Modeling and asymptotic analysis of Alzheimer's disease in a porous domain BIOMATH 2024

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In this presentation, we examine the progression of Alzheimer's disease. Initially, we formulate a system of partial differential equations modeling the biological process under investigation. Then we thoroughly investigate the asymptotic analysis of the resulting initial boundary value problems within a porous heterogeneous domain by using the two-scale convergence concept. Finally, we perform some numerical simulations to validate the theoretical findings, providing valuable insights for the development of therapeutic strategies to fight against this neurodegenerative disease.

Keywords: Asymptotic analysis, Alzheimer's disease, two-scale convergence, numerical simulations.

MSC2020: 47J10, 74N30

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