OMICS Group Conferences
Accelerating Scientific Discovery

International Conference & Exhibition on
Vaccines & Vaccination

22-24 Nov 2011 Philadelphia Airport Marriott, USA

Granulysin is a cytotoxic and proinflammatory effector molecule

Veronica E. Calderon[1], Ediane Silva[1], Lorena Santos[1], W. Ray Waters[2], Mitchell V Palmer[2], Tyler C. Thacker[2], William R. Jacobs Jr.[3], Michelle H. Larsen[3], Catherine Vilcheze[3], and D. Mark Estes[4]

[1]DepartmentofPathology,UniversityofTexasMedicalBranch,Galveston, USA
[2]National Animal Disease Center, Agricultural Research Services, U.S. Department of Agriculture, USA
[3]Howard Hughes Medical Institute & Department of Microbiology & Immunology, Albert Einstein College of Medicine, USA, Department of Infectious Diseases, University of Georgia College of Veterinary Medicine

Granulysin is a cytotoxic and proinflammatory effector molecule found in cytolytic granules of T lymphocytes and NK cells. It is expressed by CD4, CD8, and γδ T cells and NK cells, peripherally and in granulomatous tissues. Broadly antimicrobial, granulysin can lyse tuberculosis bacteria extracellularly, and intracellularly following infiltration of the cellular membrane. Interferon gamma (IFN-γ) is a pleotropic cytokine involved in an innate and adaptive immune response. The primary producers of IFN-γ are T, NK, and NKT cells. IFN-γ is essential for a Th1 immune response and regulates T cell differentiation, activation, expansion, homeostasis, and survival. Its effects on host defense and immune regulation include antimicrobial activity; more importantly, IFN-γ is involved in the killing of intracellular pathogens, such as M. tb. Nicotinamide adenine dinucleotide (NAD+) is an essential compound in hundreds of biological reactions. Mycobacteria can synthesize NAD+ via the de novo pathway, which involves the nadA, nadB, and nadC enzymes, or the salvage pathway, which involves the pncA and pncB enzymes. The strains used in this study include M. bovisRavenel (M. bovisΔRD1), M. bovisRavenelΔnadABC, and M. bovisRavenelΔnadABC pMV261::pncA. M. bovisΔnadABCis deficient in the NAD+de novo and salvage pathway, since it also contains a mutation in the pncA gene. While M. bovisRavenelΔnadABC pMV261::pncA contains the M. tbpncAgene cloned into the replicated plasmid pMV261

Biography

Dr. Mark Estes is currently the senior scientist at Dept of Pathology University of Texas Medical Branch. He is his Post doctoral studies at University of Texas in 1992. He served as director at vaccine development at Galveston National Laboratory in 2011. He also served as director for *program in immunology* at Institute of Human Infections and Immunity.