

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Time lapse of *E. coli* ASC662 cells (MG1655 LacZ-GFP) growing in the DIMM device under conditions that switch every 4 hours between M9+0.2% glucose and M9+0.2% lactose. The current condition is shown in the coloured bar at the top, the time is indicated by the clock at the top right and the vertical length scale indicates 5µm. Phase contrast and GFP channels are acquired every 3 minutes and shown as a composite image (after mild saturation for better rendering).