

Abstract Submitted
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Role of biomechanical cues on neuronal growth on asymmetric textured surfaces¹ CRISTIAN STAI, ELISE SPEDDEN, TIMOTHY ATHERTON, Department of Physics and Astronomy and Center for Nanoscopic Physics, Tufts University, KORAY SEKEROGLU, MELIK DEMIREL, Materials Research Institute and Department of Engineering Science, Pennsylvania State University — Axonal growth and the formation of synaptic connections are key steps in the development of the nervous system. Here we present experimental and theoretical results on axonal growth on unidirectional nanotextured surface, and demonstrate that these surface can bias axonal growth. We also perform a systematic investigation of neuronal processes on these surfaces and quantify the role that biomechanical surface cues play in neuronal growth. We show that these surfaces provide a model growth substrates, which allow us to perform systematic studies of the interplay between mechanical, biochemical and topographical cues that contribute to neuronal growth.

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