Abstract Submitted
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***E. coli* as a biological model for cancer cells**[1] DAVID LIAO, GUILLAUME LAMBERT, ROBERT AUSTIN, Department of Physics, Princeton University, Princeton, NJ 08544 — Uninhibited growth and invasion of healthy tissue characterize cancer. We co-cultured two strains of *E. coli* bacteria in a microfabricated environment to model cancer. During starvation, growth-advantage-in-stationary-phase, or GASP, cells grew to a higher population than wild-type cells. GASP cells also displaced wild-type cells from nutrient-rich chambers. When we repeated the experiment with medium depleted by wild-type cells, the peak GASP population density increased 54%, and the "invasion," or displacement of wild-type cells from nutrient-rich chambers, occurred 5 hours earlier. We mathematically modeled both this increase in GASP population and this acceleration of spatial invasion by assuming that GASP cells consume detritus secreted by wild-type cells. Our experimental and model results corroborate recent caution against using tumor starvation as a cancer therapy.

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