MRNA-based Tumor-specific Neoantigen Boosting Vaccine GRT-R902

National Cancer Institute

Source

National Cancer Institute. mRNA-based Tumor-specific Neoantigen Boosting Vaccine GRT-R902. NCI Thesaurus. Code C156926.

An mRNA-based, personalized cancer vaccine consisting of a self-amplifying mRNA (SAM), formulated in a lipid nanoparticle (LNP), targeting twenty tumor-specific neoantigens (TSNAs) that have been identified through genetic sequencing of a patient's tumor cells, with potential immunostimulatory and antineoplastic activities. Upon intramuscular administration of the mRNA-based tumor-specific neoantigen boosting vaccine GRT-R902, the mRNA is taken up and translated by antigen presenting cells (APCs). Then, the expressed epitopes are presented via major histocompatibility complex (MHC) molecules on the surface of APCs. This leads to an induction of both cytotoxic T-lymphocyte and memory T-cell dependent immune responses that specifically target and destroy the patient's cancer cells that express these neoantigens. mRNA-based TSNA boosting vaccine is administered after a single dose of the adenoviral tumor-specific neoantigen priming vaccine GRT-C901. The combined immunotherapy product, consisting of priming and boosting vaccines, is referred to as GRANITE-001.