Image registration

What is image registration?

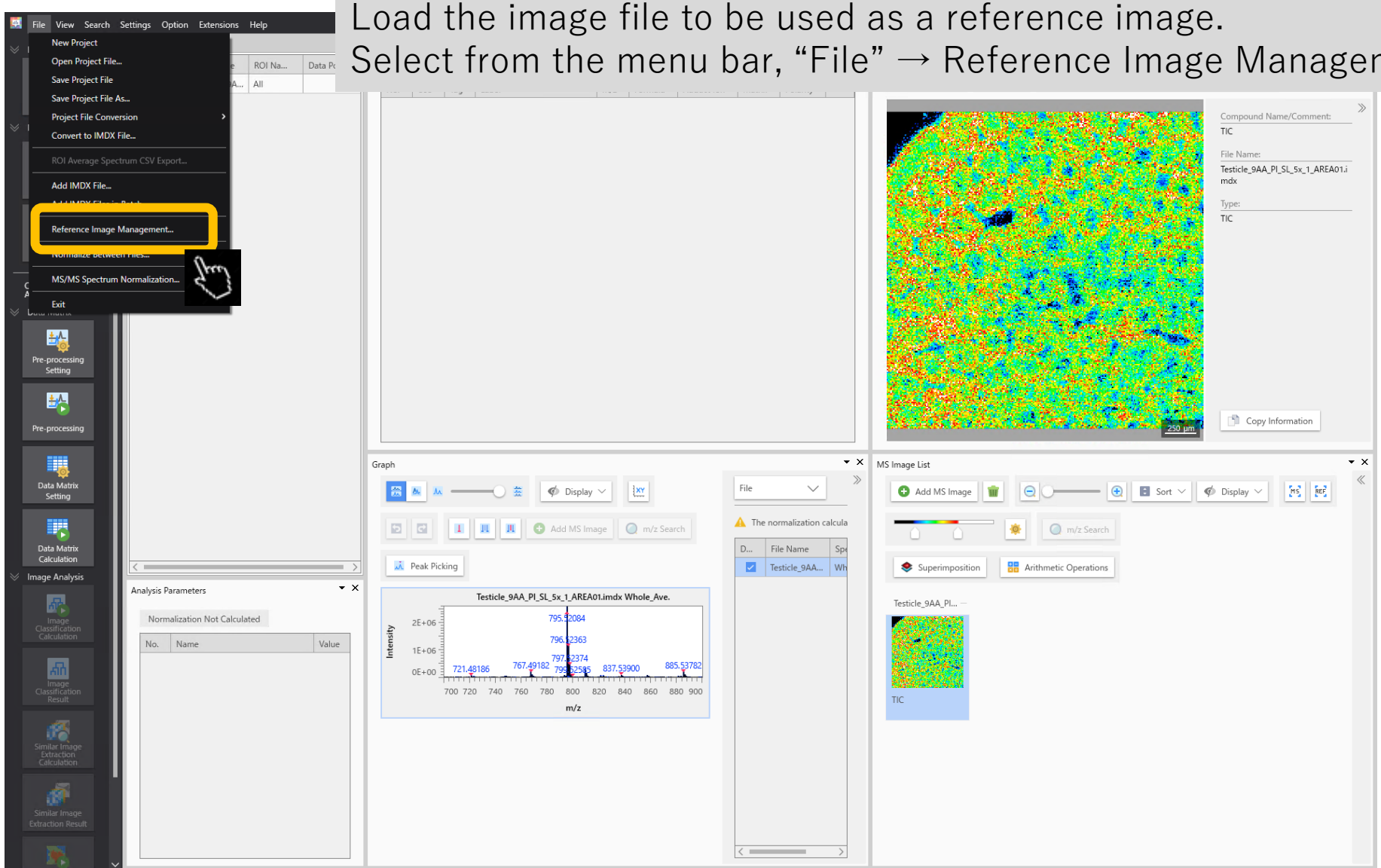
- An image of an MS imaged sample taken by a different device is called as a “reference image”
  - e.g. Stained photo, fluorescent photo
- The reference image can be used in analysis
  - ROI settings
  - Similar image extraction
- Before using the image in analysis, it is necessary to align the images
  - This is referred to as “image registration”

