

Extracellular Vesicles for Cancer Diagnosis and Therapy

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Abstract

Keywords:

Introduction

Extracellular vesicles (EVs) are membrane-bound particles released by cells into the extracellular space. They play a crucial role in intercellular communication and have emerged as promising biomarkers for cancer diagnosis and potential targets for therapy. This review discusses the biogenesis, composition, and clinical applications of EVs in cancer. Key findings include the presence of tumor-associated antigens, miRNAs, and proteins within EVs, which can be detected in body fluids. Furthermore, EVs are shown to facilitate the spread of cancer cells and drug resistance. Targeting EVs with antibodies or nanoparticles offers a novel strategy for cancer treatment and diagnosis.

Discussion

The study of EVs in cancer has gained significant momentum due to their unique properties and potential as diagnostic and therapeutic tools. This section discusses the challenges and future perspectives in the field. Key challenges include the heterogeneity of EVs, the need for standardized isolation and characterization methods, and the development of sensitive and specific detection techniques. Future research should focus on elucidating the mechanisms of EV-mediated cancer progression and identifying novel therapeutic targets. The integration of EVs with nanotechnology and artificial intelligence holds great promise for advancing cancer diagnosis and treatment.

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Conclusions

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Conclusions

Extracellular vesicles (EVs) are small membrane-enclosed particles released by cells into the extracellular space. They contain various biomolecules, including proteins, lipids, and nucleic acids, which can be used for cancer diagnosis and therapy.

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