Category winner

Jarrod Shilts

Category: Genomics, Proteomics & Systems Biology

Essay title: *How to build a human – Piecing together the body's cellular puzzle*

Biography

Jarrod Shilts received an undergraduate degree from Vanderbilt University and a PhD from the University of Cambridge. He then transitioned to a spin-out biotechnology company specializing in the kinds of difficult-to-express proteins he worked with during his doctoral degree. The research group he leads develops technologies to advance the production of new therapeutic proteins.

Abstract

Multicellular life is possible because cells can forgo competition to cooperate with each other. The human body is assembled out of trillions of cooperating cells that communicate and physically interlink. Binding between proteins on the surfaces of cells provides a molecular mechanism by which cells can directly interact. However, only a fragmented patchwork of these interactions has previously been measured. Resolving this patchwork required the development of tools to systematically measure surface protein binding interactions. Initiatives using these tools have revealed patterns underlying the body's cellular connectivity in contexts like the immune system and led to the discovery of multiple pathways for cell-to-cell interactions. As our atlases of human cells continue to grow, this work opens the way to then piece together the body's cellular puzzle.