Steps

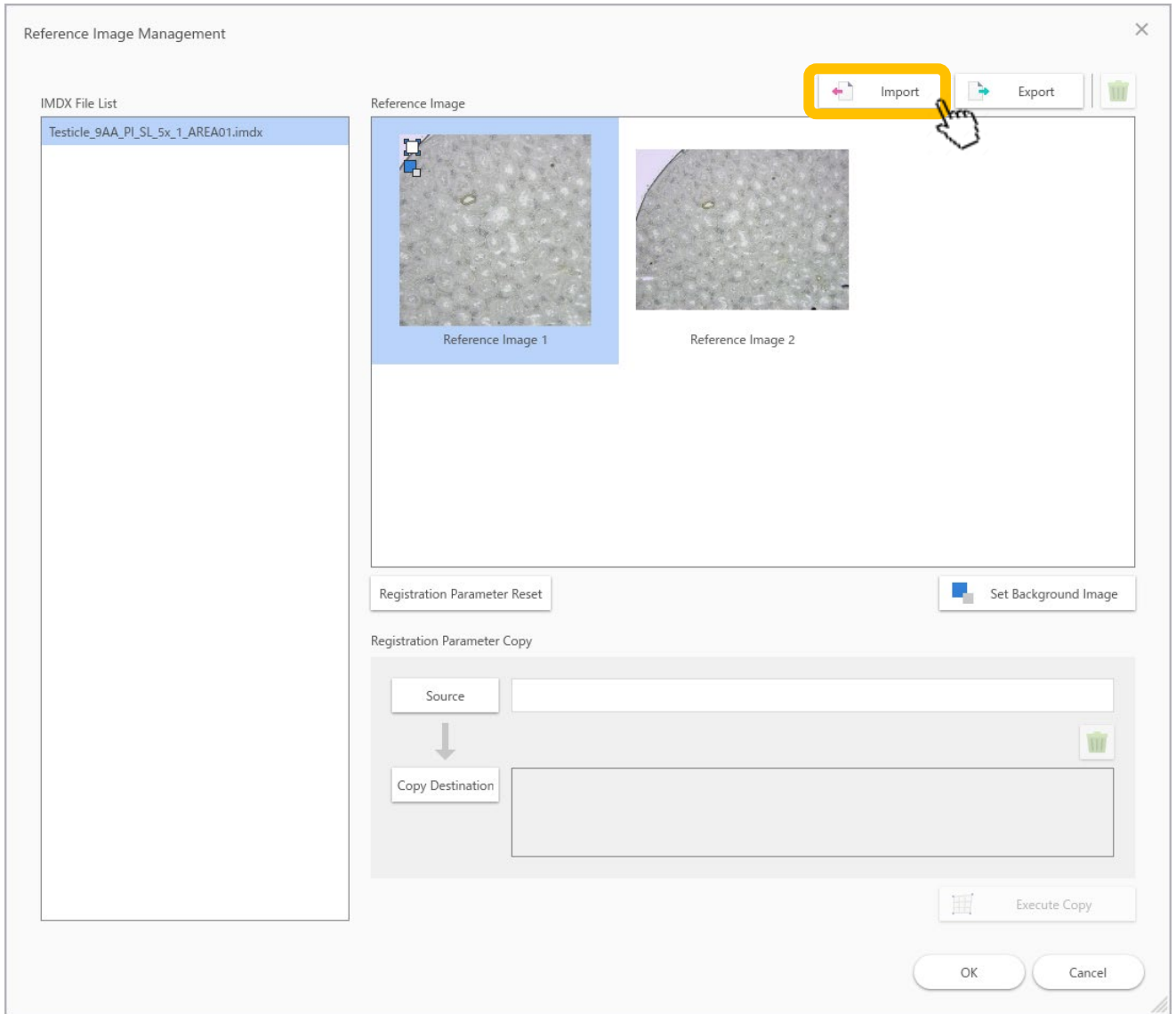
1. Read in the image file that will become a reference image
2. Align the images (carry out image registration)
    1. Rough image registration（linear deformation）
    2. Detailed image registration（non-linear deformation）

1. Read in reference images

Load the image file to be used as a reference image.
Select from the menu bar, “File” → Reference Image Management .

