Imitation Is the Sincerest Form of Discovery

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If you imagine you might have a toy car, and if you learn with Lego blocks how to assemble that car, then you learn something about the car. So we're trying to build models of tissues, so that we can try and understand things about those tissues that ultimately will help us understand how to develop new therapies to help people.

How does your model mimic muscle tissue?

We're trying to build a model of muscle regeneration. We have an interesting strategy for assembling tissues where we generate very thin layers and then we roll them up, kind of like a fruit roll-up or a Swiss roll, into a rolled structure, and it allows us to generate this 3D tissue. But when we want to do our analysis, we can just unroll it to collect the cells from different locations in our roll. And this is important because in tissues, cells are in three dimensions, so they're connecting with cells in all different areas, and also depending on where they are in that three-dimensional structure, they experience different signals and different cues. And cells are kind of like people, so they care who their neighbours are, and what environment they're in, and they behave accordingly. So what we need to do is be able to take cells from very specific environments and understand how they're behaving to try and really understand how we can manipulate those interactions for therapeutic purposes.

How will your research impact medicine?

The work that we are doing now might take 20 years to really be having that impact, but where there's a very imminent impact is training a generation of brave scientists to take on the next challenges necessary.