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Testing the decreasing potential hypothesis using delays.

Abstract: Immunologists have been puzzled by observations that the immune response actually decreases when the foreign substance (antigen) that triggered the response remains in the body for too long. In particular, researchers have observed that effector T-cell functions steadily decrease as a consequence of persisting antigen. The question is: what mechanisms are behind this decrease in functionality? In this talk, we present a mathematical model of the immune response consisting of a system of delay differential equations, and show that this model provides a possible description of the mechanism involved in the “decreasing potential hypothesis”.

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