

1033-34-83

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Dynamics of a Mathematical Model for Sickle Cell Depolymerization. Preliminary report.

A mathematical model about the effect of carbon monoxide (CO) on sickle cell hemoglobin (HbS) during HbS polymer melting is considered. The model describes the subsequent dynamic relationship amongst the four phases of the HbS components. Stability analysis of the model is presented in CO-free case, complete re-oxygenation case and general case. The techniques used include linearization and qualitative analysis. Some numerical experiments are also reported to show the effects of CO levels in the buffer solution. (Received September 04, 2007)