Physics and Life Sciences Research

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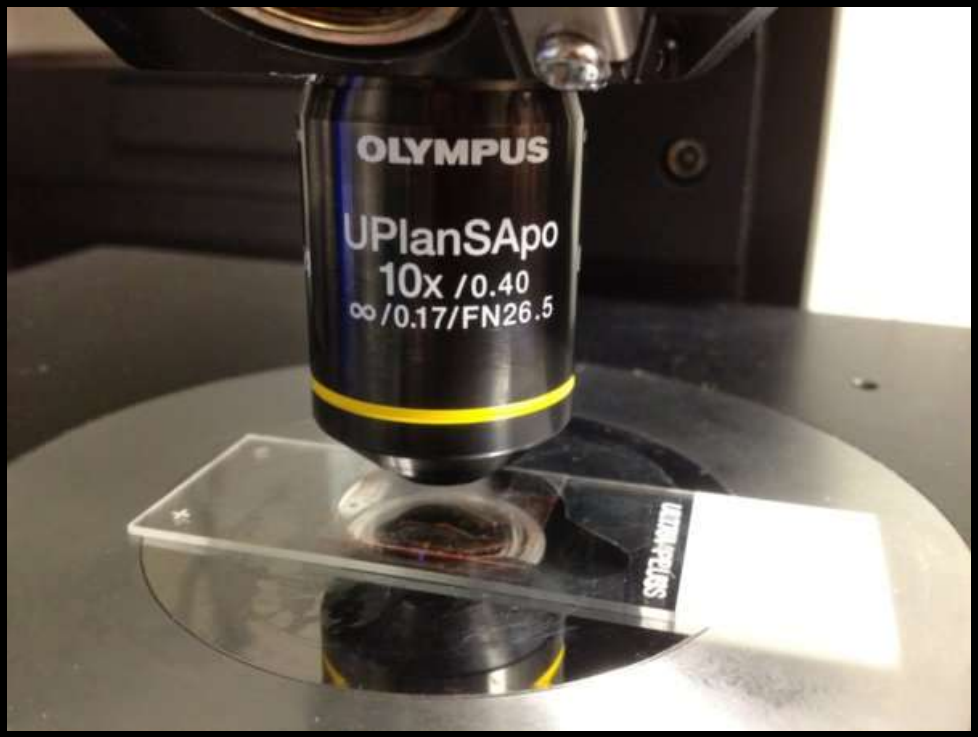
ISCF meeting
15th January 2018

University of Strathclyde Glasgow

Physics Scotland - PaLS theme

- All HEI partners involved.
- 65 T&R academics, 85 research fellows/associates and 90 graduate research students.
- Major sources of funding are RCUK & H2020, though also some charitable and industrial funding.
- Several relevant DTCs at present, e.g. Optima programme in Optical Medical Imaging (joint Edinburgh/Strathclyde), PHOQUS (Dundee) and Integrative Sensing and Measurement (Glasgow).