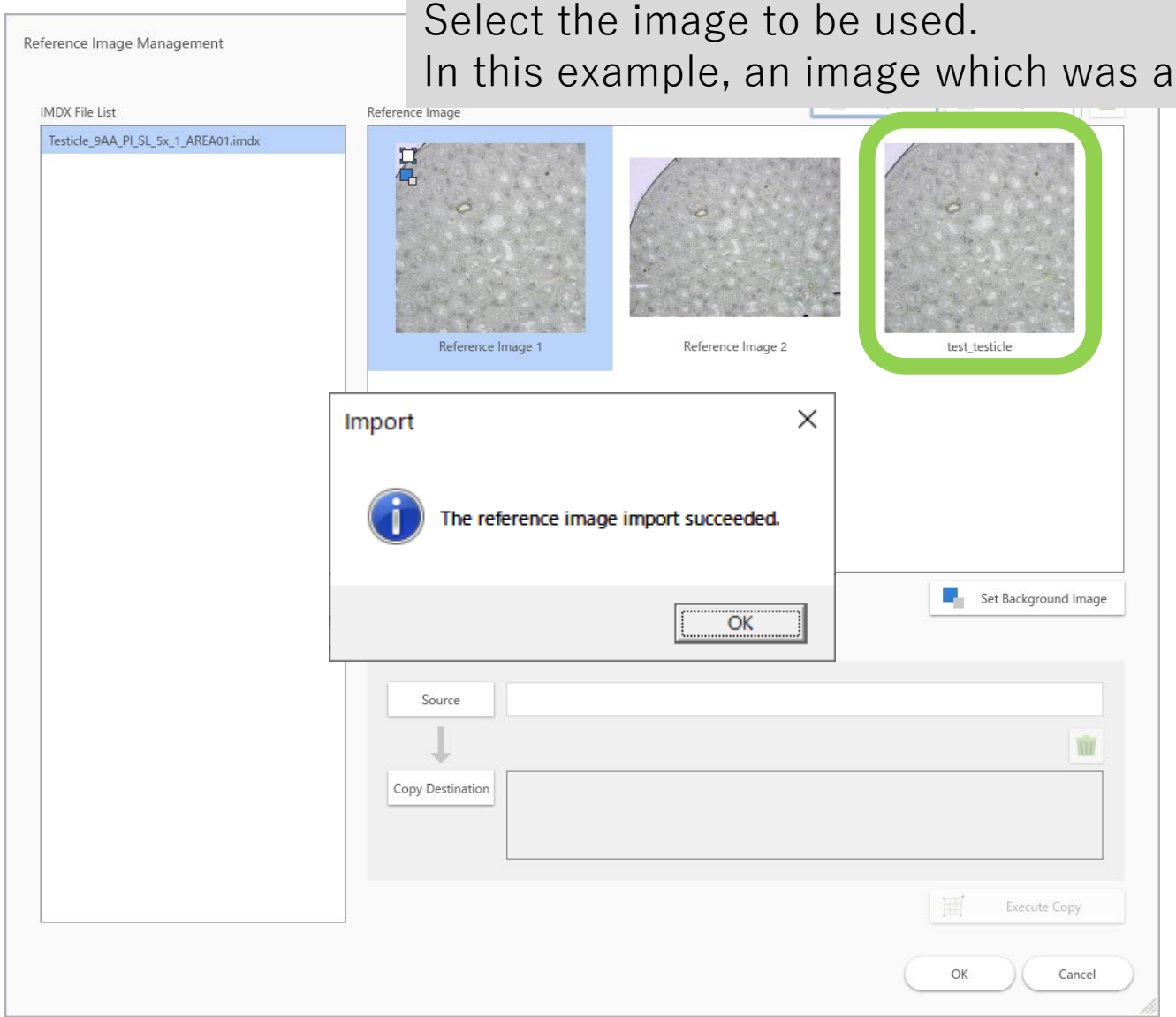


1.1 The “Reference Image Management” screen opens

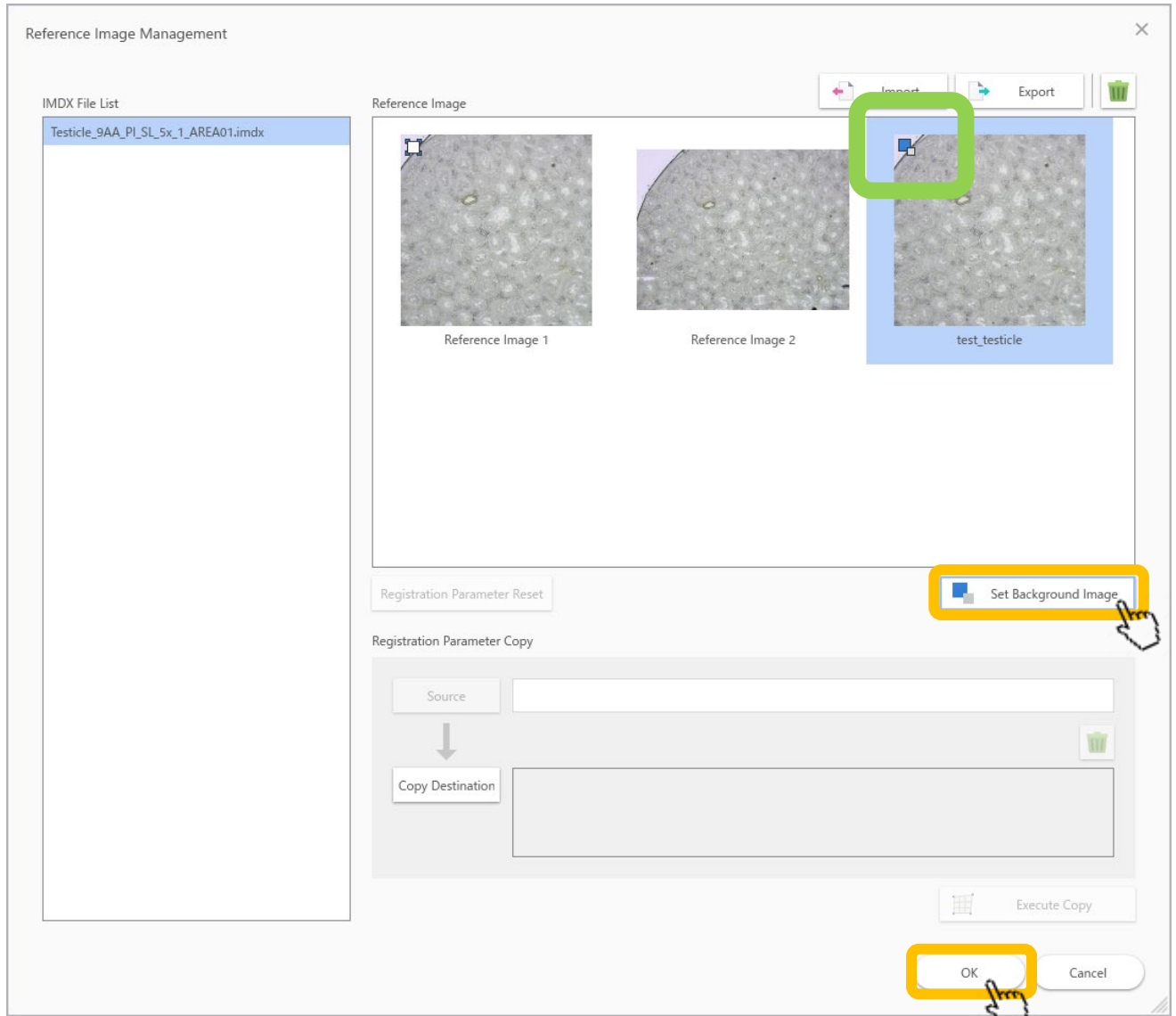


1.2 Import an image to use

Select the image to be used.
In this example, an image which was already read in is imported.

