

CAMELYON Challenge Contest: The Warwick-QU Approach

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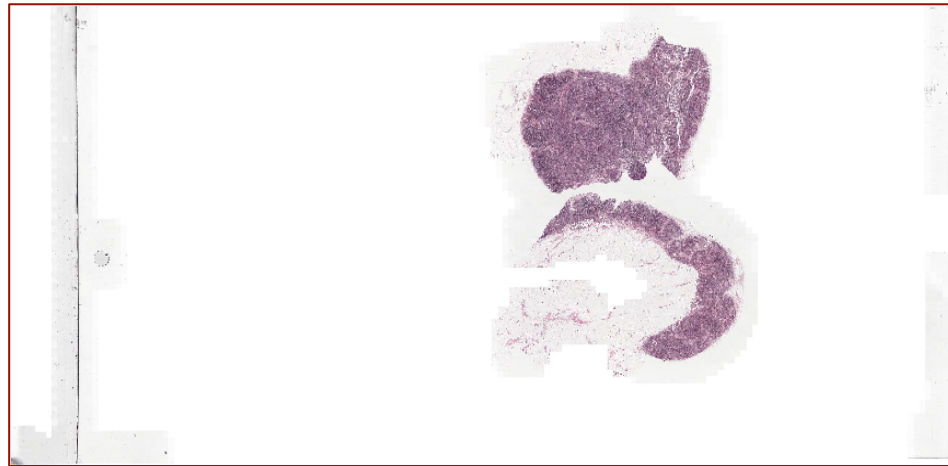
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³ Department of Pathology, UHCW NHS Trust, UK

1. Tissue Segmentation

Using a fully convolutional network (FCN)*
with a single upsampling layer

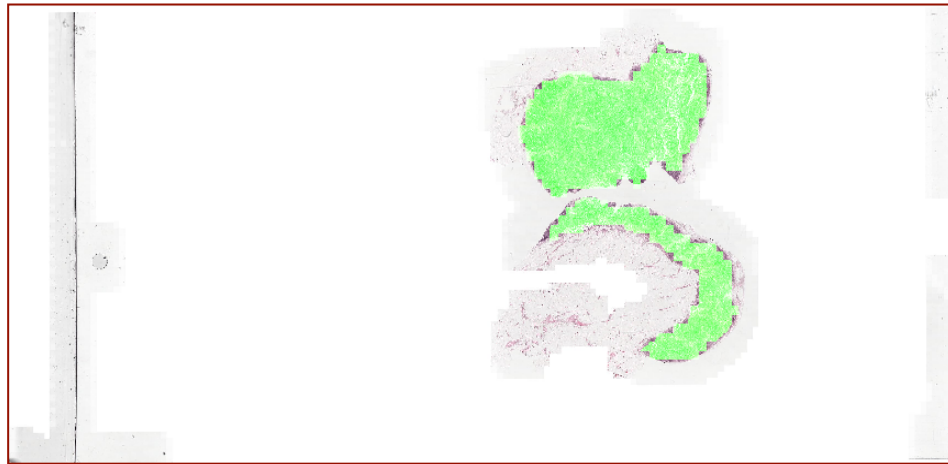


Original WSI

* J. Long, E. Shelhamer, and T. Darrell, "Fully Convolutional Networks for Semantic Segmentation," CVPR 2015.

1. Tissue Segmentation

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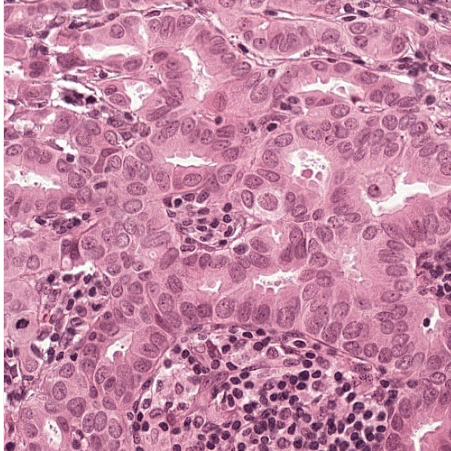