- **Structure and Dynamics**
  Protein folding and interactions, water and hydrogen-bonding interactions
- **Enzymes and model enzyme systems**
  Studies of model biological systems, evolving ecosystems and environments, cell motility
- **Optical Imaging and Cellular Interactions**
  Micro-photonics for life sciences, nano and targeted therapeutics, spectroscopy and imaging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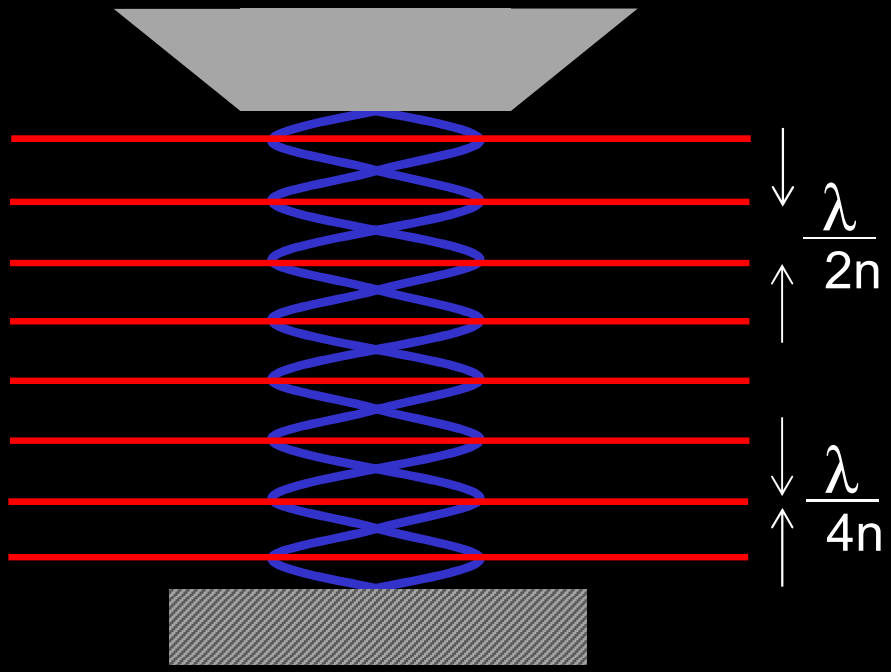
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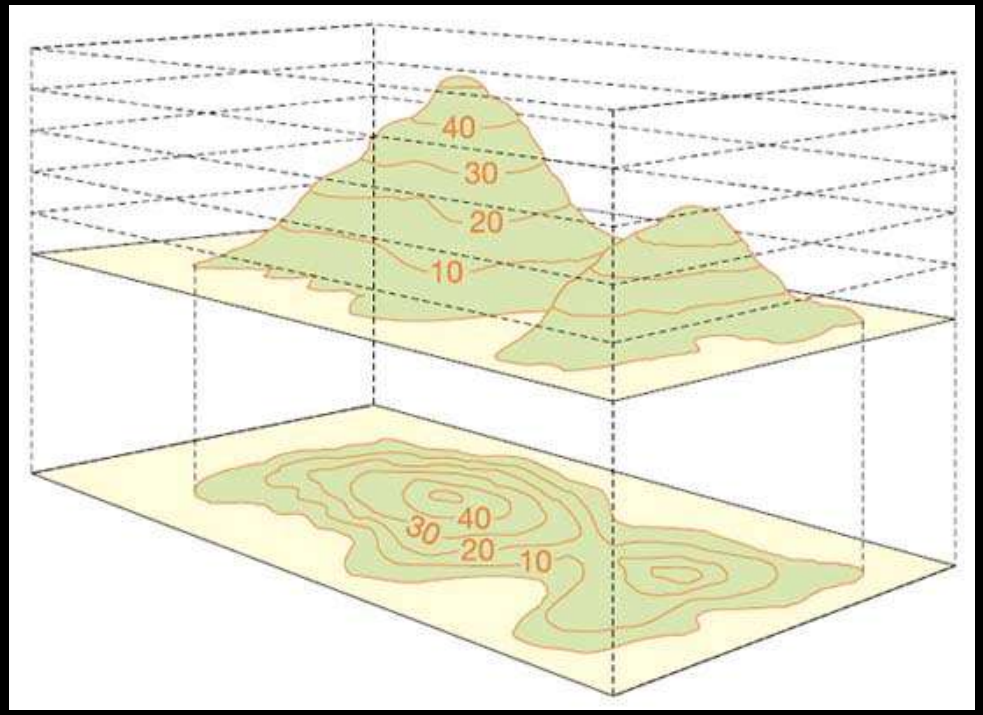
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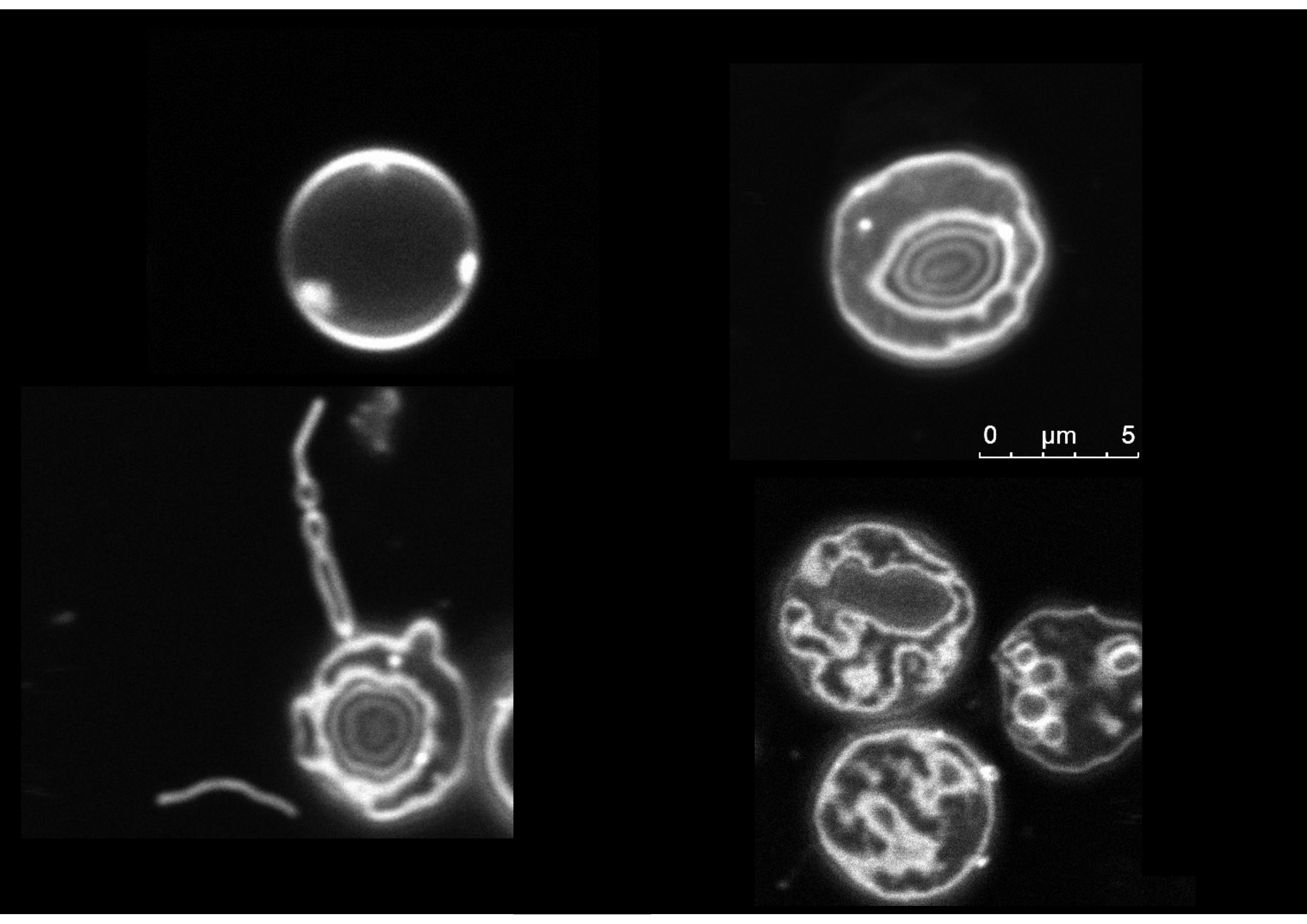
