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## Immune response to Ure A and Ure B of *Helicobacter acinonychis* and delivered on the surface of recombinant *Bacillus subtilis* spores

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The spore coat is the proteinaceous structure that surrounds the spore, a quiescent cellular type formed by some gram-positive bacilli in response to nutrient depletion or DNA damage. In *B. subtilis*, the best characterized spore-former bacteria, over 70 different proteins are synthesized during the process of spore formation (sporulation) and self-assemble around the forming spore to originate the three-layered structure of the coat. Coat proteins (CotB, CotC, CotG, CotZ and CgeA) have been so far utilized to display heterologous antigens or enzymes on the *Bacillus subtilis* spore surface. We decided to use the spore display system to expose the two subunits of the urease of *Helicobacter acinonychis*, an animal pathogen closely related to *Helicobacter pylori* and recognized as a useful *in vivo* model to study *H. pylori* virulence mechanisms. To obtain recombinant spores that efficiently express either UreA or UreB of *H. acinonychis*, we used CotC and CotZ coat proteins. The recombinant spores (CotC-UreB) were additionally harboring a construct enabling vegetative expression of UreB protein. Here we report that recombinant *Bacillus subtilis* spores presenting UreA or UreB proteins elicit immune response in orally immunized mice. In addition spores presenting UreB administered along with aluminium hydroxide induce shift of the immune response towards cellular immunity. Such formulation seems to be a promising vaccine candidate against *H. pylori* infections.

### Biography

Krzysztof Hinc obtained PhD in the Department of Molecular Biology, University of Gdańsk in November 2006. Since January 2008 to January 2010, he did Post-doctoral training in laboratory of Prof. Ezio Ricca at the University of Federico II, Naples (Italy) where he studied the usefulness of *Bacillus subtilis* spores as a new mucosal vaccine vehicle. Currently he is working as an Assistant Professor at the Laboratory of Molecular Bacteriology, Intercollegiate Faculty of Biotechnology Medical University of Gdańsk. He has published 17 papers in peer-reviewed scientific journals; six of them are concerned with the use of spores as antigen carriers.

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