Segmented Tissue

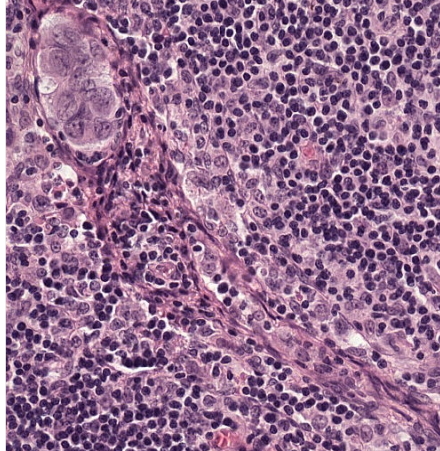
* J. Long, E. Shelhamer, and T. Darrell, "Fully Convolutional Networks for Semantic Segmentation," CVPR 2015.

2. Stain Normalization

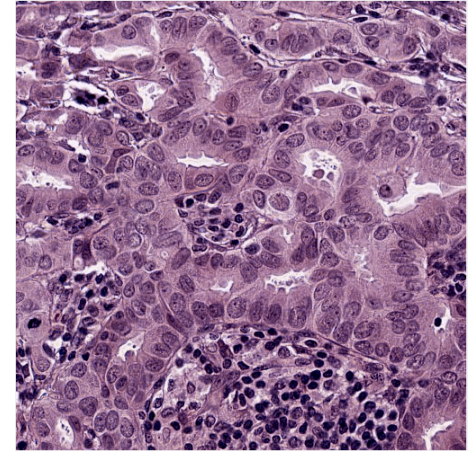
Source Image



Target Image



Normalized Image



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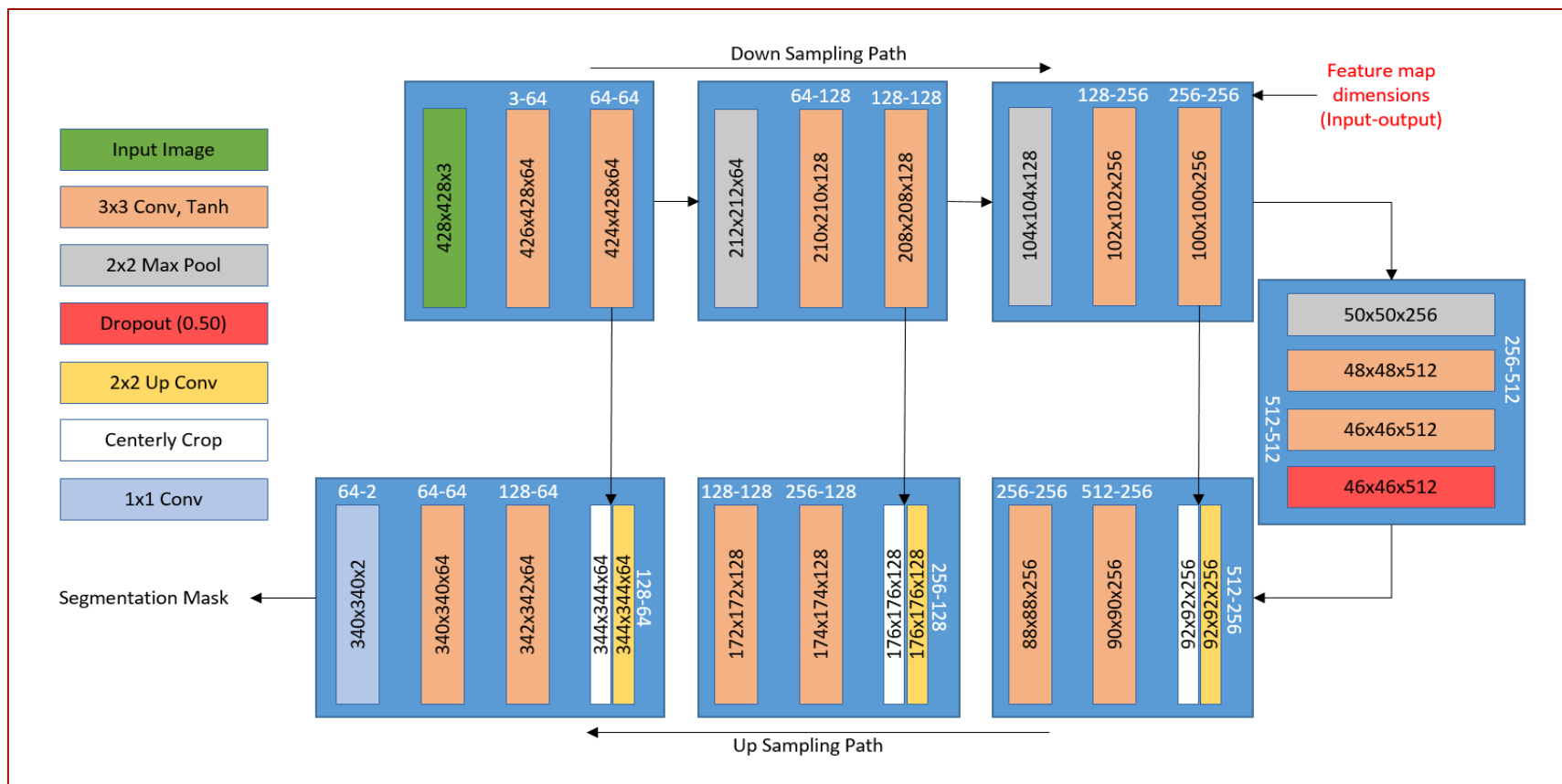
Stain Normalisation Toolbox