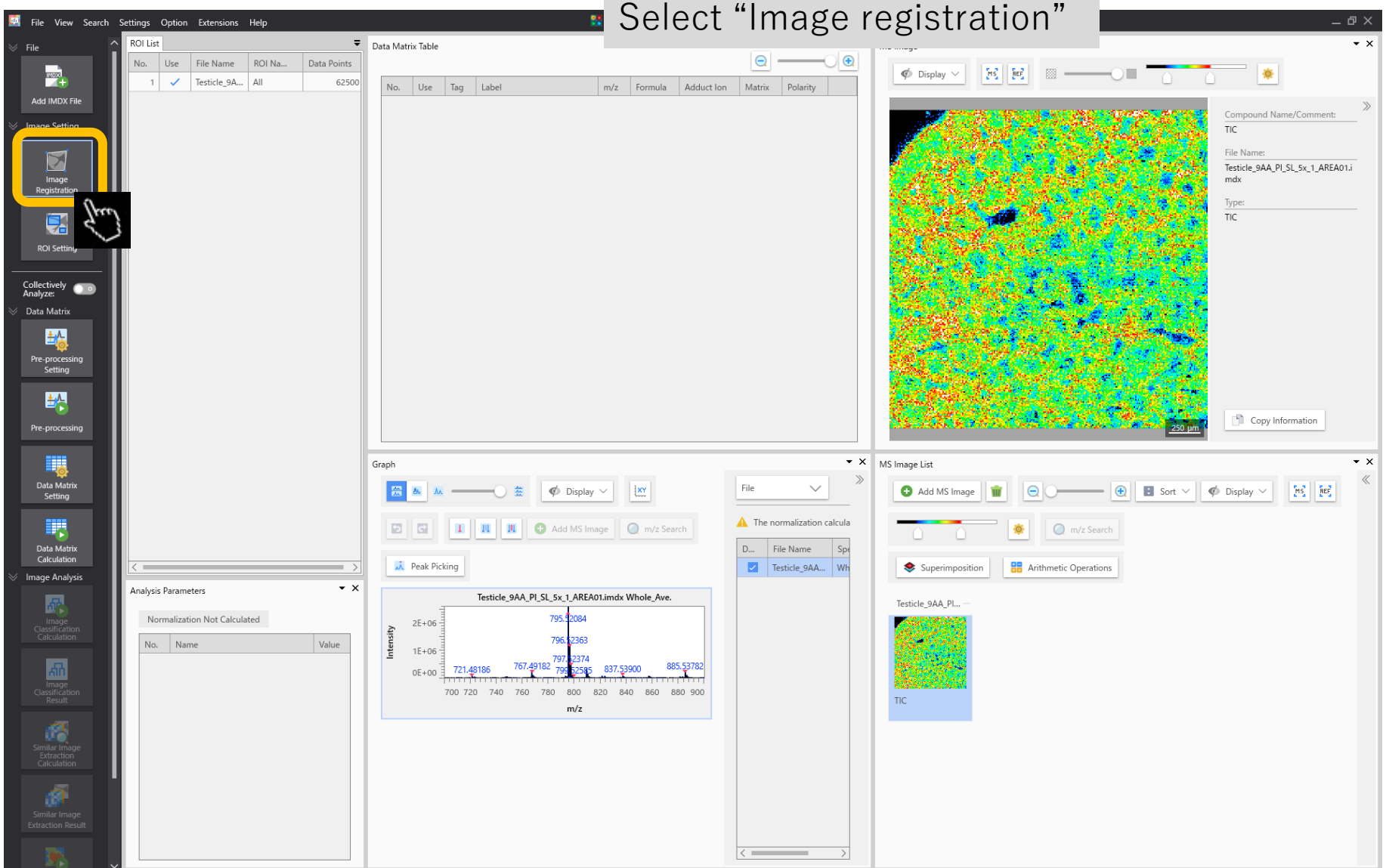


1.3 Set the imported image as a background image

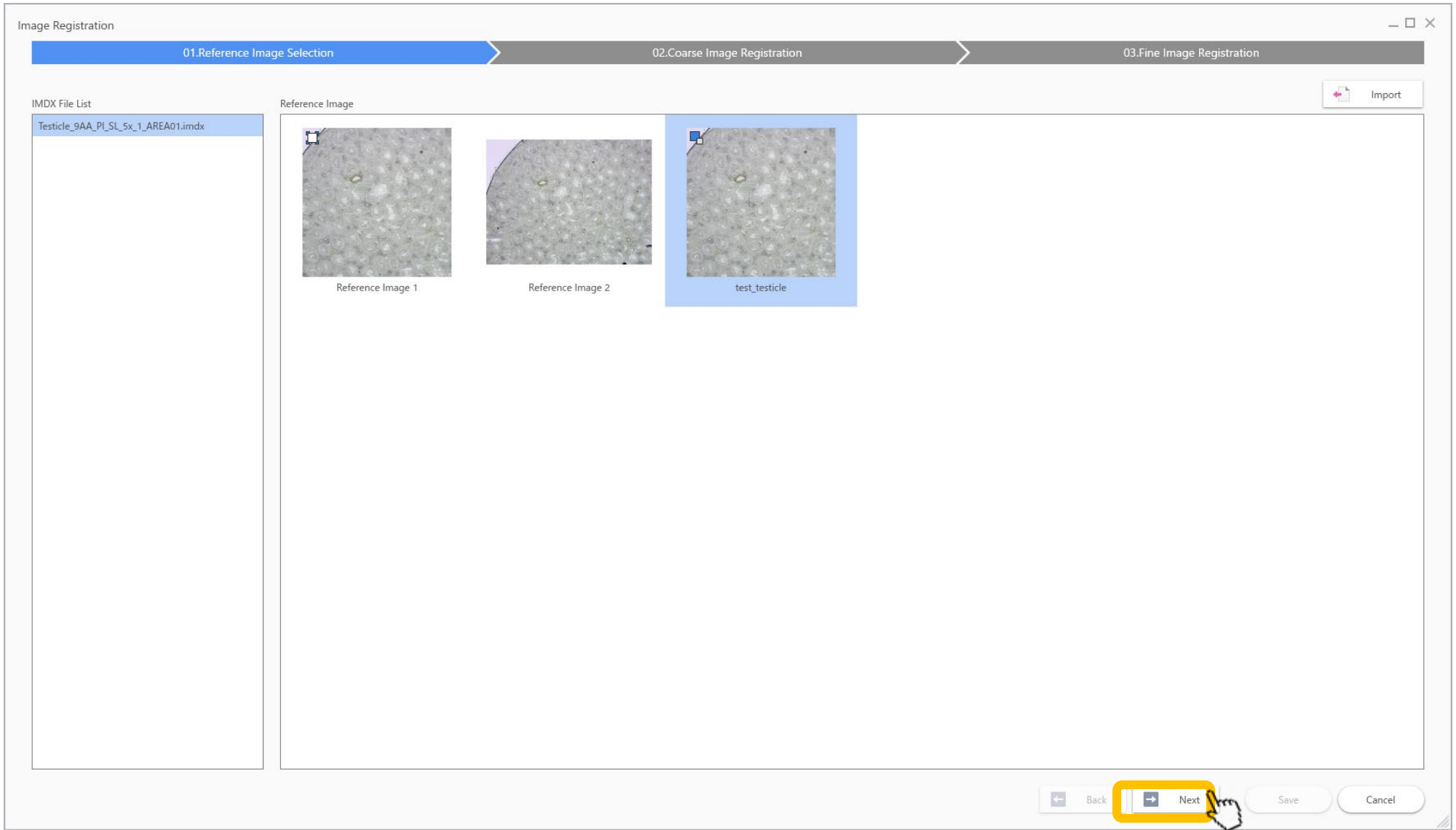


2. Image registration

Select “Image registration”

