Instytut Biochemii i Biofizyki
Polska Akademia Nauk
zaprasza na wykład

Outer surface proteins of the Lyme borreliosis agent *Borrelia burgdorferi*:

Functions and regulation of expression

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My research focuses on understanding the physiology of two pathogenic spirochetes, and the bacteria-host interactions which occur during infections.

Lyme disease is caused by the spirochetal bacterium *Borrelia burgdorferi*. Spread by the bites of certain tick species, it is the most common arthropod-borne disease of humans in the United States and many other temperate regions of the world. The reported incidence of Lyme disease in the U.S. is steadily climbing, due in part to the expanding habitat of the bacteria's vectors and reservoir hosts *B. burgdorferi* has evolved mechanisms by which it can infect both mammalian and arthropod hosts, and be efficiently transmitted between these two very different types of animals. To do so, *B. burgdorferi* senses its environment and responds accordingly by producing proteins appropriate for each step in the infectious cycle. We are investigating regulatory mechanisms by which *B. burgdorferi* controls synthesis of infection-associated proteins. Studies also focus of the functions of those bacterial proteins, including their interactions with host plasmin, extracellular matrix components and constituents of the innate immune system.

The spirochete *Leptospira interrogans* causes leptospirosis, an important water-borne disease of humans and domestic animals throughout much of the world. This under-studied disease is endemic to many tropical and sub-tropical countries, and is being increasingly identified in temperate regions such as the United States. Our studies are focusing on elucidating mechanisms underlying *L. interrogans* infection, including evasion of host immune responses, interactions between bacteria and host cells, control of leptospiral virulence factors, and cross-reactive triggers of autoimmune complications.

Future research plans primarily center on continuation of the above-described topics. In addition, a novel *B. burgdorferi* DNA-binding protein that we discovered, named EbfC, is also produced by a wide variety of other bacterial species. We demonstrated that the *Haemophilus influenzae* and *Escherichia coli* EbfC orthologs are also DNA-binding proteins, and will continue to investigate the function of this protein in those and other bacteria.

Wykład odbędzie się w dniu **31 sierpnia 2009** o godzinie **11:00**
w gmachu IBB PAN przy ul. Pawińskiego 5a w Warszawie
WSTĘP WOLNY