

Abstract

Mesenchymal stem cells (MSCs) were first isolated from bone marrow. Since that they were isolated from almost every tissue in the body. MSCs are multipotent cells with many properties including self-renewal, differentiation into the cells of all three germ lines, trophic and immunomodulatory abilities, specific migration to the site of injury and recently discovered antimicrobial properties. These properties make them a good candidate for cell therapy because they can be used in treatment of many diseases including bacterial infections. This thesis brings a summary of all discovered antimicrobial properties of MSCs. It is primarily focused on their direct and indirect antimicrobial effect. The direct effect is mediated by a secretion of antimicrobial substances and the indirect effect includes an impact on the activity and functions of macrophages and neutrophils. Extracellular vesicles derived from MSCs constitute separate chapter because they can have both direct and indirect antimicrobial effect.

Keywords: mesenchymal stem cells, antibacterial effect, bacteria, antimicrobial peptides