

Composition and Clinical Significance of Exosomes in Tuberculosis: A Systematic Literature Review

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Abstract

The detection of Mtbexo molecules in biological fluids Tuberculosis (TB) remains a major health issue worldwide. In order to contain TB infections, improved vaccines as well as accurate and reliable diagnostic tools are desirable. Exosomes are employed for the diagnosis of various diseases. At present, research on exosomes in TB is still at the preliminary stage. Recent studies have described isolation and characterization of Mycobacterium tuberculosis (Mtb) derived exosomes in vivo and in vitro. Mtb-derived exosomes (Mtbexo) may be critical for TB pathogenesis by delivering mycobacterial-derived components to the recipient cells. Proteomic and transcriptomic analysis of Mtbexo have revealed a variety of proteins and miRNA, which are utilized by the TB bacteria for pathogenesis. Exosomes has been isolated in body fluids, are amenable for fast detection, and could contribute as diagnostic or prognostic biomarker to disease control. Extraction of exosomes from biological fluids is essential for the exosome research and requires careful standardization for TB. In this review, we summarized the different studies on Mtbexo molecules, including protein and miRNA and the method used to detect exosomes in biological fluids and cell culture supernatants may have a potential to expedite the diagnosis of TB infection. Moreover, the analysis of Mtbexo may generate new aspects in vaccine development.



Biography

Fantahun Biadlegne Academic Rank: Associate Professor (PhD) School: School of Health Science Department/Team: Medical Laboratory Science Field of Specialization: Medical Microbiology and Epidemiology of Infectious Disease, specialty Tuberculosis Research Interest: Tuberculosis

Publications

- Prevalence of Salmonella typhi and intestinal parasites among food handlers in Bahir Dar town, North West Ethiopia
- Frequent detection of 'azole' resistant Candida species among late presenting AIDS patients in northwest Ethiopia
- Seroprevalence of hepatitis B and C viruses among medical waste handlers at Gondar town Health institutions, Northwest Ethiopia
- Antimicrobial resistance of bacterial isolates from urinary tract infections at Felge Hiwot Referral Hospital, Ethiopia
- Review of the prevalence and drug resistance of tuberculosis in prisons: a hidden epidemic

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