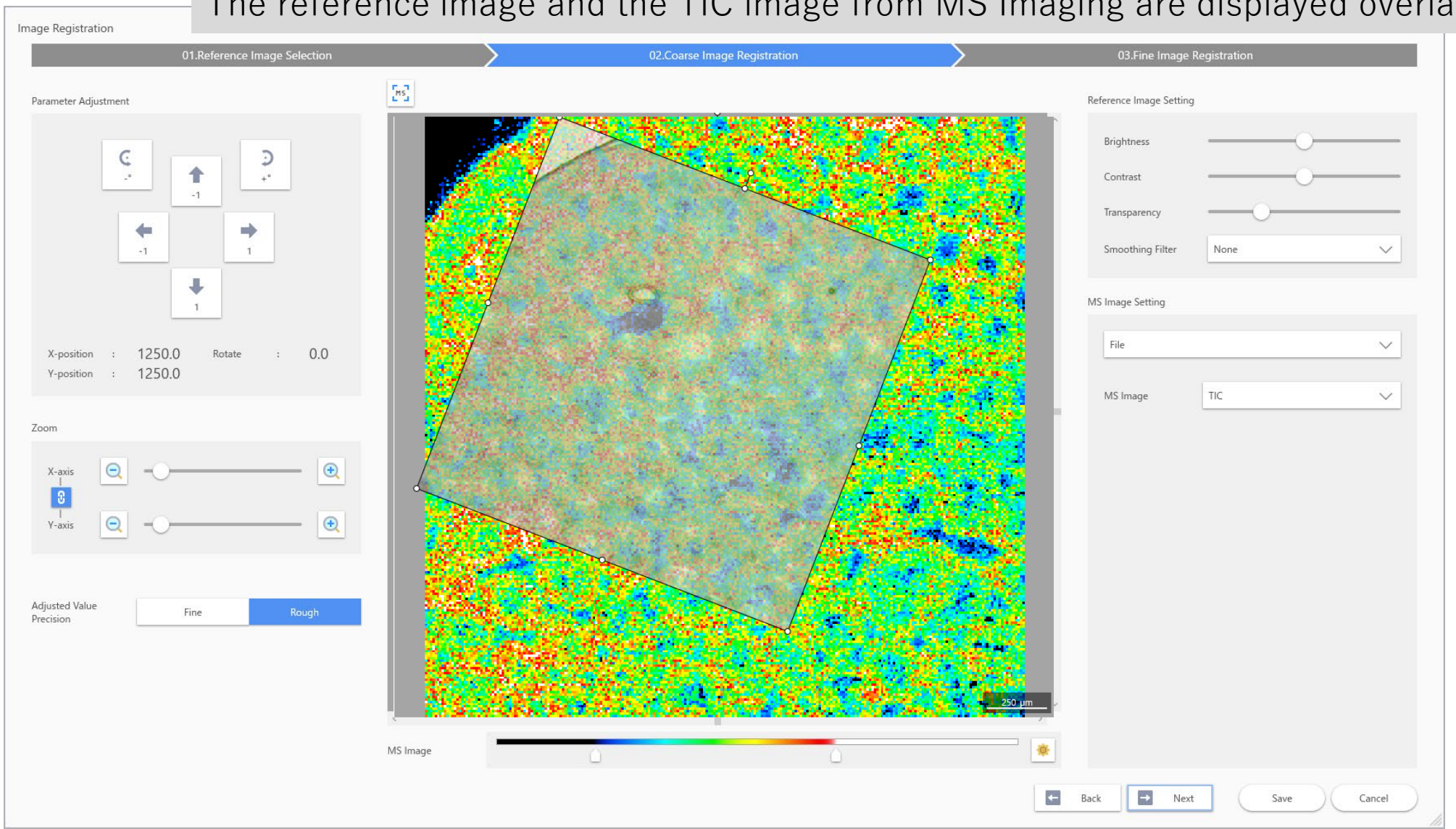


2.1 The background image is selected



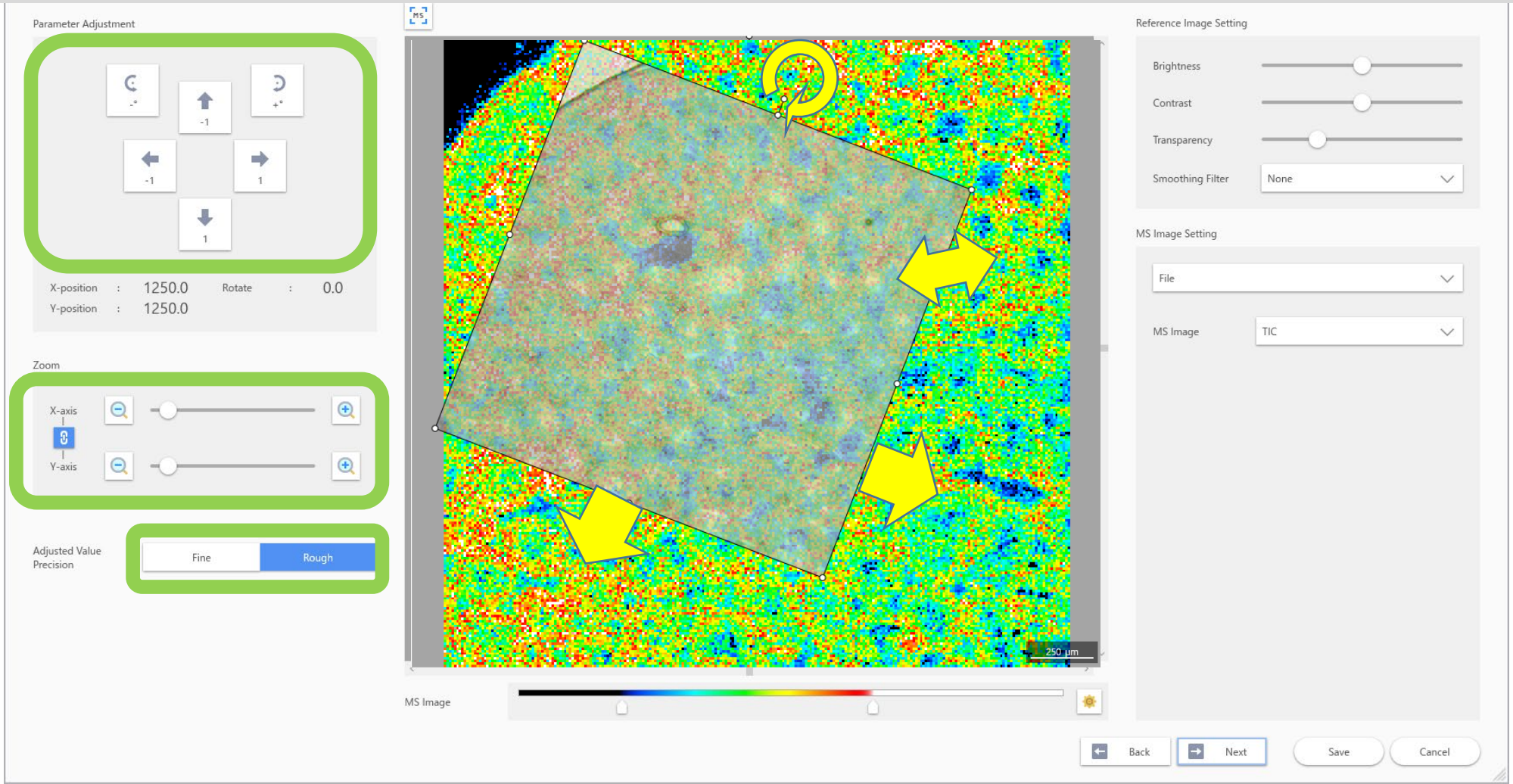
2.2 The image registration window opens

The reference image and the TIC image from MS Imaging are displayed overlaid.



