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3:00PM to 4:00PM Seminar
SEC 105

Brain on a Chip: Designing In-Vitro Neural Circuits

Abstract

The wild idea that nerve cells grown in culture could have reliable computational function, while still a wild idea, is closer to reality than is reasonable to expect, thanks to applications of both engineering and applied biology. The metaphor works both ways: applications of more traditional engineering technologies – signal processing, electronics, microlithography, materials science – make possible the controlled growth, recording, and stimulation of nerve cells. In turn the goal is to design, construct, test, and utilize – in short to engineer – a working biological construct. In this lecture examples, mainly from the speaker’s laboratory, illustrate the component technologies that have been utilized in this pursuit, as well as examples illustrating how the approaching the problem as an engineer leads to the asking new questions.

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