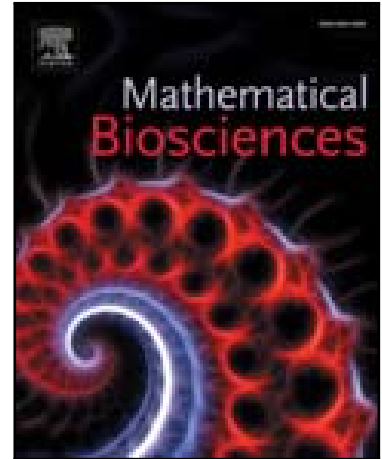


## Accepted Manuscript

Modeling the macrophage-anthrax spore interaction: implications for early host-pathogen interactions

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**Highlights**

- The work proposes that internalized spores inside macrophages proceed through two distinct bacterial stages after germination begins.
- The results estimate that there is an average delay of around 5 hours from the time spores begin germination to becoming fully mature bacteria capable of replicating.
- The proposed ideas provide possible insight as to why low dose spore exposures are not always fatal despite the extreme robustness of the spore form which cannot be killed by the macrophage and rapid replication rate of the vegetative bacterial form.
- The model results suggest that an experimental Multiplicity Of Infection (MOI) of 1:20 Macrophage to Spore ratio is closer to a true 1:1 ratio than that of the experimental 1:1 MOI; and further, that this might explain why the experimental results showed that macrophage-induced killing was greater in the experimental 1:20 MOI than 1:1, 1:2, and 1:10 MOIs.

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