PSEUDOMONAS AERUGINOSA VACCINE

Tech ID: 19131 / UC Case 1999-038-0

BRIEF DESCRIPTON

Pseudomonas aeruginosais an opportunistic bacterial pathogen responsible for 10% of all nosocomial (hospital-acquired) infections, a leading cause of nosocomial pneumonia in general patient populations, and the leading cause in intensive care patient populations. Since Pseudomonas is often resistant to antibiotics, an infection is life-threatening for compromised individuals such as burn victims, AIDS patients, and patients with cystic fibrosis. Respiratory failure, the leading cause of cystic fibrosis-associated death, results from chronic Pseudomonas infections that lead to lung damage as bacterial toxins attack lung epithelia. This damage then allows the infection to spread beyond the lungs. A secretion/intoxication system present on the bacterial surface transports toxins directly into epithelial cells, and a well-documented inhibition of this system through blockade of the bacterial toxin transport component PcrV provides demonstrable protection against lung injury and increased survival in animal models. Researchers at the University of California, San Francisco have shown that the PcrV protein is a highly effective vaccination agent against Pseudomonas, whether administered before or after infection.

FULL DESCRIPTON

Researchers at the University of California, San Francisco have shown that the PcrV protein is a highly effective vaccination agent against Pseudomonas, whether administered before or after infection. An intraperitoneal Pseudomonas challenge of mice followed by intraperitoneal vaccination with PcrV leads to a 70% survival rate (compared to 30% survival for adjuvant alone). Likewise, an intraperitoneal vaccination of mice prior to a lethal, intratracheal challenge provides 80% survivability compared to 0% survival for the adjuvant control group. In both instances, the vaccine used was a combination of PcrV protein and a common, FDA approved adjuvant. Moreover, researchers have optimized the vaccine components, including characterization of antigenic regions and testing of multiple adjuvants, for effectiveness in the animal disease model. As a result, the anti- Pseudomonas PcrV vaccine approach provides infection protection that matches or exceeds other systems in development.

FEATURES/BENEFITS

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
  - Vaccines

RELATED CASES

1999-038-0

- Targets bacterial toxin secretion system responsible for lung damage
- Vaccine protein optimized and multiple adjuvants tested for protection
- 80% survival after lethal intratracheal P. aeruginosa challenge in mouse model

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	6,827,935	12/07/2004	1999-038

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