



Computational and Mathematical Methods in Medicine

Special Issue on

Computational Modeling and Analysis of Dynamic Processes in Viral Infections

CALL FOR PAPERS

Computational modeling of viral and immunological dynamic processes is an efficient and rigorous approach for generating novel scientific insights and understanding mechanisms of innate and adaptive immune responses, viral infections, and therapeutic or preventive interventions. Also, the recent development in statistical inference techniques for dynamic models has significantly strengthened the power of such models when interpreting real data. Nowadays, with the increasing availability of prior knowledge and time-course experimental observations deposited in, for example, a variety of databases and repositories, it becomes feasible and desirable to employ both complex dynamic models and data analysis techniques to understand the transient behavior and capture the essential temporal patterns of viral and immunological dynamic processes at the genetic, protein, metabolic, cellular, organ, and epidemic levels.

We therefore invite investigators to submit original research work and present the latest breakthroughs in modeling and analysis techniques as well as the resulting virological/immunological findings at different physical and/or time scales. For instance, the development and application of novel differential equation, stochastic process, and probabilistic modeling techniques for time-course experimental/clinic data analysis and interpretation are encouraged.

Potential topics include, but are not limited to:

- ▶ Multiscale modeling and data integration
- ▶ Modeling of immune responses to vaccination
- ▶ Viral and immune system dynamics in latent viral infection
- ▶ Signaling pathway modeling and prediction
- ▶ Metabolic network modeling and inference
- ▶ Drug treatment strategy and resistance in chronic infections
- ▶ Emerging mutations and pandemic

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