11d. 1993

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"Blebs"

EXTRACELLULAR COMPONENTS OF *BORRELIA BURGDORFERI*-POSSIBLE ROLE IN THE PATHOGENESIS OF LYME DISEASE

B.S Louisiana State University, 1964; MS Louisiana State University, Microbiology/Biochemistry, 1966; PhD Georgetown University, Microbiology/Biochemistry, 1970. Dr. Garon has received the NIH Award of Merit and the NIH Director's Award, serves as Chairman of the Board of Directors - Center of Excellence in Biotechnology - Montana Science and Technology Alliance. He is a faculty affiliate in the Division of Biological Sciences - University of Montana, a member of the Advisory Committee - University of Montana Electron Microscopy Facility. Dr. Garon serves as Chairman, Montana Governor's focus Group in Biotechnology and as a member of the Editorial Board of the Journal of Clinical Microbiology. His major research interest: To exploit the potential of rocombinant DNA technology for the detection and amplification of DNA sequences that are important in microbial pathogenesis.

Borrelia burgdorferi, the causative agent of Lyme disease, appears during periods of growth to shed membranous materials from its surface. Using an antigen capture/detection method developed in the laboratory, this material could be demonstrated on the surface of spirochetes, free in culture medium and in infected animals and ticks. Similar results were obtained using various tissues and fluids from human patients with Lyme disease. Although the captured antigens were initially assayed by immune electron microscopy, other methods have been used recently to characterize the nature these bioproducts and to assess their possible role in the pathogenesis of Lyme disease. Researchers in the laboratory have been able to demonstrate that extracellular components of *B. burgdorferi*: 1) appear to be present wherever active growth of the organism is taking place and therefore, may be useful as a diagnostic indicator of active infection and/or treatment effectiveness; 2) are involved in the packaging and protection of intact DNA molecules containing a few known and many unknown genes and gene products; 3) appear to specifically interact with immunoglobulin M molecules in a unique fashion, perhaps to escape immune surveillance; and 4) possesses potent, non-specific mitogenic activity which may cause an inappropriate and non effective stimulation of the immune system triggering autoimmune disease components. The Laboratory of Vectors and Pathogens continues to apply a multidisciplinary approach to these and other problems with the aim of providing a rational solution to the improved prevention, treatment and diagnosis of Lyme disease.