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Tumor derived exosomes in cancer progression and treatment failure

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Exosomes have diameter within the range of 30-100 nm and spherical to cup-shaped nanoparticles with specific surface molecular characteristics such as CD9 and CD63. These vesicles are present in nearly all human body fluids, including blood plasma/serum, saliva, breast milk, cerebrospinal fluid, urine, semen, and particularly enriched in tumor microenvironment. Exosomes contain multiple proteins, DNA, mRNA, miRNA, long non-coding RNA and even genetic materials of viruses/prions. These materials are biochemically and functionally distinct and can be transferred to a recipient cell where they regulate protein expression and signaling pathways. Recently, exosomes are demonstrated to have a close relationship with tumor development and metastasis. Exosomes influence therapeutic effect in cancer patients. In this lecture, we describe the biogenesis, composition, and function of exosomes. The mechanism on how tumor-derived exosomes contribute to cancer progression and clinical treatment failure is also described with special focus on their potential applications in cancer therapy.

Biography

Shaorong Yu is a Professor in Department of Clinical Laboratory in Nanjing Medical University Cancer Hospital & Jiangsu Cancer Hospital. His research works focus on the bio-analytical chemistry in laboratory medical diagnostics. He has published more than 42 papers in reputed journals.

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