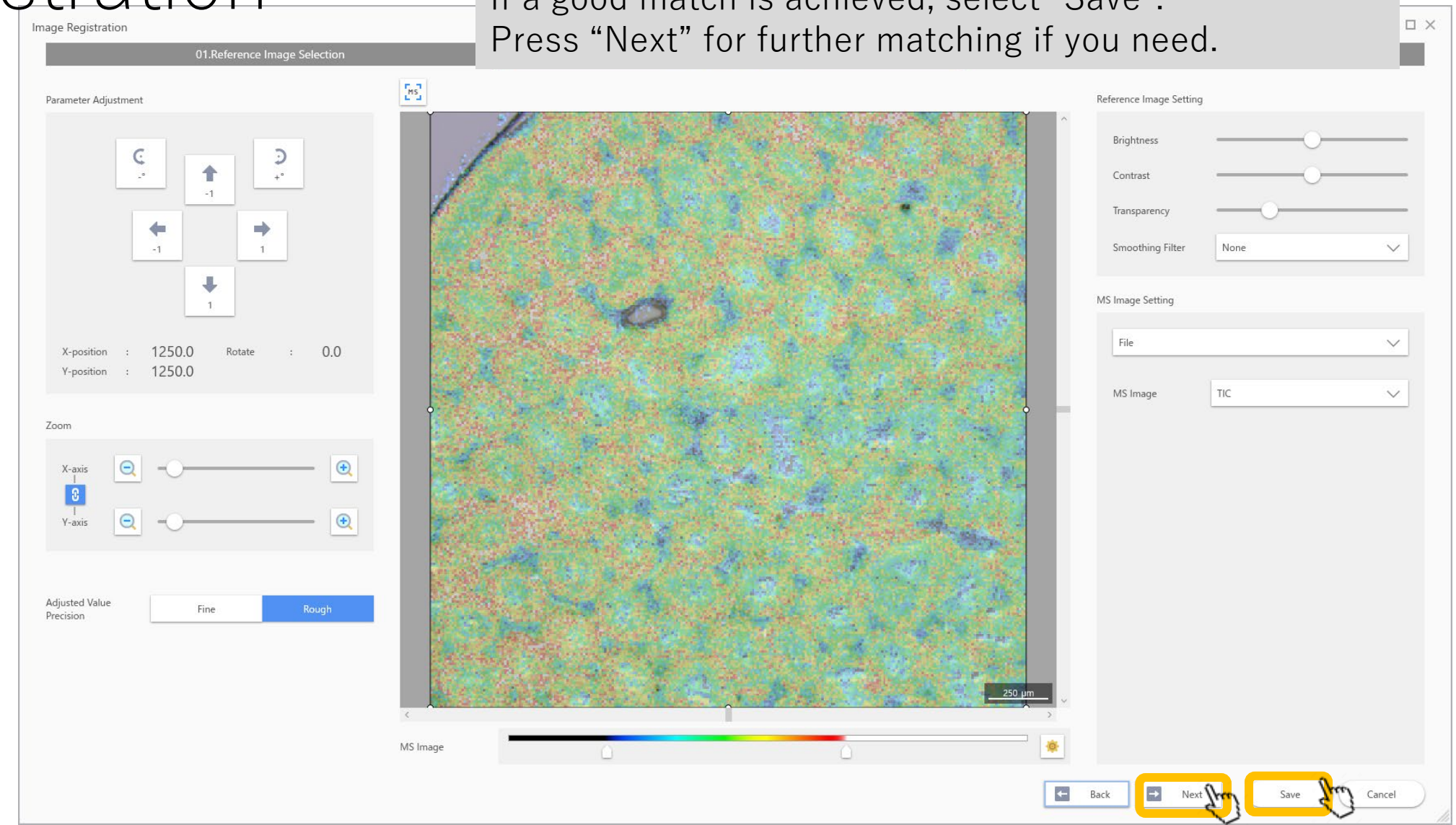
2.3 Coarse image registration

Use the parameter adjustment buttons and the zoom tool on the left-hand side of the window