1035-92-1875   **Jacques Belair*** (`belair@crm.umontreal.ca`), Dept. Mathematiques, Universite de Montreal, CP 6128, Succ. centre-ville, Montreal, Quebec H3C 3J7, Canada. *Haematopoietic modelling with stage-structure and variable lifespan.*

We present a general model of the regulation of erythrocytes (red blood cells) in mammals, in the form of a system of stage-structured, nonlinear differential equations. Under physiologically reasonable simplifying hypothesis, the system becomes mathematically manageable, taking the form of an integro-differential system with a state-dependent delay incorporating the negative feedback effect of the regulating hormone, erythropoietin. A stability analysis of the stationary solution is performed, and parameter values leading to (Hopf) bifurcations to periodic solutions are identified. The possibility of higher order bifurcations is also discussed.

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