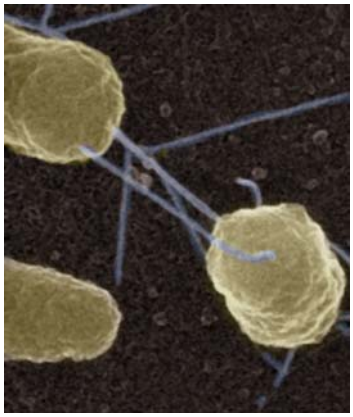
DUQUESNE UNIVERSITY

Office of Research
Available Technologies

Methods for Eliciting an Immune Response to Bacterial Infections



Dr. Peter Castric has developed a proprietary method for producing targeted vaccines against Gram-negative bacterial associated with a number of endemic, and hospital acquired infections or alternatively which may be introduced as biological warfare agents.

Vaccines can be produced against a broad variety of bacteria including: those often associated with nocosomial infections such as *Pseudomonas, Klebsiella, Serratia;* bacteria responsible for localized outbreaks such as *E. coli, Salmonella, or Shigella;* and those often suggested as potential bio warfare agents such as *Francisella* (tularemia) or *Burkholderia*.

The method involves the biological engineering of gram negative bacteria such as *Pseudomonas aeroginosa* to produce a highly antigenic glycosylated protein for use in immunization without the disadvantage of incorporating the toxic Lipo-polysaccharide (LPS). This method allows for vaccine preparation which does not require the cumbersome isolation, purification, and treatment involved with current methods. This process avoids the dangers of growing and handling the pathogenic organisms and the need for special containment facilities.

The vaccine is produced by a process by which the O-antigen repeating unit of virtually any Gram-negative bacterium can be biologically attached to the pilus of *Pseudomonas aeruginosa.* Antisera produced by immunization with these preparations can be used to achieve passive immunization of infected individuals and in rapid response to terrorist attacks. Antibodies can also be used in the form of test kits for rapid detection and typing of infections based on their LPS O-antigen. Immunity using vaccine produced by this method has been demonstrated in mice and rabbit tests.

Additional studies suggest that this method would be effective for producing highly active antigens from a broad variety of proteins including toxins (toxoids), and viral coat proteins. Importantly the method enables production of combination vaccines (and diagnostic antibodies) against either multiple bacterial epitopes or proteins.

These novel patent pending methods are available for license from the Office of Research at Duquesne University.

Additional information regarding the methods, test data, or license terms can be obtained by contacting:

The Office of Research
Duquesne University
Telephone: (412) 396-6326
Email: volk@duq.edu