

FALLING WALLS CIRCLE

ROUND TABLE “UNLOCKING THE MYSTERIES OF THE CELL”

The science of the cell has seen tremendous development in the past 30 years. Yet we still do not fully understand how cells work together and help each other. In this Falling Walls Circle, a multidisciplinary group of experts shares their perspectives on how collaborations using state-of-the-art genomic, open science, and imaging technologies are providing new insights into human biology and how these fundamental discoveries will shape tomorrow’s therapies.

Panelists: [Lucy Collinson](#) (The Francis Crick Institute, UK), [Stephen Quake](#) (Chan Zuckerberg Initiative, US), [Sarah Teichmann](#) (Wellcome Sanger Institute, UK), and moderator [Stephani Otte](#) (Chan Zuckerberg Initiative, US).

KEY TAKEAWAYS

- 1. Technology drives insight.** The application of genomic approaches, new developments in microscopy and AI innovations provide insights into the cell at a scale never deemed possible before. A revolutionary invention in electron microscopy enables a detailed exploration of individual membranes, pathogens, and tumours. The application of this technology opens the way for better-targeted antibiotic development and both improved cancer detection and treatment.
- 2. We need interdisciplinary collaborations.** "Collaboration is crucial for driving scientific discovery", says Stephen Quake. To forward genomic research, the experts emphasise the need for collaboration involving physics, chemistry, computational science, biology and microscopy. They call for international seed funding and collaborative grants that allow scientists and start-ups to set up trials and experiments to prove the potential of their research. The establishment of ‘Biohubs’ helps to facilitate collaboration among well-known institutions and universities.
- 3. Sharing data will help to fight global diseases.** Unlocking the mysteries of the cell is an interdisciplinary effort. Mapping healthy reference tissues and comparing them to the disease state helps us to understand cancer and other diseases such as Covid-19. Projects like the ‘Human Cell Atlas’ are already trying to create a molecular map of the human body; however, this tremendous endeavour requires the global community to work together and to make their data accessible.
- 4. Upgrade the political framework and provide funding.** The need for further development is urgent and the technology is advancing rapidly. To enable the scientists working on these mind-blowing inventions, the experts urge policy makers to enable more political funding, embrace open science and update the political frameworks for data and knowledge sharing.

This event is supported by Chan Zuckerberg Initiative.