Harnessing inhibitory RNA based- nanoparticles for therapeutic intervention in blood cancers (Ramot)

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THE NEED

The current treatment of multiple myeloma (MM) included standard chemotherapy and small molecules such as the proteasome inhibitor and the immunomodulatory drugs. Although these drugs have improved the response and survival of MM patients, MM is still an incurable disease. Drug resistance and disease refractoriness are the common terminal pathways leading to patients' mortality. Therefore, the development of novel effective treatments is needed.

TECHNOLOGY

Our approach allows the delivery of combination of siRNAs molecules that could silence simultaneously several genes specifically in MM cells and eradicate MM cells in vivo. Currently, no other nanomedicine approaches are available for treatment of B-cell malignancies.
We develop highly selective lipid-based nanoparticles, entrapping specific combination of siRNAs that will induce therapeutic gene silencing and eradicate multiple myeloma cells as a prototypic blood cancer

ADVANTAGES

Today's leading treatment modality calls for combination of different drugs to effectively control and treat malignancies. This technology as a novel drug may be used as a standalone therapy, or as a combination therapy with other drugs for treating cancer:
• Targeting simultaneously several targets.
• May be used as a standalone therapy.

APPLICATIONS

1. A collection of targeted lipid nanoparticles (LNPs) appropriate for treatment of subclasses of multiple myeloma (MM) patients (personalized medicine for MM patients).
2. Therapeutic targeted lipid nanoparticles for patients with others CD38-positive mature B cell neoplasms such as; Chronic lymphocytic leukaemia (CLL), Mantle cell lymphoma (MCL), Follicular lymphoma (FL) and Hairy cell leukemia (HCL).

PATENTS

Provisional patent application has been filed

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