

Global weak solutions and asymptotic behavior of a chemotaxis system  
with singular chemotactic sensitivity and a non-diffusible chemical

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**Abstract**

We study nonnegative solutions for a chemotaxis system with singular chemotactic sensitivity in a bounded smooth domain under Neumann boundary conditions. We show that for any nonnegative initial data there are global weak solutions. Moreover we prove, as the time goes to infinity, any weak solution to the chemotaxis system converges in  $L^1$  to an homogeneous state.