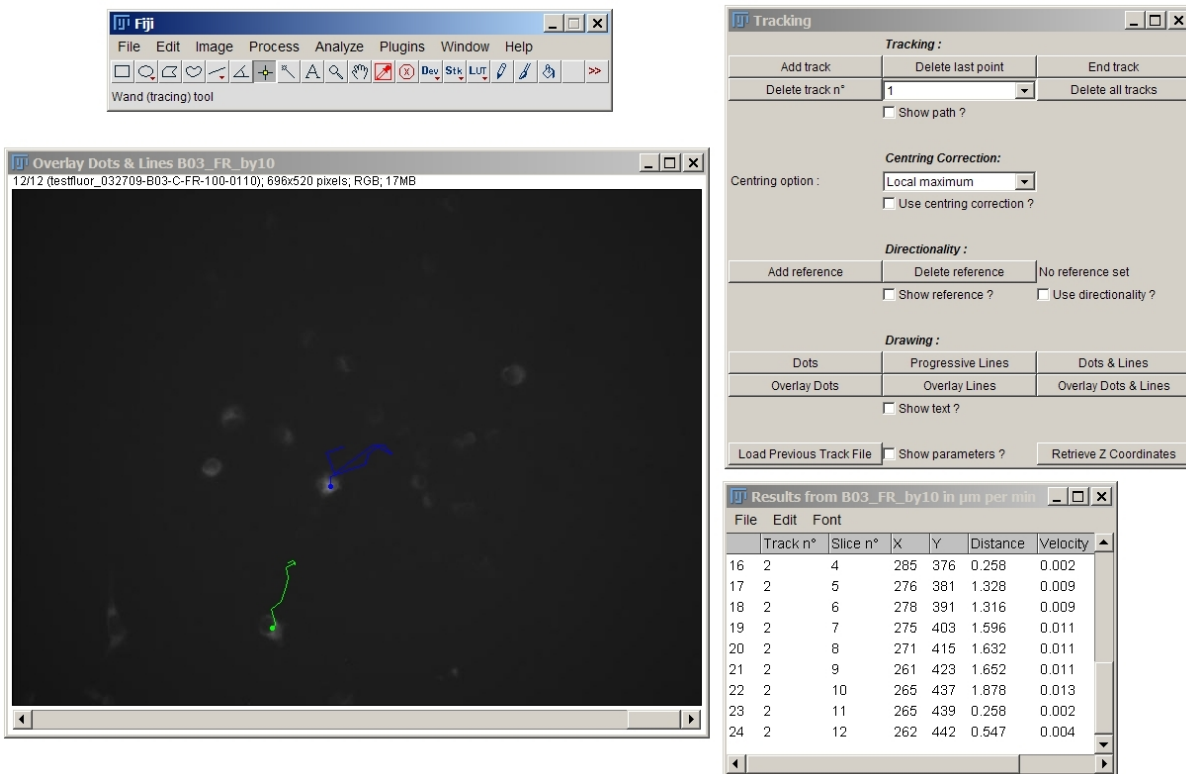
Size of each pixel  
in the image

**For more information, please contact:**

Kairos Instruments, LLC.  
520 William Pitt Way  
Pittsburgh, PA 15238

Telephone: 412-519-9613  
Website: <http://www.kairosinstruments.com>  
Email: [Info@kairosinstruments.com](mailto:Info@kairosinstruments.com)

Now you are ready to start tracking a cell. Start at the beginning of the sequence of images. Select **Add Track** and click on the middle of the cell. The Manual Tracking Plugin will step through to the next image. Keep on clicking as the cell moves around in the image. Stop at any time, or complete the sequence.



You can also add graphics as you click, to keep track of the motion. “Overlay Dots & Lines” puts a track on the image and a dot on the current image. As you click on the cell, the coordinates are stored in a text file, along with the distance traveled and the pixel value.

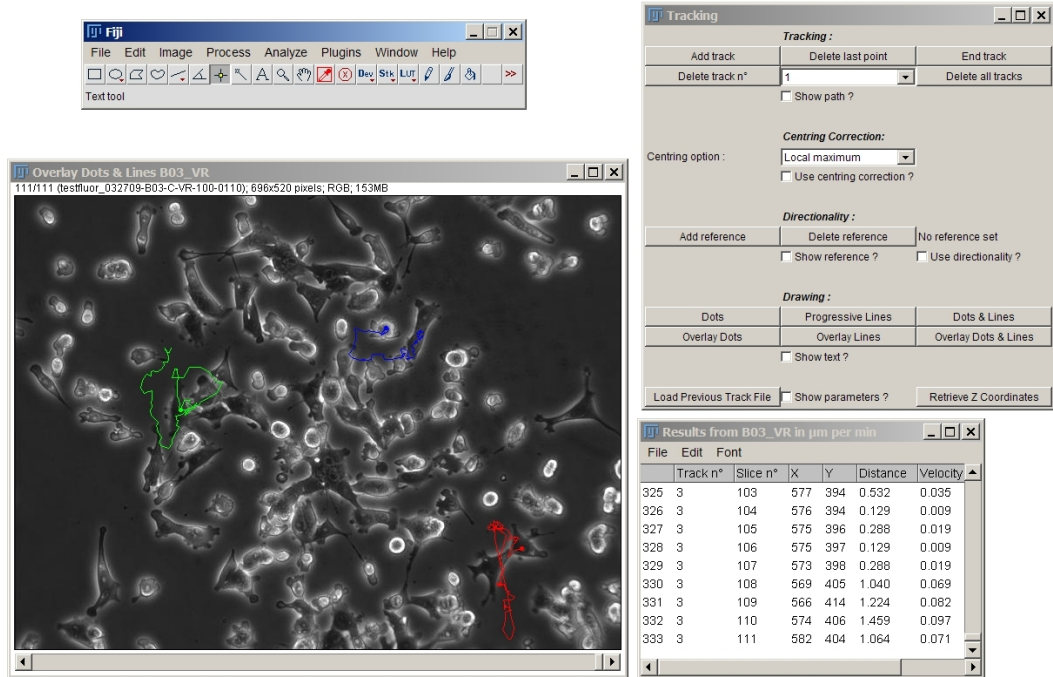
You can then save the Results file as an Excel file for further analysis.

**For more information, please contact:**

Kairos Instruments, LLC.  
520 William Pitt Way  
Pittsburgh, PA 15238

Telephone: 412-519-9613  
Website: <http://www.kairosinstruments.com>  
Email: [Info@kairosinstruments.com](mailto:Info@kairosinstruments.com)

Here is the same sequence after tracking 3 cells. Select Overlay Dots and Tracks to get a graphic of the cell motion.



Save the sequence with the overlay: File>Save As>AVI>JPEG with an image quality and frame rate. Here is an example.

**For more information, please contact:**

Kairos Instruments, LLC.  
520 William Pitt Way  
Pittsburgh, PA 15238

Telephone: 412-519-9613  
Website: <http://www.kairosinstruments.com>  
Email: [Info@kairosinstruments.com](mailto:Info@kairosinstruments.com)