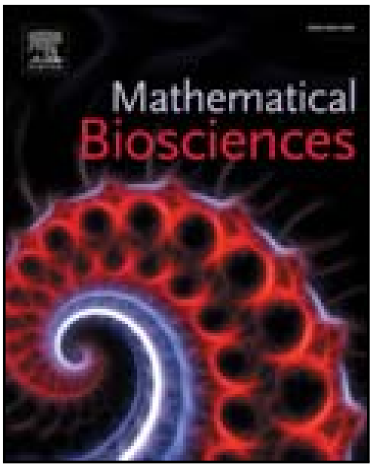

Random walks on binary strings applied to the somatic hypermutation of B-cells

Irene Balelli, Vuk Milišić, Gilles Wainrib

PII: S0025-5564(16)30238-3
DOI: 10.1016/j.mbs.2018.03.022
Reference: MBS 8055

To appear in: *Mathematical Biosciences*

Received date: 13 October 2016
Accepted date: 19 March 2018

Please cite this article as: Irene Balelli, Vuk Milišić, Gilles Wainrib, Random walks on binary strings applied to the somatic hypermutation of B-cells, *Mathematical Biosciences* (2018), doi: 10.1016/j.mbs.2018.03.022

Highlights

- A simplified mathematical model of somatic hypermutations is proposed
- The N-dimensional hypercube reflects the state-space of B-cell traits
- The prescription of a mutational rule defines the graph structure
- Typical time-scales of state-space exploration are investigated; theoretical estimates are provided
- Our framework enables the study of affinity-dependent mutations, currently debated