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(54) Title: PAN-RAS mRNA CANCER VACCINES

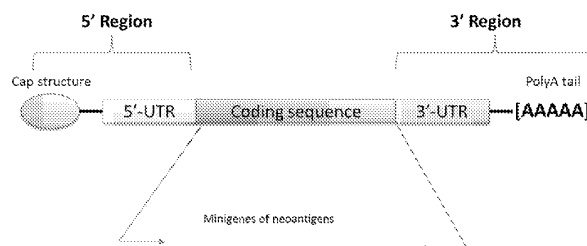


FIG. 5

(57) Abstract: Compositions and methods are provided for potent mRNA vaccines for treatment of cancers with a mutation in the ras gene family. The compositions include a pharmaceutical composition comprising, or consisting essentially of, or yet further comprising mRNA molecules encoding at least one of multiple peptides of a group of somatic mutants and a pharmaceutically acceptable carrier. Methods for stimulating system immune responses and treatment are provided, including intratumoral, intravenous, intramuscular, intradermal, or subcutaneous injection of the composition as disclosed herein.

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