to get a good match between the reference image and the TIC image.



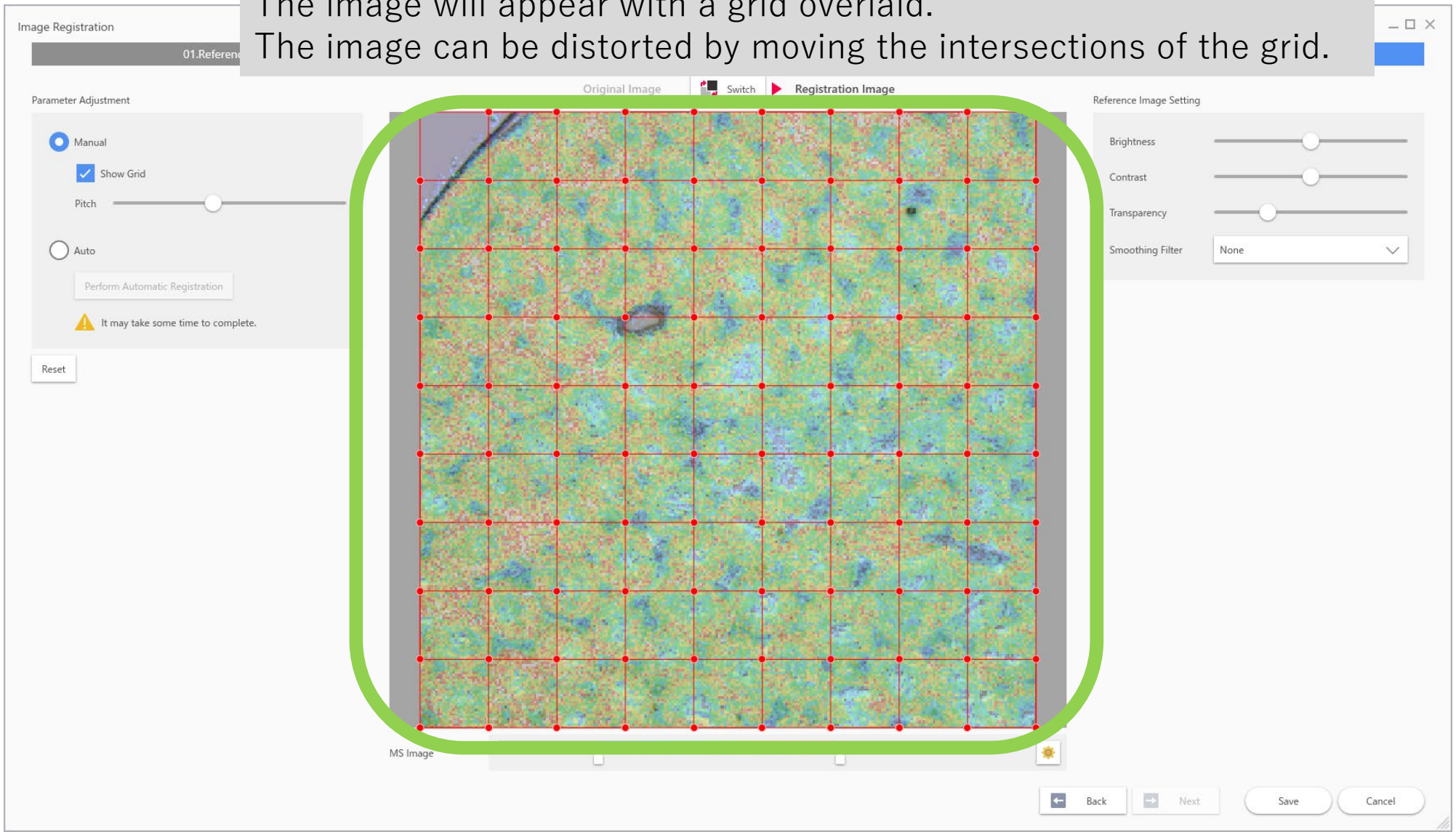
2.4 If you need, go to next “Fine image registration”