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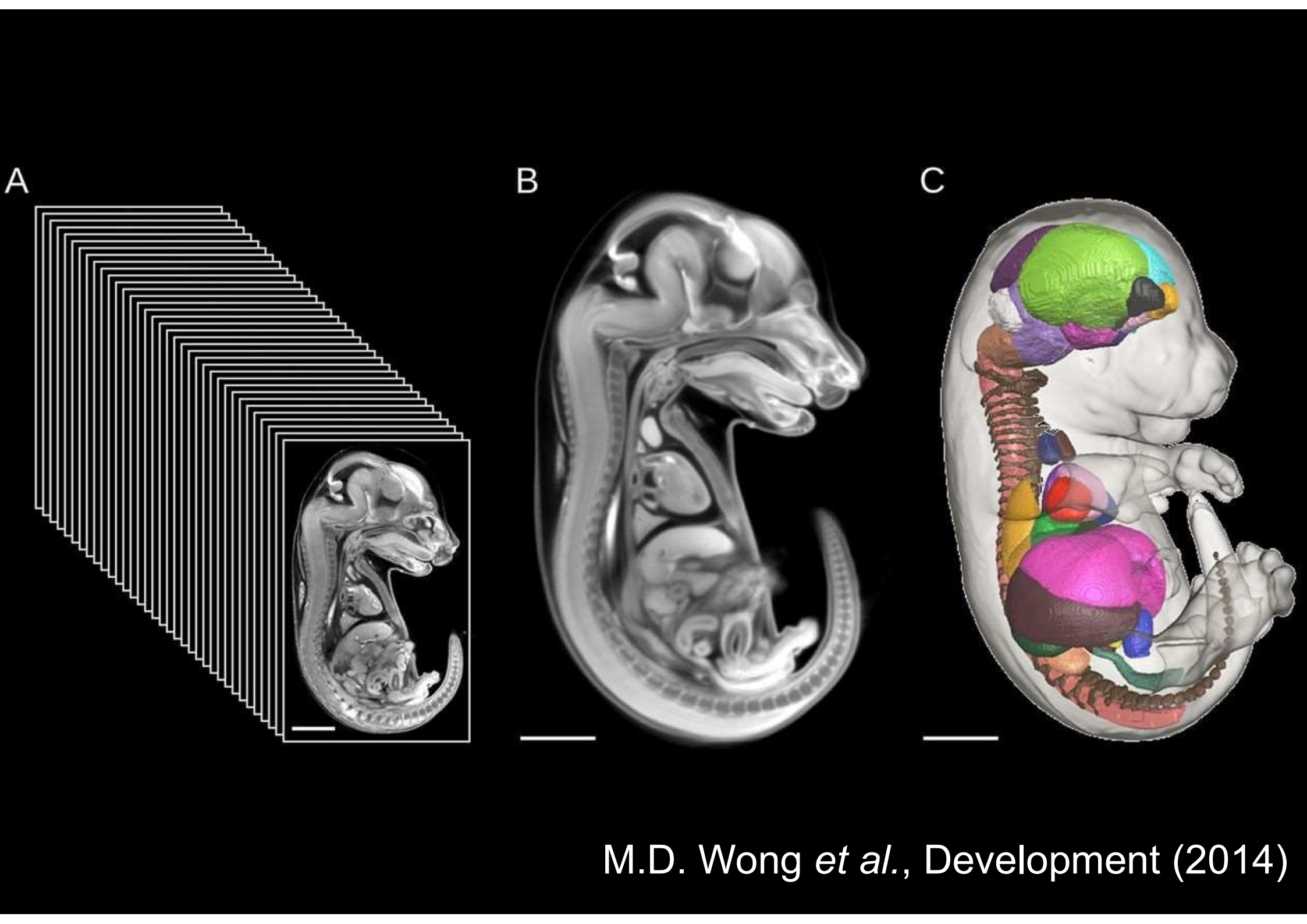
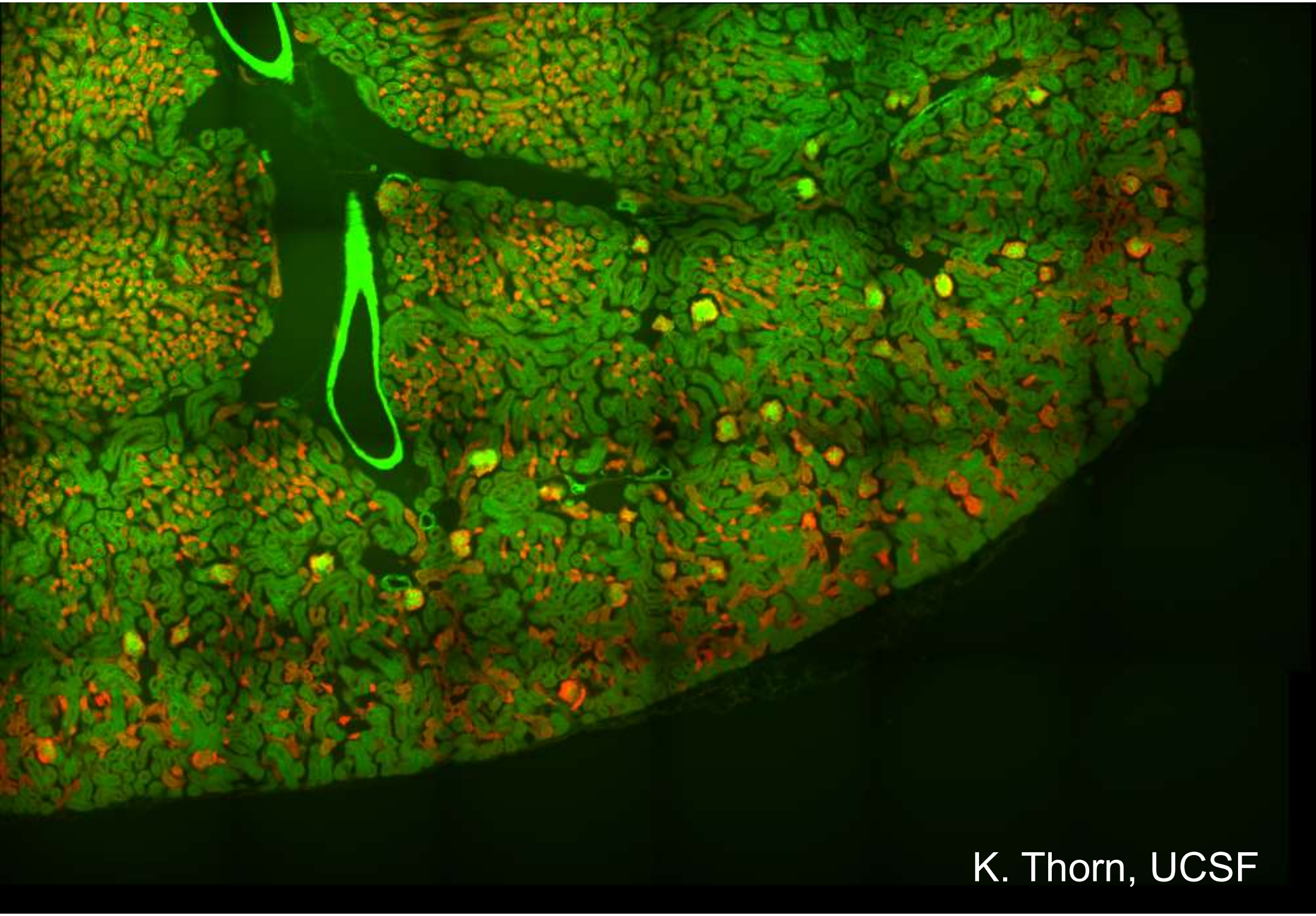
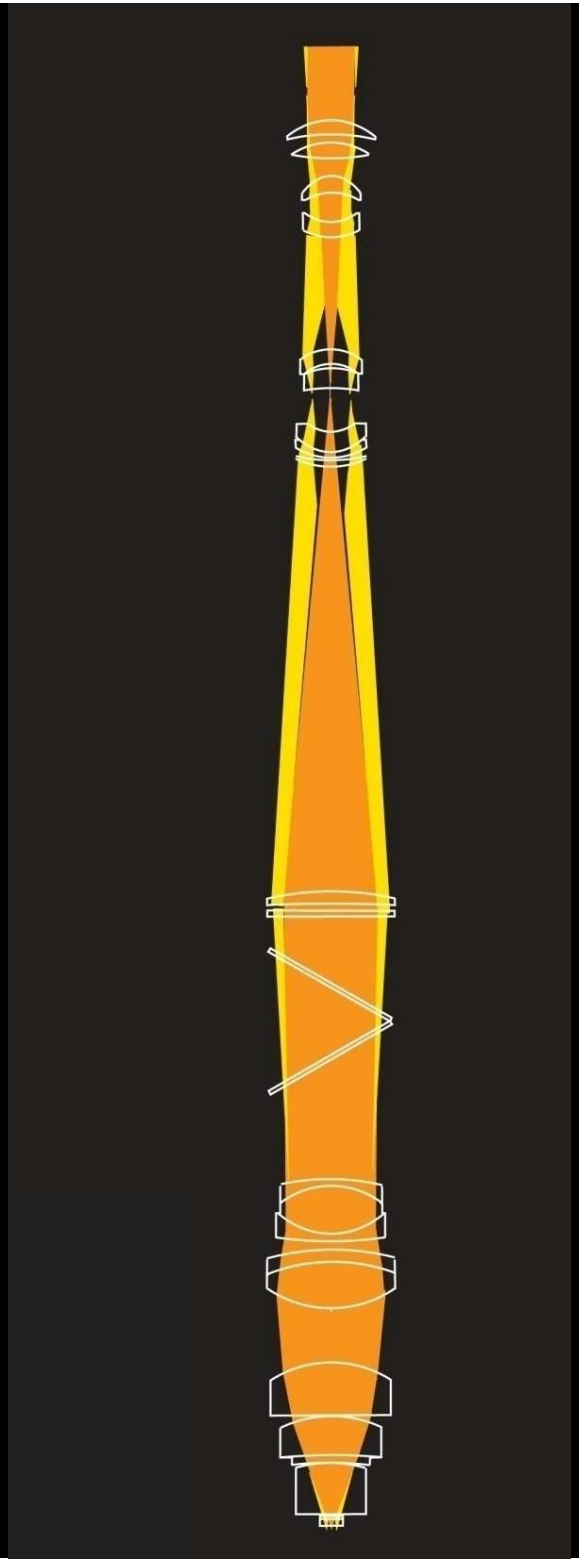


