

Outer membrane vesicle of bacteria: Friend or foe?

Seyed Davar Siadat
Pasteur Institute of Iran, Iran

Outer membrane vesicles (OMVs) are released from the many Gram negative bacteria such as *Neisseria meningitidis*, *Vibrio cholera*, *Bordetella pertusis*, *Acinetobacter baumannii*, *Brucella spp.*, etc. The OMV components consist of a phospholipid bilayer, outer membrane proteins, periplasmic constituents and lipopolysaccharide. This macromolecule has multifunctional activity as described by many researchers previously.

The benefit of the bacterium: It has been proposed that OMV involved in several activities exhibited by bacteria such as pathogenesis and useful interaction in colonization and biofilm production as well as transformation of drug resistance in chronic and acute infections. Likewise, OMVs are mechanisms that bacteria can secrete many virulence factors such as toxins, enzymes and periplasmic & membrane compartments.

The benefit of the host: Among many scientific reporters, OMV of *Neisseria spp.* have well known that could be applied as carriers of polysaccharide in conjugated vaccine, adjuvants activity in combined vaccines, drugs delivery in biological systems and also employed as vaccine subunit against *N. meningitidis* serogroup B. According to these properties of OMV, the adjuvants' capacity of OMVs has been well mentioned as well as other aspects of functional activity of OMV. Thus OMV are likely employed as a benefit macromolecule with microbial origin in vaccine research and development studies. This lecture describes the general principles of OMV behavior, summarizes what is currently known and discusses the multifunctional activities of OMV.

Biography

Seyed Davar Siadat is Associate Professor of Medical Microbiology at Pasteur Institute of Iran. He has an extensive research portfolio in bacterial vaccines; especially in "Outer Membrane Vesicle" based vaccines, Subunit vaccines, Conjugate vaccines, etc. He has published more than 70 papers in scientific journals (national & international) and serving as editorial board member/reviewer of several scientific journals from the field of Medical Microbiology and Infectious Diseases. He has mentored and supervised many students for their thesis or summer scholarship program. He has guided 20 PhDs and more than 30 MSc students.

d.siadat@gmail.com