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Author Arvid Hedén Gynnå		
Title (English) Induction kinetics of the <i>lac</i> operon studied by single molecule methods		
Title (Swedish)		
Abstract The repression of the <i>E. coli lac</i> operon seems to be more efficient than the current theoretical model allows for. Specifically, it is more quiet than expected during the replication of the chromosome. I have induced cells during short periods and counted the number of protein products from the operon to determine if there is a delay in activation of transcription that could account for the discrepancy. The results are compatible with a delay of 10-20 s, but the delay could not be conclusively proven. Furthermore, it has been investigated if the mechanism behind the delay might be differential localization of the <i>lac</i> operon with and without induction. It is shown that the <i>lac</i> operon is more often located in the periphery of the cell and in the internucleoid region when induced. These might be regions where genes are higher expressed, giving a delay in expression after de-repression before the gene is transported there.		
Keywords Lac operon, repressor, transcription, single molecule fluorescence.		
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