

Single-cell analysis of gene expression dynamics in *Escherichia coli* upon entry into stationary phase

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January 16, 2017

Poster abstract

Escherichia coli divides and grows exponentially when nutrients are available, but when these nutrients fall below a threshold, the bacterium starts expressing genes that are specific of the stationary phase. This response is triggered before cells have completely arrested their growth. While the genes implied in this growth-phase transition are well known, their expression dynamics over time has mainly been characterized only at the population level. We have examined the expression dynamics of these genes at the single-cell level using time-lapse fluorescence microscopy and microfluidics. Specifically, we have measured the expression of a fluorescence reporter driven by stationary phase promoters at single-cell resolution. Using signal processing techniques, we have been able to detect transient oscillatory patterns in the gene expression dynamics over time, that we are trying to unravel mechanistically.