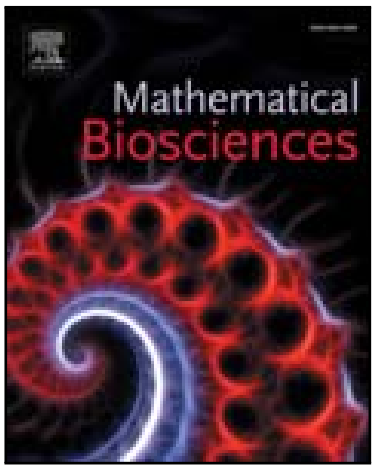

A structural methodology for modeling immune-tumor interactions including pro- and anti-tumor factors for clinical applications

Abazar Arabameri , Davud Asemani , Jamshid Hajati

PII: S0025-5564(18)30203-7
DOI: 10.1016/j.mbs.2018.07.006
Reference: MBS 8099

To appear in: *Mathematical Biosciences*

Received date: 26 March 2018
Revised date: 10 July 2018
Accepted date: 17 July 2018

Please cite this article as: Abazar Arabameri , Davud Asemani , Jamshid Hajati , A structural methodology for modeling immune-tumor interactions including pro- and anti-tumor factors for clinical applications, *Mathematical Biosciences* (2018), doi: 10.1016/j.mbs.2018.07.006

Highlights:

- Mathematical models are beneficial in the studies of immunology and immunotherapy
- by overcoming various challenges such as limited experimental data, interpretation of
- complicated immune-tumor interactions and high laboratory costs.
- The structure of mathematical models, interconnecting immune cells and cytokines
- with tumor cells populations as variables, have been selected only on the basis of
- immunology facts in previous studies.
- A structural methodology is proposed to efficiently choose the mathematical structure
- to study immune-tumor interactions considering reaction pathways, available
- measurements along with immunological facts.
- The proposed methodology ends in a simple nonlinear compartment model which
    - outperforms other models with more complicated structures.