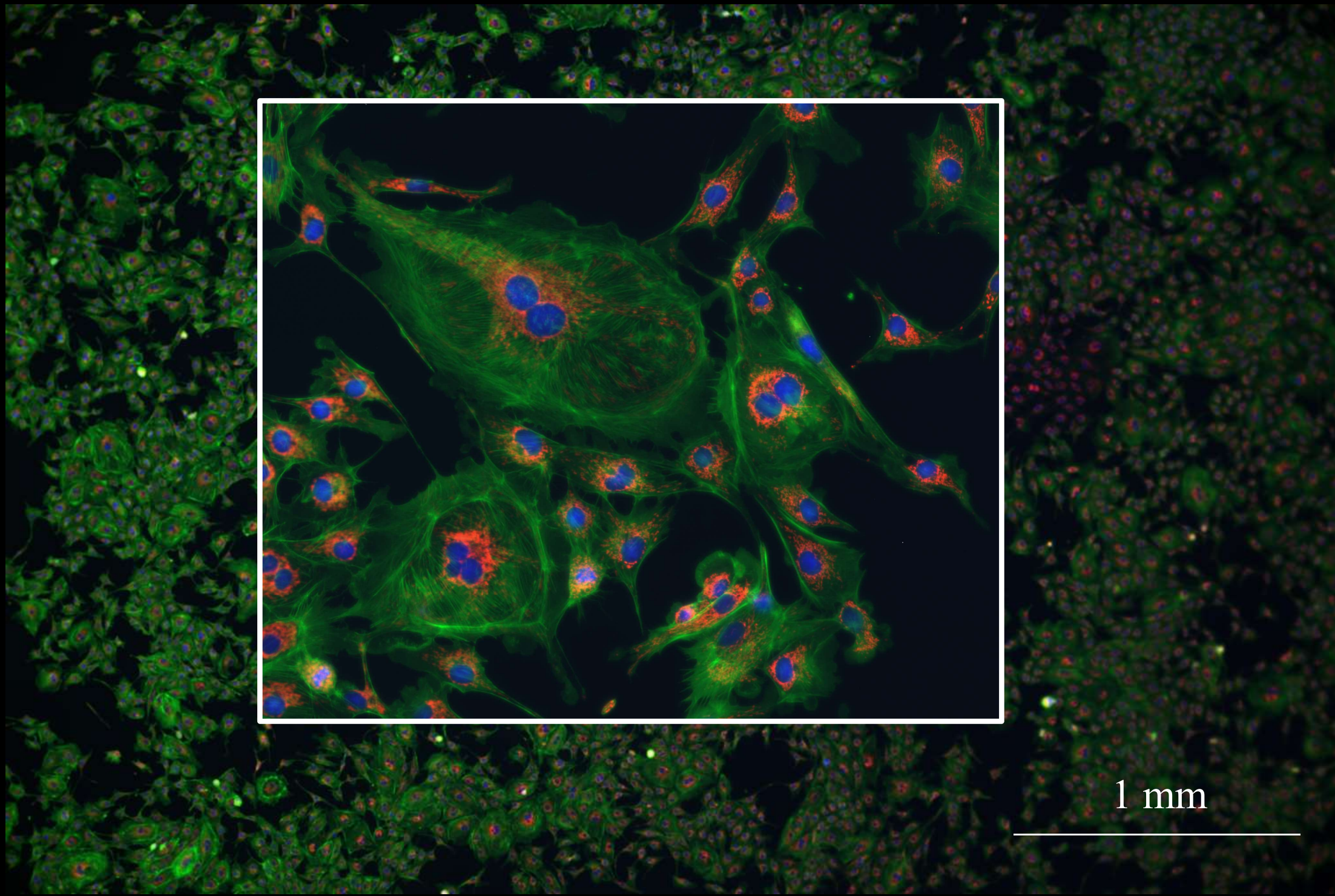
M.D. Wong *et al.*, Development (2014)

