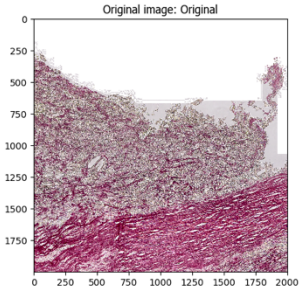
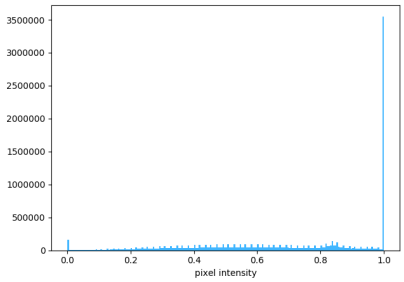
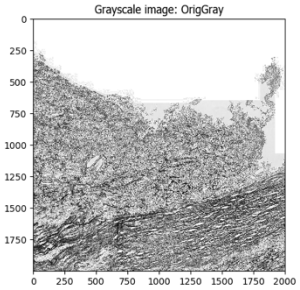
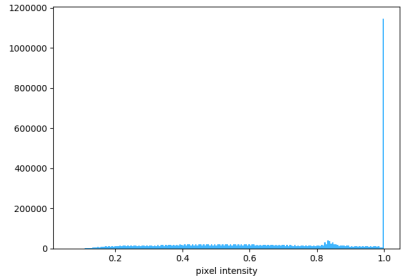
A.



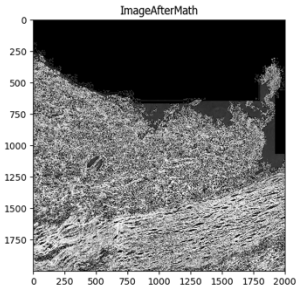


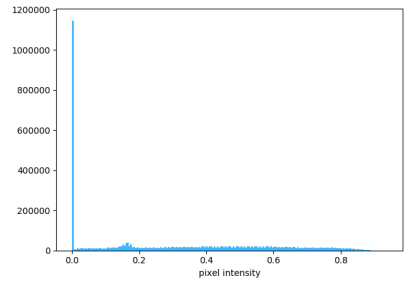
B.





C.





The SR `CellProfiler` pipeline workflow.

[A]. The original image (left) is masked using `PathProfiler Tissue Segmentation Unet` and used as input by `CellProfiler 4.2.6`; the graph (right) shows the tonal distribution in the digital whole-slide image on a RGB scale.

[B]. The input image is converted to a gray scaled image (left); the graph (right) shows the tonal distribution in the gray scaled image.

{C]. The gray scaled image is inverted, *i.e.* non-tissue will become black (left); the graph (right) shows the tonal distribution after inverting.

[D]. The tissue area is identified, as demarcated by the green line in the left image; the total tissue area size is calculated in pixels (right image) and tabulated (table).

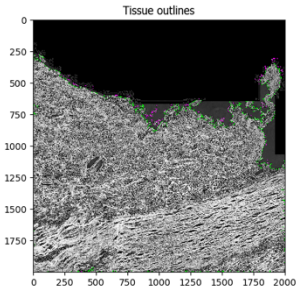
[E]. The colors, *i.e.* stains, are unmixed using the original image (left): Other (middle), and SR (right). The graph (right) shows the tonal distribution of the SR image.

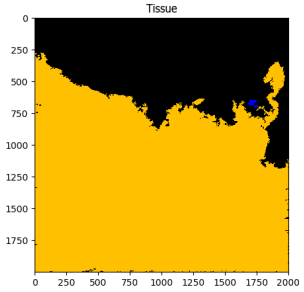
[F]. The SR-positive objects, *i.e.* collagen, are identified, white areas in the left image; the SR-positive objects are demarcated by a green line in the middle image, areas that are excluded due to size (minimal size 15 pixels) are demarcated in magenta; the right image shows all the identified SR-positive objects in random colors; the total number of identified objects is calculated and tabulated (table).

[G]. Finally, the data for each tile are saved in a comma-separated table, including meta-data such as tile positions, image location, object counts (there could be multiple patches of stained areas or tissue). The original image (top-left) is used to overlay the SR-positive objects (using random colors, top-right). The tissue area (red), and SR-positive objects (green) are all demarcated in the bottom-left image. The table (bottom-right) shows the areas occupied by each object class.

Sample used: AE11.T02-7271.SR.2017-12-23_00.46.16.ndpi
[Tile= X2000, Y12000]

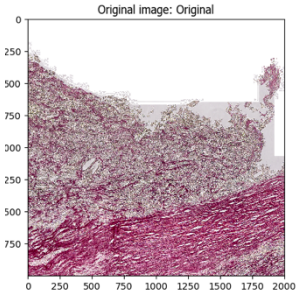
D.

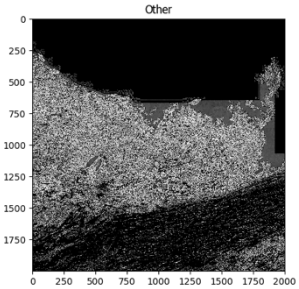


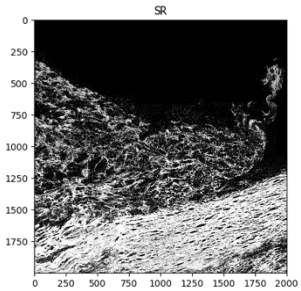


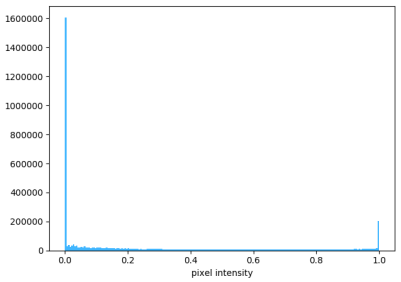
# of accepted objects	2
10th pctile diameter	60.4 pixels
Median diameter	1835.9 pixels
90th pctile diameter	1835.9 pixels
Area covered by objects	66.3 %
Thresholding filter size	0.7
Threshold	0.2
Declumping smoothing filter size	33.6
Maxima suppression size	7.0

E.

