



## Visiting Seminar – Dr Lucy Collinson

The **Department of Biomedicine, Aarhus University** is pleased to host **Dr Lucy Collinson**, Head of Electron Microscopy at the **Francis Crick Institute**, for a visiting seminar organized by the Kidney, Cardiovascular, and Metabolic Diseases research theme.

 **Thursday, 26 February**

 **13:00**

 **Bartholin Bldg 1241, Room 135**

 **One-to-one meetings available on 26–27 February**

**Don't miss this opportunity!**

If you would like to meet Dr Lucy Collinson, please contact Dr. Muriel Mari:

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Dr Collinson is an internationally recognized expert in biological electron microscopy and advanced imaging, with research interests spanning volume EM, correlative imaging, cryo-microscopy, image analysis, and microscope design. She leads large-scale imaging facilities and is a strong advocate of open science and citizen-science-driven image analysis (Etch A Cell, Zooniverse). She has co-authored more than 80 research and review papers, delivered over 70 invited and keynote talks, and served on 30+ international advisory boards, panels, and committees in advanced imaging.

**Talk title: Imaging life across scales with light, X-rays and electrons.**

**Abstract:** Imaging technology for the biosciences has taken huge leaps forward in recent times. Nobel prizes have been awarded for breaking the resolution barrier in light microscopy and cryo electron microscopy, revealing the cellular dynamics and atomic structure of molecules. In parallel, X-ray and chemical imaging are migrating from the physical to the life sciences, revealing the internal structure of tissues and metabolic pathways in exquisite detail. And in volume electron microscopy, a plethora of new microscopes are revealing the complexity of cells and tissues in three dimensions with nanometre resolution, thereby unravelling neuronal connections in the brain and the subcellular hiding places of pathogens. But the fundamental trade-off between sample size and resolution remains - the larger the sample, the lower the resolution will be. The solution is correlative multimodal imaging, where the same sample is imaged intact at low resolution, and then gradually trimmed to smaller sizes for imaging at higher resolution in different types of microscope. The trick is to retain and follow the structure of interest at each step, with optimal sample preparation for each microscope, using probes that are visible in different microscopes and software to overlay different image types. This is 'non-trivial'! In my talk, I will reveal how we approach this problem of finding and imaging the 'needle in the haystack', and how the general public are helping us train machines to analyse the resulting massive image data.