

Cell Proliferation in Gradients of Chemical Cues

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Engineering tissues *ex vivo* requires understanding how multiple cues in the cellular environment interact to control cell proliferation and patterning. *In vivo* tissue growth and patterning are driven by gradients of soluble factors. To investigate the effects of a spatial soluble factor gradient on cell proliferation, a two-input, nine-output gradient generating microfluidic device is fabricated. Cells grown in this device are viable and respond to growth factor concentrations in a dose-dependent manner. The observed dose dependency is dissimilar to growth in traditional cell culture conditions, suggesting that fluid flow affects ligand-receptor trafficking.