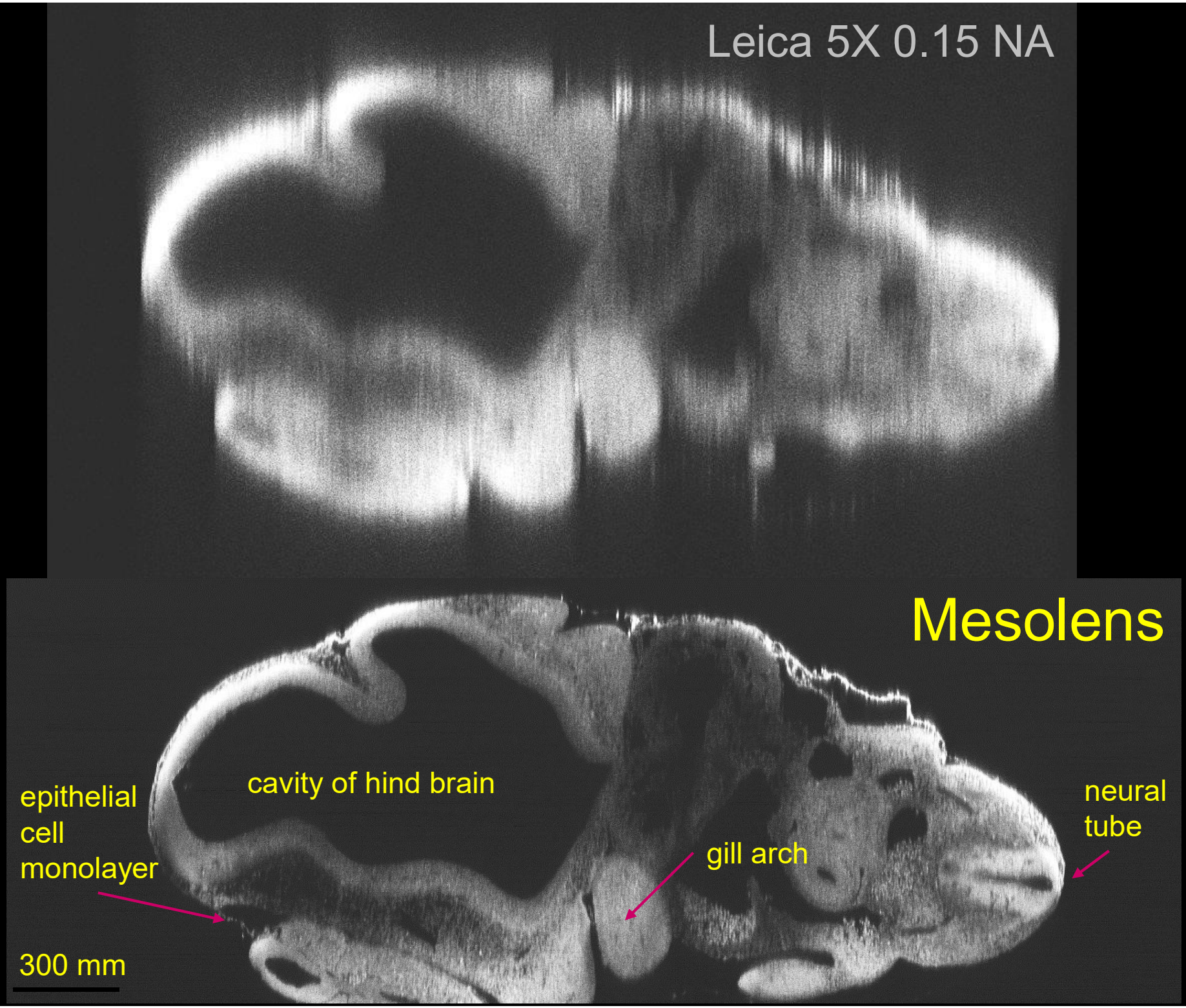

K. Thorn, UCSF

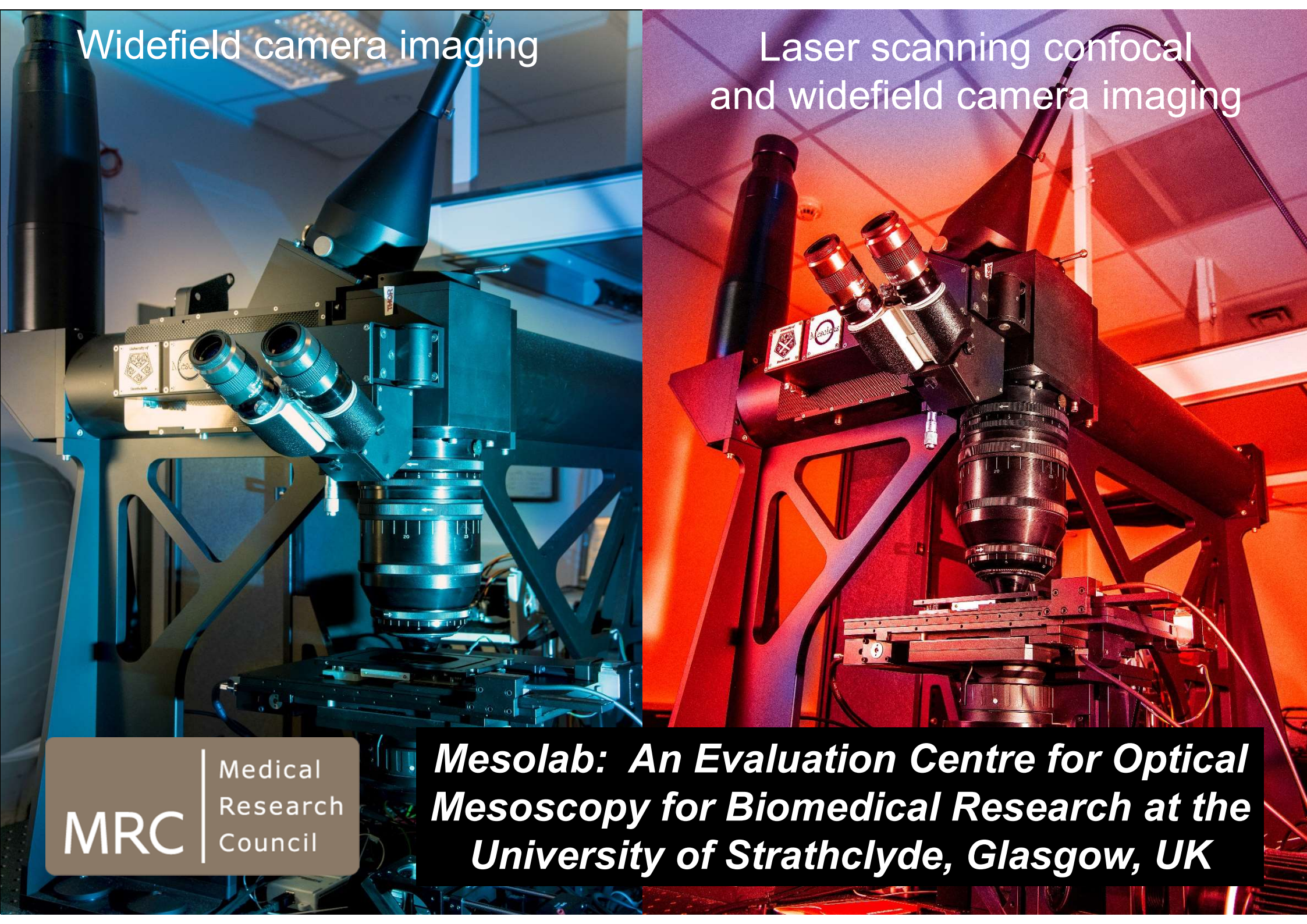


Mesolens

Magnification:	4x
Numerical aperture:	0.47
Image field:	6 mm x 6 mm
Working distance:	3 mm
Immersion:	oil, water, glycerol
Chromatic correction:	400-750 nm
Flat field:	5.5 mm
Nyquist sampling:	400 megapixels
Image size (16-bit):	500 MB (per channel, per z position)


1 mm


Leica 5X 0.15 NA
Mesolens
epithelial cell monolayer
cavity of hind brain
gill arch
neural tube
300 mm


Widefield camera imaging
Laser scanning confocal
and widefield camera imaging
MRC
Medical
Research
Council
Mesolab: An Evaluation Centre for Optical Mesoscopy for Biomedical Research at the University of Strathclyde, Glasgow, UK

Acknowledgements

Mesoscopy

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Paul Hoskisson
Mike MacDonald

Standing wave microscopy

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Rumelo Amor
Brad Amos
Trevor Bushell
John Dempster
Karen Fairlie-Clark
Alison McDonald
Sumeet Mahajan
Sarah Reeve
Gill Robb

MRC Medical Research Council
EPSRC
BBSRC bioscience for the future
NC 3Rs National Centre for the Replacement Refinement & Reduction of Animals in Research
CoolLED Simply Better Control
Mesolens
The Leverhulme Trust