Electronic Supplementary Material (ESI) for Lab on a Chip

SUPPLEMENTARY INFORMATION

On-demand, Competing Gradient Arrays for Neutrophil Chemotaxis

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Movie 1. Competitive assay and real-time monitoring of neutrophil chemotaxis. Neutrophils in red are exposed to both gradients of fMLP 100 nM (left) and LTB_4 100 nM (right) at the same time and migrate preferably toward the fMLP gradient rather than LTB_4 gradient.

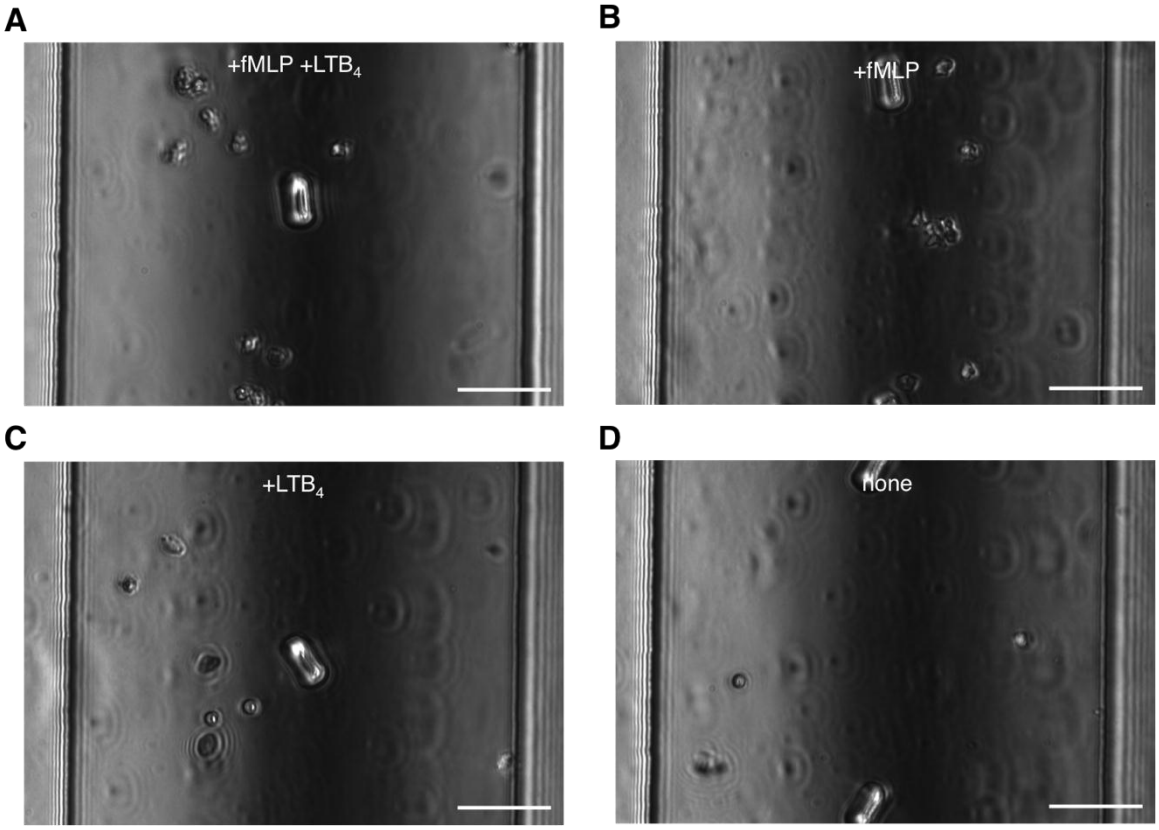

Figure S1. Enhanced cellular attachment and polarization in the presence of chemokines. Activation of cellular attachment to and consequent polarization on a fibronectin-coated glass substrate is significantly affected by the presence of chemokines. After culturing for about 10 minutes, neutrophils are fully attached to the substrate and navigate around in random directions discernibly in the presence of fMLP (**A**, **B**), weakly in LTB4 (**C**), and barely without chemokines (**D**). Different activities of attachment might be one of the reasons for different response time. Scale bars, 50 μm.

