

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

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 pixels

Search square size for centring: 5.0 pixels

Dot size : 5.0

Line width : 1.0

Font size : 12.0

Time interval
between images

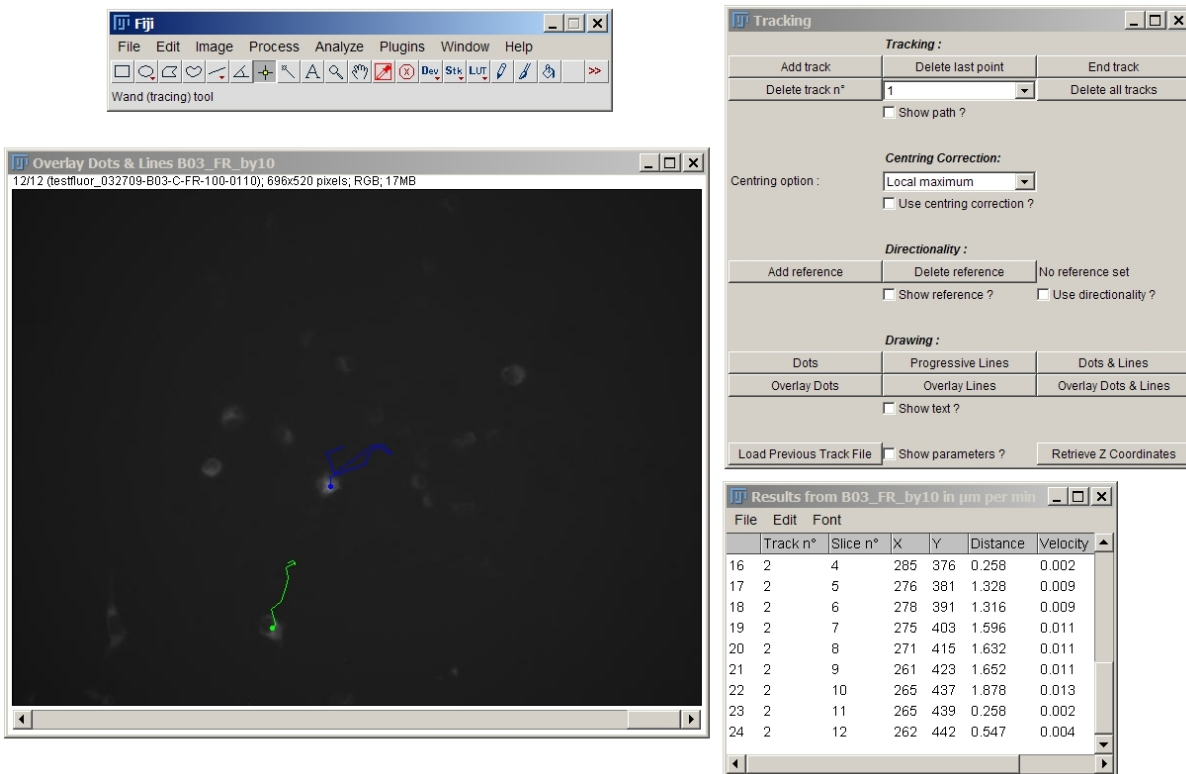
Size of each pixel
in the image

For more information, please contact:

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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.

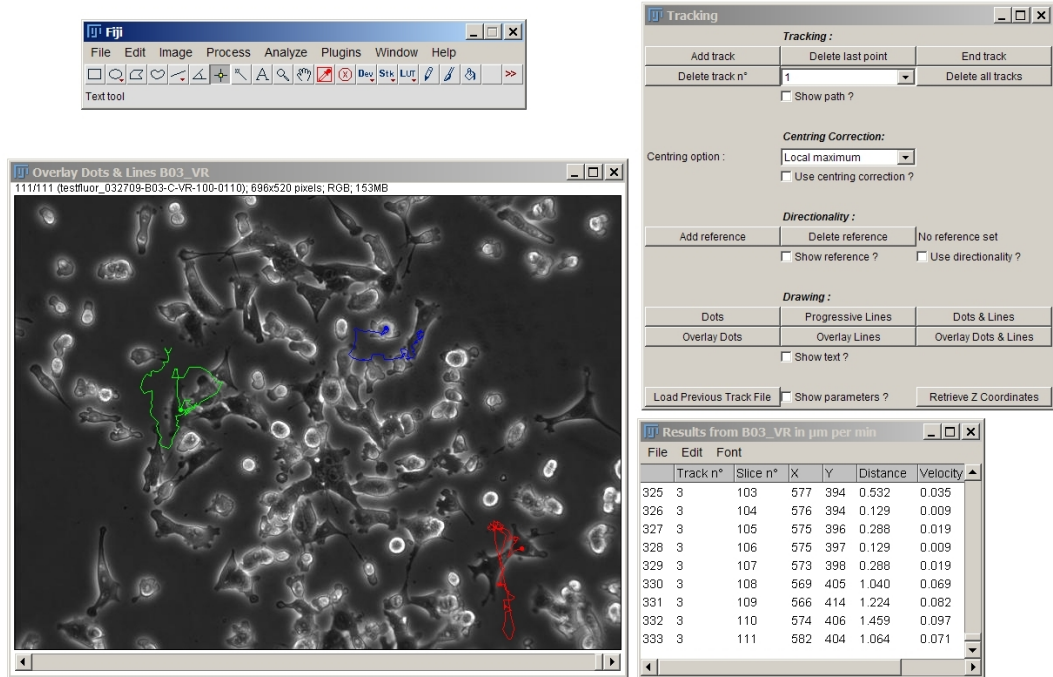
You can then save the Results file as an Excel file for further analysis.

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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.

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