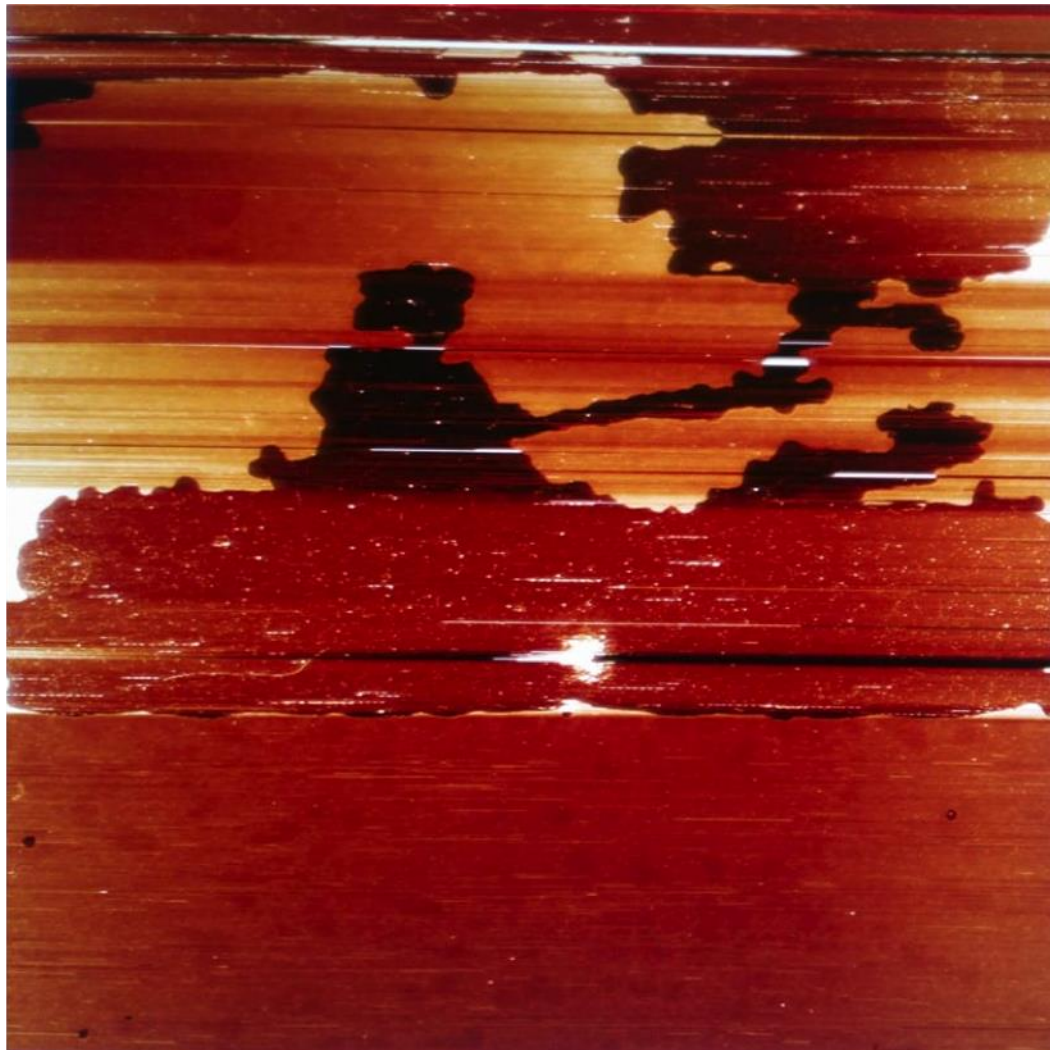


Biotech in Action Photo Competition

1st Prize: winner of the online vote

Routledge, S. (2019) Atomic force microscopy paints a picture of ethanol damaging membranes

This atomic force microscopy image was captured as part of a collaboration between Aston University and the University of Leeds. It demonstrates the destructive effects of ethanol upon a membrane bilayer. Areas of damage can be seen at the top half of the image, with intact membrane still remaining at the bottom. Some microorganisms can be utilized in bioprocesses to produce valuable chemicals including ethanol; however, these chemicals often become toxic to the cells producing them due to their damaging effects upon the membrane surrounding and protecting the cell from environmental stresses. Our aim is to engineer the components of microbial membranes to provide better tolerance to product toxicity, improving the efficiency of bioprocess and moving towards greener alternatives to fossil fuels.



2nd Prize: awarded by the MeMBrane Management Committee

Ribul, M. and Lanot, A. (2019) Wheat straw transformation with Acetobacter to produce bacterial cellulose

The image illustrates a collaboration between the Burberry Material Futures Research Group at the Royal College of Art in London and the Centre for Novel Agricultural Product at the University of York. We are investigating the use of agricultural waste such as wheat straw for fermentation by Acetobacter to produce bacterial cellulose that could be further transformed into sustainable, low carbon, high quality textiles. In York, wheat straw was milled, pretreated and enzymatically hydrolysed to release the sugars from the lignocellulose matrix. The hydrolysate was further fermented to produce bacterial cellulose. This pure cellulose can be harvested for innovative material applications or regenerated to manufacture viscose-like textiles.

