Lipid Encapsulated Anti-PLK1 siRNA TKM-PLK1

National Cancer Institute

Source

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short interfering RNAs (siRNAs) directed against polo-like kinase 1 (PLK1, STPK13), with potential antineoplastic activity. Upon administration of lipid-encapsulated anti-PLK1 siRNA TKM-PLK1, siRNA binds to PLK1 mRNA, which results in the inhibition of both the translation and expression of the PLK1 protein. Blockage of PLK1 expression prevents proper tumor cell mitosis, causes cell cycle arrest and tumor cell apoptosis. This inhibits the proliferation of PLK1-overexpressing tumor cells. PLK1, named after the polo gene of Drosophila melanogaster, is a serine/threonine kinase crucial in the regulation of mitosis; its expression is upregulated in a variety of tumor cell types and plays a key role in tumor cell proliferation. The pegylated lipid bilayer of SNALP provides stability and protects siRNA degradation; it facilitates uptake into the cell and release from endosomes.