The Stain Normalisation Toolbox contains MATLAB implementations of several existing techniques for stain normalisation of histological images. Moreover, the toolbox also contains an implementation of the recently proposed stain normalisation algorithm developed in collaboration with [Derek Magee](#) at the University of Leeds [3] ([PDF](#)).



3. Tumor Segmentation

A variant of U-Net* implemented in TensorFlow



* Ronneberger, Fischer, & Brox, "U-Net: Convolutional Networks for Biomedical Image Segmentation," MICCAI 2015.

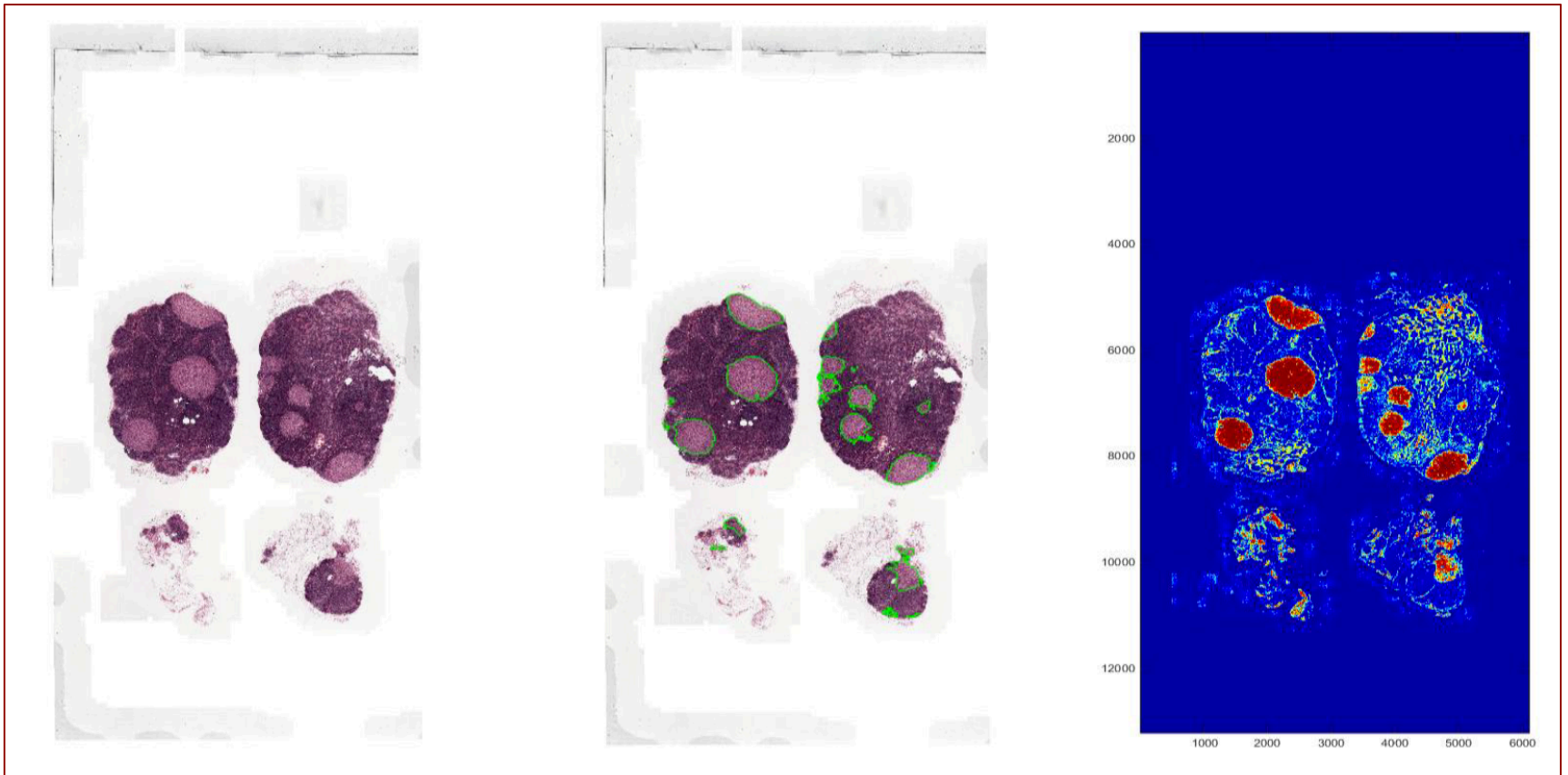
Training

- 20,000 RGB patches of size 428×428 at magnification $10\times$
 - 12,000 taken from normal images
 - 8,000 from images with metastasis.
 - 90% for training and 10% for validation
- The network was trained for more than 50 epochs with batch size 10 with cross-entropy as the cost function