If a good match is achieved, select "Save".
Press “Next” for further matching if you need.

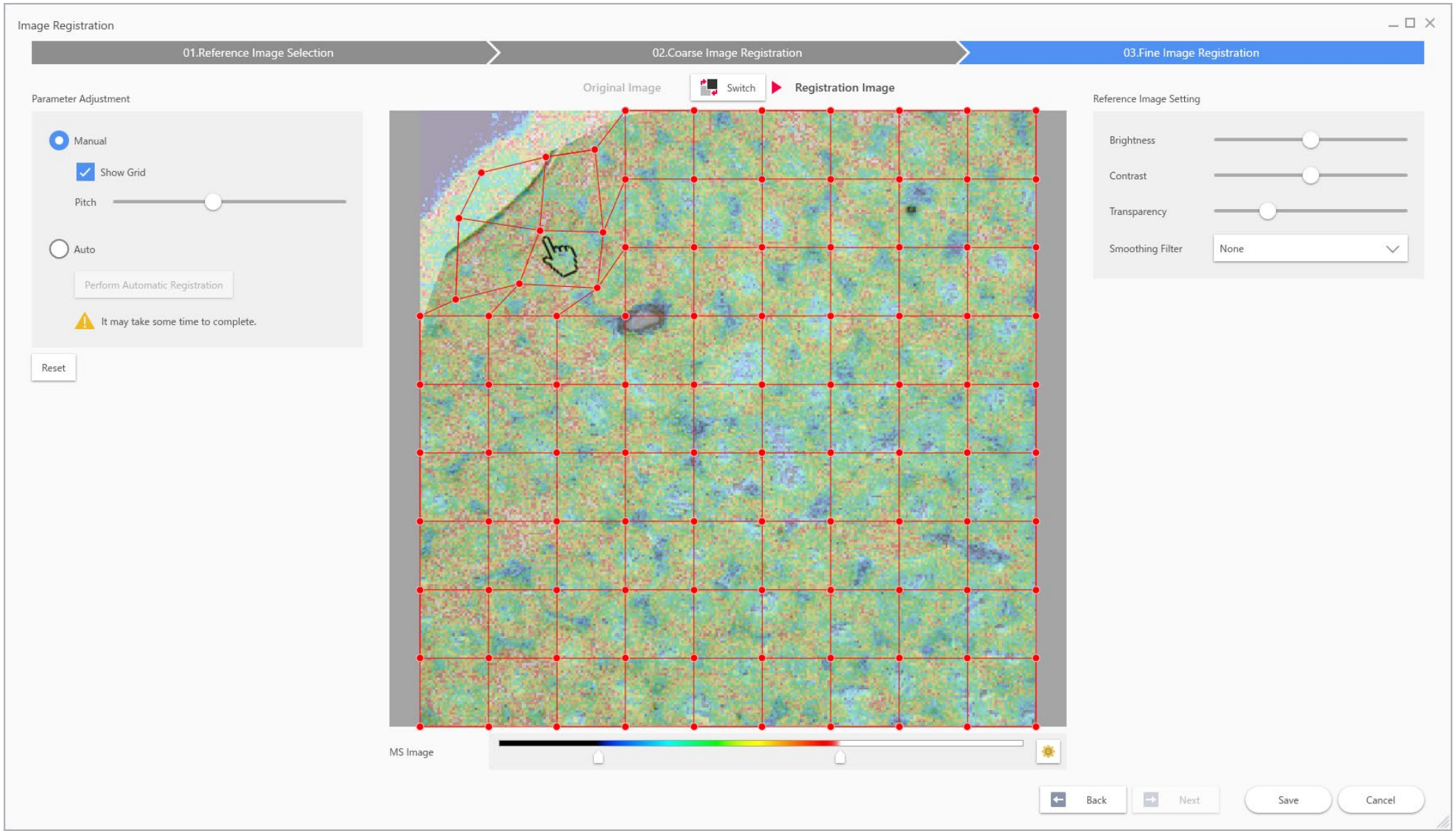


2.5 Fine image registration

The image will appear with a grid overlaid.
The image can be distorted by moving the intersections of the grid.



2.6 Example of a manipulated image



2.7 Alignment is complete, click “save”