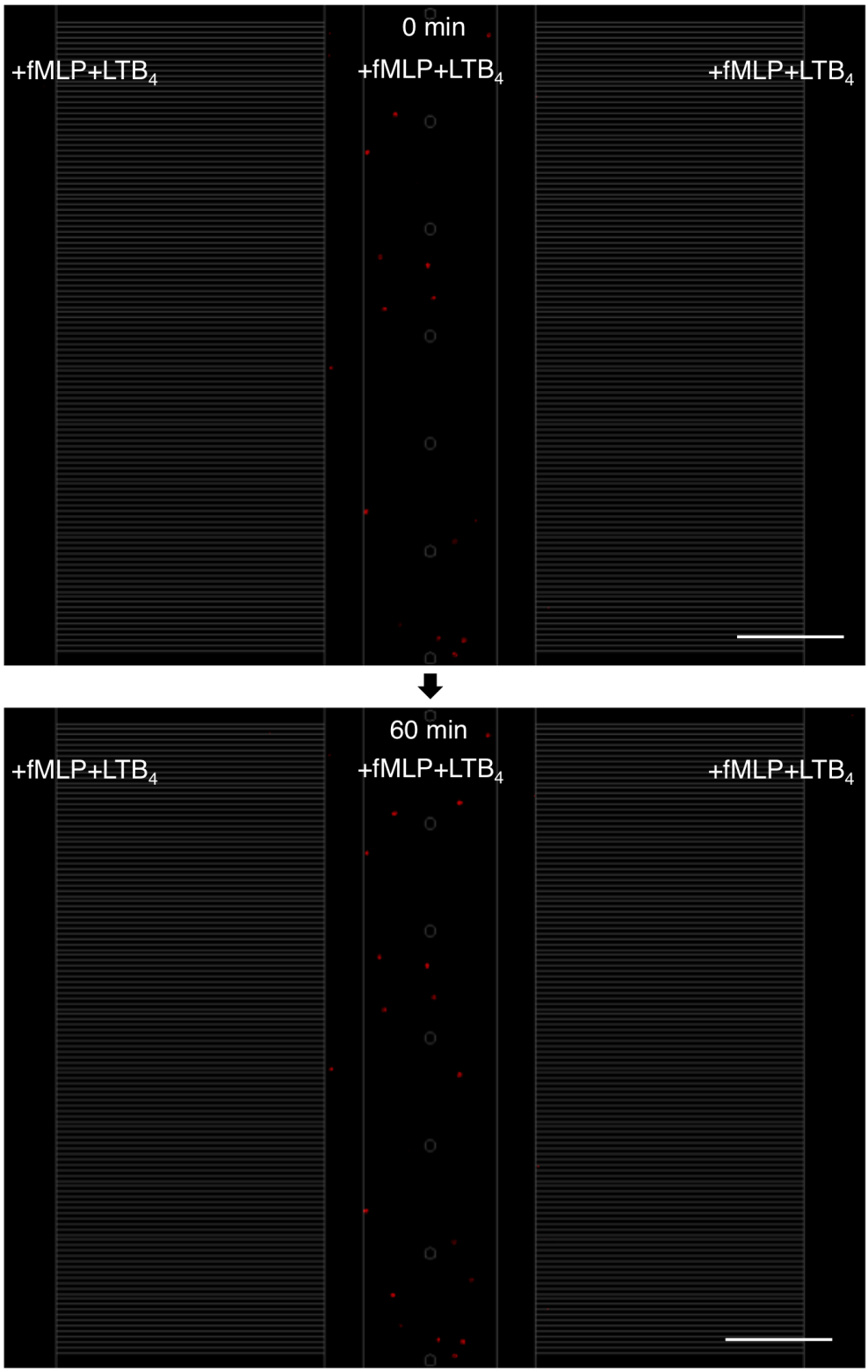

Figure S2. No directional migration in the presence of uniform chemokine concentrations. In case of uniform chemokines, neutrophils move around but not in shallow regions, *i.e.* migration channels of which thickness is much smaller than the cellular compartment. Therefore, no directional migration is observed in the presence of fMLP at 100 nM, LTB_4 at 100 nM, the mixture of both chemokines, and without any chemokines. Scale bars, 200 μm.