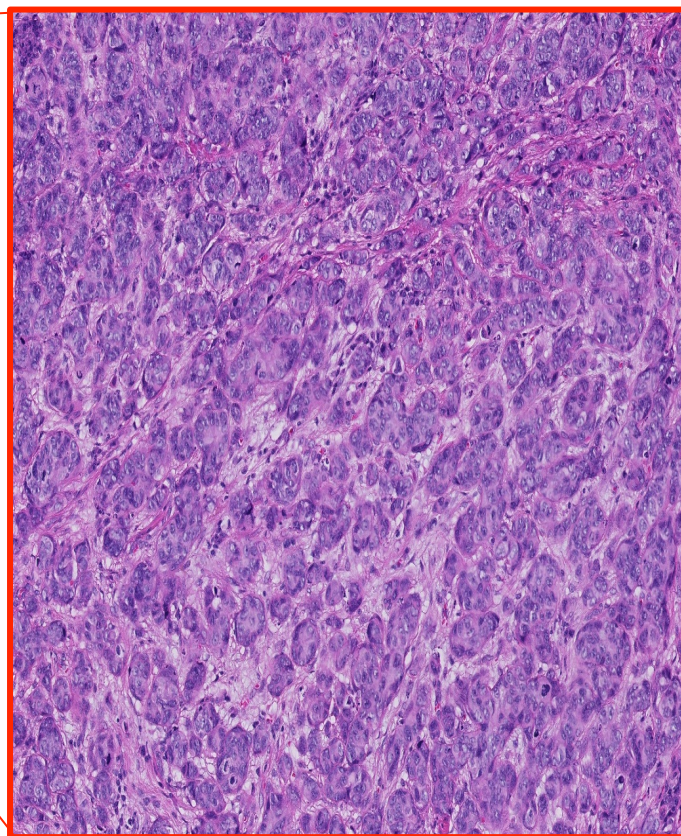
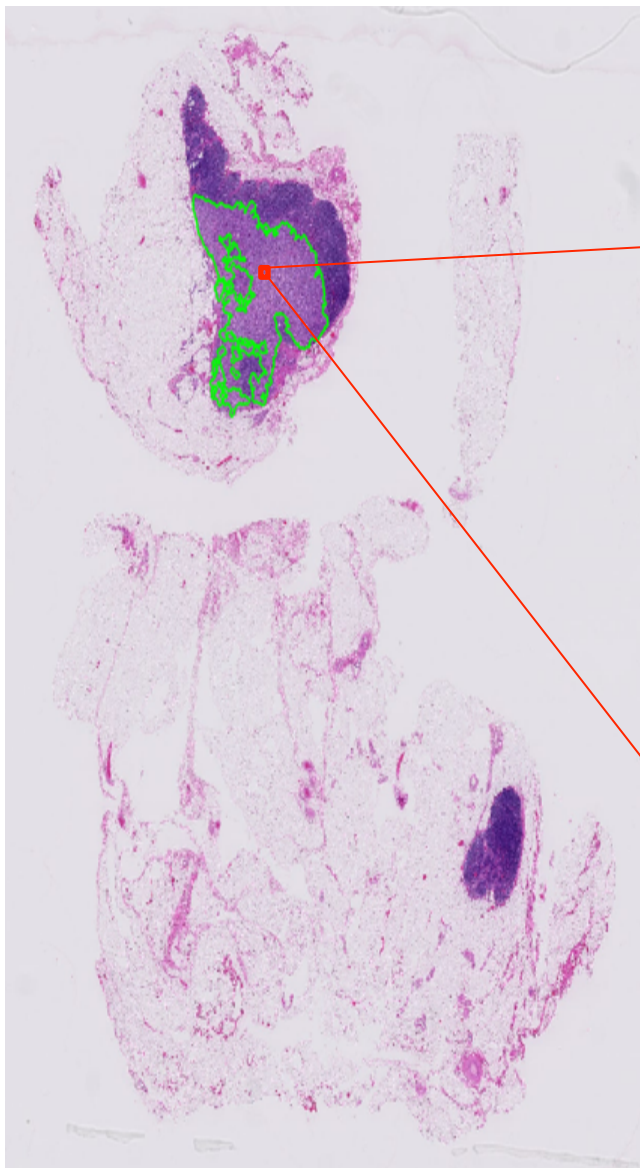


