

Abstract Submitted
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Do Porins Pass CAPs?¹ C.B. HANNA, Boise State University, D.A. PINK, St. Francis Xavier University, T.A. GILL, Dalhousie University, T.J. BEVERIDGE, University of Guelph, B.E. QUINN, J.J. DURRANT, Boise State University, M.H. JERICHO, Dalhousie University — The cationic antimicrobial peptide (CAP) protamine is known to inhibit bacterial survival (Pink et al., *Langmuir* **19**, 8852 (2003), and references therein), but the mechanism of attack is as yet undetermined. For Gram-negative bacteria, two pathways have been proposed: (a) self-promoted uptake, and (b) passage through porins. Here, we study the latter possibility, and model part of the outer membrane of a Gram-negative bacterium in an aqueous solution containing multivalent ions and CAPs. The intent is to determine whether CAPs could pass through porins and, if so, what aspects of external (e.g., ionic concentration) and internal (e.g., porin and O-sidechain characteristics) parameters affect their passage. This study is accomplished via Monte Carlo computer simulations of a “minimal model” of the outer membrane of a Gram-negative bacterium with an embedded porin.

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