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siG12D-LODER for pancreatic cancer

Aditi Pandey

Pancreatic cancer is a terrible condition with a high fatality rate. Currently, available treatments like chemotherapy and radiation therapy are ineffective and can have serious adverse effects. The use of short interfering RNA (siRNA) to precisely target cancer cells has led to the development of a novel strategy for the treatment of pancreatic cancer. Clinical studies for pancreatic cancer have produced encouraging results with a particular siRNA type termed siG12D-LODER (local drug eluteR). This siRNA is a tiny, biodegradable polymeric matrix designed to target the KRAS (Kirsten rat sarcoma virus) gene. The KRAS gene is commonly mutated in pancreatic cancer cells, particularly in the KRAS G12D form, which is vital for tumour growth. This siRNA aims to specifically block that mutation in the KRAS gene. The therapeutic importance of siG12D-LODER is found in its capacity to selectively target cancer cells while causing no harm to healthy cells whereas other methods such as chemotherapy and radiation therapy produce harmful effects on healthy tissues. The use of siG12D-LODER is not just restricted to pancreatic cancer. Potential prospects for siRNA-based treatments include tumours with other KRAS mutations. Moreover, siRNA may be used to treat various illnesses including viral infections and genetic problems. siRNA-based therapeutics have a lot of potential along with their obstacles that must be solved. The effective and focused delivery of the siRNA to the cancer cells is a significant difficulty. To address this issue, researchers are investigating several delivery strategies, including nanoparticles. siG12D- LODER's phase I clinical study produced encouraging outcomes which demonstrated its safety and tolerability. Currently, phase II studies are being conducted to study the response rate of patients with locally advanced pancreatic cancer together with chemotherapy treatment. Thus, siG12D-LODER shows promise as a selective and effective treatment option. It offers hope for improved therapies in pancreatic cancer and potentially other diseases with similar genetic targets.

Keywords: siRNA, Pancreatic cancer, Gene therapy, Targeted therapy, KRAS gene, Gene mutation

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