



Molecular Biotechnology Programme
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Author	Linda Lindström	
Title (English)	Modeling the kinetics of the pyrosequencing multi-enzyme system addressing the <i>drop off</i> and non-linearity problem	
Title (Swedish)		
Abstract	<p>The aim of this study was to address two limitations in the pyrosequencing method. The first problem was the limited reading length due to a progressive reduction in the light signal, the so called <i>drop off</i>, and the second was the problem with non-linearity in peak height when a number of identical nucleotides, homopolymers, are incorporated.</p> <p>A model of the system was set up to increase the understanding of the pyrosequencing system. The system was modeled according to Michaelis-Menten kinetics and a Poisson process to describe the incorporation of several identical nucleotides. The resulting pyrograms from the experimental part were analyzed employing the mathematical model retrieving explanations concerning the characteristics of the pyrograms. The behavior of the real system was compared with the model system, with respect to the impact of altering enzyme kinetics.</p>	
Keywords	Pyrosequencing, <i>drop off</i> , non-linearity, homopolymers, model, and Michaelis-Menten	
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