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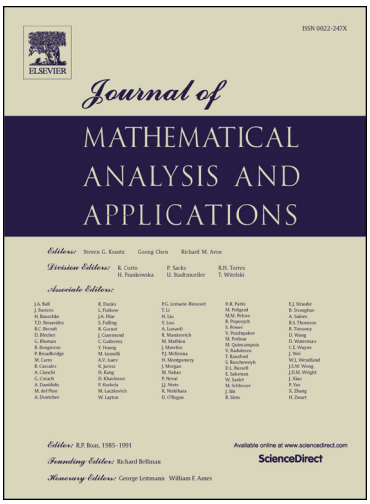

Global existence and boundedness in a chemotaxis–haptotaxis system with signal-dependent sensitivity

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Global existence and boundedness in a chemotaxis-haptotaxis system with signal-dependent sensitivity

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Abstract. This paper deals with the chemotaxis-haptotaxis system with *signal-dependent sensitivity*

$$\begin{cases} u_t = \Delta u - \nabla \cdot (\chi(v) u \nabla v) - \xi \nabla \cdot (u \nabla w) + \mu u(1-u-w), & x \in \Omega,\ t > 0, \\ v_t = \Delta v - v + u, & x \in \Omega,\ t > 0, \\ w_t = -vw, & x \in \Omega,\ t > 0 \end{cases}$$

under homogeneous Neumann boundary conditions and initial conditions, where $\Omega \subset \mathbb{R}^n$ $(n \geq 3)$ is a bounded domain with smooth boundary, $\xi, \mu > 0$ are constants and χ is a function satisfying some conditions. In the case that χ is a constant it is known that the above system possesses a global classical solution under some conditions (Cao [**4**], Tao [**10**], Tao and Winkler [**11**]); however, in the case that χ is a function, the above system has not been studied. The purpose of this paper is to establish global existence and boundedness in the above system.

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