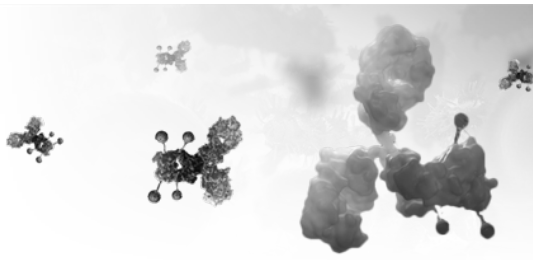

B. anthracis PA blocking peptide (CDBP5067)

This product is for research use only and is not intended for diagnostic use.

PRODUCT INFORMATION

Conjugate	Unconjugated
Applications	Used as a blocking peptide in immunoblotting applications.
Format	Liquid
Concentration	200 μg/mL
Size	0.05 mg
Preservative	None
Storage	-20°C

BACKGROUND

Introduction

Splenic fever or Anthrax is an infectious disease primarily affecting animals, particularly ungulates (such as pigs, cattle, sheep, goats and horses) in warmer climes. Close contact with infected animals or exposure to infected animal products such as fleeces, skin, meat or milk may result in the transmission of the pathogen – Bacillus anthracis - to humans. The incubation period for such zoonoses ranges from a few hours up to several days. Anthrax disease has become rare in industrial countries, however regions of South America, Africa and South East Asia where the disease is endemic still suffer from regular outbreaks. In the past few years, anthrax has been of increasing public interest due to its potential use in bioweaponry.
The splenic fever pathogen, Bacillus anthracis, is a gram positive, aerobic bacillus. Lack of nutrition, increased temperatures or other adverse environmental conditions result in the formation of very stable spores, which can maintain their potential for infection for several years. Infection requires the inhalation of a relatively high number of spores into the lungs (8.000 to 50.000).
Once inside the body, the bacteria are able to elude important defense mechanisms of the immune system by means of a special protein capsid. A cocktail of toxins is produced which

45-1 Ramsey Road, Shirley, NY 11967, USA
Email: info@creative-diagnostics.com
Tel: 1-631-624-4882 Fax: 1-631-938-8221

consists of protective antigen (PA), lethal (LF) and edema factor (EF). These endotoxins are released into the vicinity of the bacteria and, in particular, damage small blood vessels so that they become permeable to erythrocytes resulting in inflammation and hemorrhage in form of hemorrhagic edema.

Symptoms of the disease vary depending upon the portal of entry of the organism into the body. The most common manifestation follows infection via minor skin lesions. Following a short incubation period small red knots with a black centre develop at the site of infection which subsequently develop into pus-filled blisters. As the disease progresses more blisters form and coalesce into the so-called anthrax carbuncle (Pustula maligna).

Splenic fever of the lungs is far less common in humans and results from the inhalation of spores. The disease develops like severe pneumonia with highly infectious bloody sputum being produced. Patients suffer from high fever, ague, cough and dyspnea. This form of anthrax infection is usually fatal if left untreated.

A third form is splenic fever of the intestines, caused by consumption of contaminated produce from farm animals, e.g. raw meat or tainted milk. Severe hemorrhagic inflammation of the intestines resulting in bloody vomit and stools ensue. This form of the disease is also lethal if not treated.

All three types of splenic fever may lead to sepsis, which rapidly causes death in most cases. The diagnosis of splenic fever is primarily made using the clinical findings and anamnesis. Pathogen detection e.g. examination of bodily fluids or taking swabs assist in confirming the diagnosis. Treatment with antibiotics as soon as possible is of paramount importance to the clinical outcome.

The most effective form of prophylaxis is to avoid contact with possible sources of the bacterium, such as infected animals and their products. Immunization of certain risk groups, such as soldiers, is possible with a PA (extracted from culture filtrate) containing vaccine.

Keywords anthrax PA; Anthrax Protective Antigen; PA 83; PagA

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Tel: 1-631-624-4882 Fax: 1-631-938-8221