

## Publication

## Immunity to intracellular Salmonella depends on surface-associated antigens

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 1435583**Author(s)** Barat, Somedutta; Willer, Yvonne; Rizos, Konstantin; Claudi, Beatrice; Mazé, Alain; Schemmer, Anne K.; Kirchhoff, Dennis; Schmidt, Alexander; Burton, Neil; Bumann, Dirk**Author(s) at UniBasel** [Bumann, Dirk](#) ; [Claudi, Beatrice](#) ; [Mazé, Alain](#) ; [Burton, Neil Alexander](#) ; [Schmidt, Alexander](#) ;**Year** 2012**Title** Immunity to intracellular Salmonella depends on surface-associated antigens**Journal** PLoS Pathogens**Volume** 8**Number** 10**Pages / Article-Number** e1002966

Invasive Salmonella infection is an important health problem that is worsening because of rising antimicrobial resistance and changing Salmonella serovar spectrum. Novel vaccines with broad serovar coverage are needed, but suitable protective antigens remain largely unknown. Here, we tested 37 broadly conserved Salmonella antigens in a mouse typhoid fever model, and identified antigen candidates that conferred partial protection against lethal disease. Antigen properties such as high in vivo abundance or immunodominance in convalescent individuals were not required for protectivity, but all promising antigen candidates were associated with the Salmonella surface. Surprisingly, this was not due to superior immunogenicity of surface antigens compared to internal antigens as had been suggested by previous studies and novel findings for CD4 T cell responses to model antigens. Confocal microscopy of infected tissues revealed that many live Salmonella resided alone in infected host macrophages with no damaged Salmonella releasing internal antigens in their vicinity. In the absence of accessible internal antigens, detection of these infected cells might require CD4 T cell recognition of Salmonella surface-associated antigens that could be processed and presented even from intact Salmonella. In conclusion, our findings might pave the way for development of an efficacious Salmonella vaccine with broad serovar coverage, and suggest a similar crucial role of surface antigens for immunity to both extracellular and intracellular pathogens.

**Publisher** Public Library of Science**ISSN/ISBN** 1553-7366 ; 1553-7374**edoc-URL** <http://edoc.unibas.ch/dok/A6043820>**Full Text on edoc** Available;**Digital Object Identifier DOI** 10.1371/journal.ppat.1002966**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/23093937>**ISI-Number** WOS:000310530300029**Document type (ISI)** Journal Article