

Abstract Submitted
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Probing subcellular force transduction with magnetic soft actuator arrays¹ ALEXANDRE ANGUELOUCH, STUART KIRSCHNER, DANIEL REICH, Johns Hopkins University, NATHAN SNIADOCKI, CHRISTOPHER CHEN, University of Pennsylvania — Microfabricated poly(dimethylsulfoxide) PDMS post arrays provide a method for mapping the distribution of contractile forces produced by adherent cells grown on the tips of the posts through optical tracking of the posts deflections (1). We describe a new technique whereby large local mechanical stimuli can be applied to such cells via magnetic torques applied to anisotropic magnetic nanowires embedded in selected posts. These magnetic post arrays thus serve both as actuators and detectors of cellular contractile response. Experiments characterizing the performance of these post arrays will be presented along with results on global changes in cell contractility induced by magnetic forces applied to a single post under a cell.

(1) J. Tan *et al.* PNAS **100**, 1484 (2003).

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