Trends in Microbiology January 2014 Vol. 22 No.1, pp. 1–48 ISSN 0966-842X

Trends in Microbiology

Receptor-mediated host cell targeting by *Staphylococcus aureus* pore-forming cytotoxins

Cell PRESS

Trends in Microbiology

January 2014 Volume 22, Number 1 pp. 1–48

Editorial Enquiries
Trends in Microbiology
Cell Press
600 Technology Square
Cambridge, MA 02139, USA
Tel: +1 617 397 2848
Fax: +1 617 397 2810
E-mail: tim@cell.com

Cover: The *Staphylococcus aureus* pore-forming cytotoxins have been extensively studied for more than one hundred years; however, the mechanism by which these toxins target specific cell types and/or exhibit species specificity was largely unknown until recently. On pages 21–27, DuMont and Torres discuss the identification of several nonredundant, proteinaceous surface receptors utilized by the *S. aureus* cytotoxins to target and kill host cells. The cover shows an artistic interpretation of the battle between *S. aureus* and host polymorphonuclear cells (PMNs), specifically highlighting the use of cellular receptors for the targeted lysis of PMNs by staphylococcal cytotoxins. A PMN (in teal) on the left attempts to phagocytose and kill *S. aureus* (yellow spheres), while *S. aureus* combats the PMNs by secreting numerous cytotoxins (various colors) into the extracellular milieu. The toxin monomers come in contact with PMNs via specific cell surface receptors (various colors) and oligomerize to form pores in the PMN membrane as seen on the most forefront cell. The PMN in the top right corner is undergoing osmotic lysis due to extensive membrane damage caused by cytotoxin pores. Image courtesy Ashley DuMont.