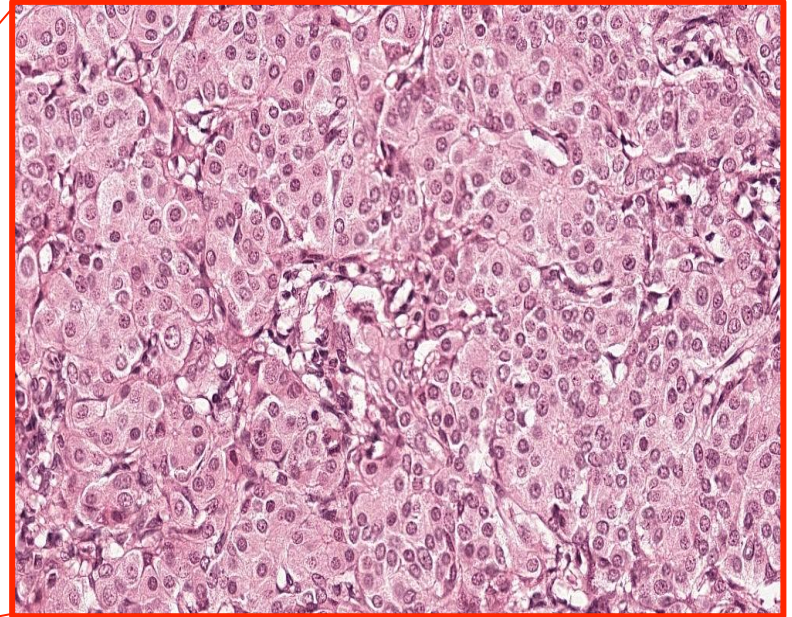
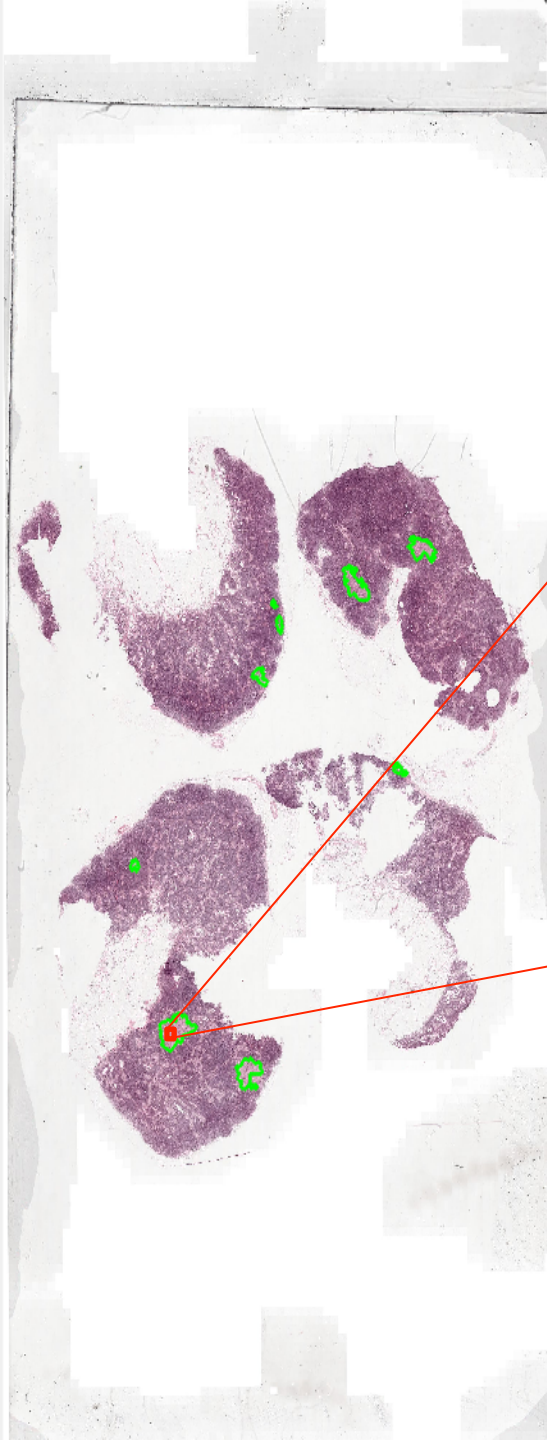
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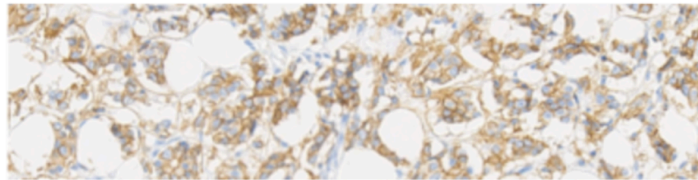


Upcoming Contest



Her2 Scoring Contest

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Welcome to the contest page of **HER2 scoring in histology images**. This challenge will be held in conjunction with [Nottingham Pathology 2016](#) (The Pathological Society of Great Britain & Ireland).

<http://www.warwick.ac.uk/BIAlab>



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