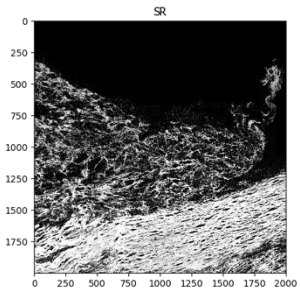


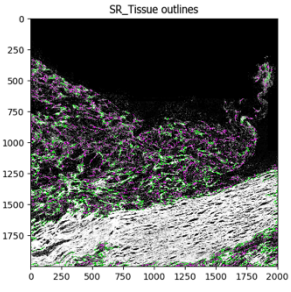


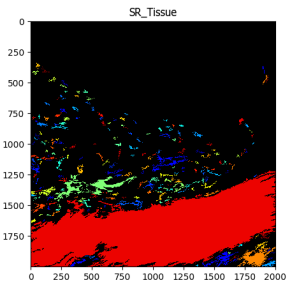




F.

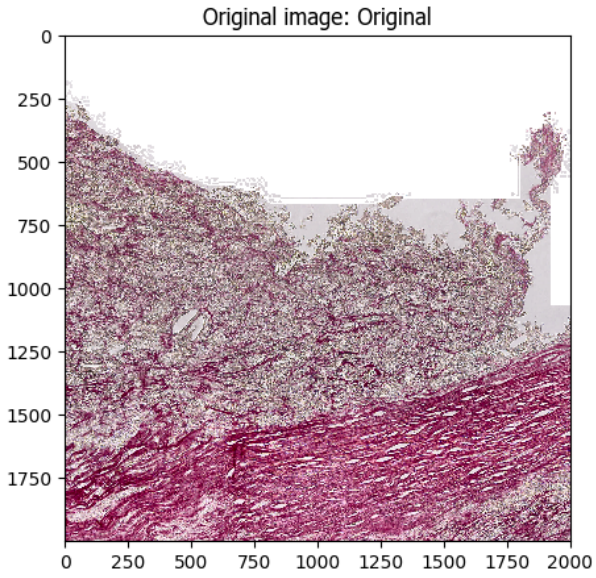


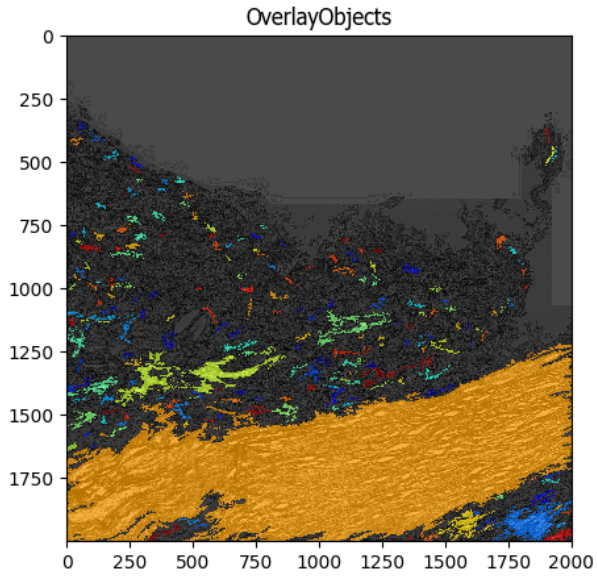


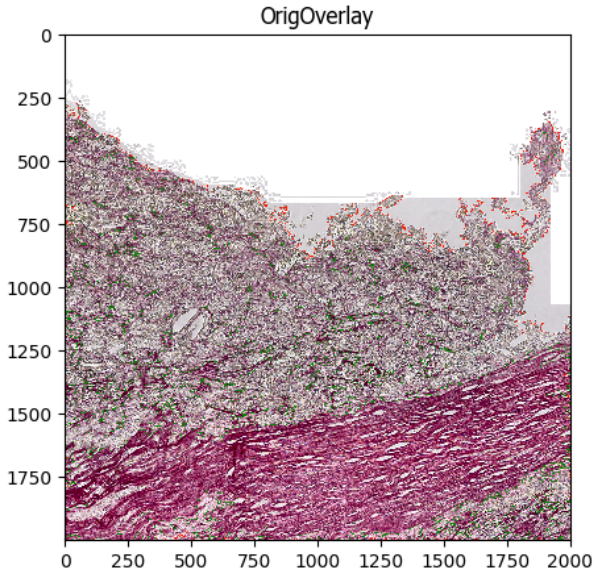


# of accepted objects	217
10th pctile diameter	15.9 pixels
Median diameter	22.0 pixels
90th pctile diameter	39.5 pixels
Area covered by objects	26.3 %
Thresholding filter size	0.0
Threshold	0.6

G.







Objects or Image	Area Occupied	Perimeter	Total Area
Tissue	2650187	21115.0	4000000
SR_Tissue	1050350	87834.0	4000000