

Natsar Pharmaceuticals' RK-33 Shows Effectiveness as a Monotherapy and Boosts Chemotherapy in Non-clinical Pancreatic Ductal Adenocarcinoma Models

February X, 2026 – Ellicott City, MD – Natsar Pharmaceuticals, Inc., a late pre-clinical stage company developing targeted oncology therapeutic RK-33, today announced a new publication in *Cancer Letters* titled “Targeting the DDX3/PAF1 Axis Enhances Chemotherapy Efficacy in Pancreatic Ductal Adenocarcinoma.”

The study examined the therapeutic effectiveness of RK-33, a small-molecule inhibitor targeting DDX3, both alone and in combination with 5-fluorouracil (5-FU) and found that RK-33 is effective as monotherapy and in combination with 5-FU in KRAS-driven PDAC. This non-clinical research demonstrates:

- The DDX3/PAF1 complex is overexpressed and associated with poor prognosis in pancreatic cancer.
- Targeting DDX3/PAF1 suppresses oncogenic potential in PDAC cells.
- RK-33 enhanced the antitumor effects of chemotherapy in pancreatic cancer cells.
- RK-33 reduced tumor growth and proliferation, while increasing apoptosis in orthotopic and PDAC organoid models.

“We are excited by the potential for RK-33 to enhance standard of care options in the treatment of advanced pancreatic cancer,” said Venu Raman, PhD, Co-Founder of Natsar Pharmaceuticals.

Natsar has licensed all IP for RK-33 and is planning a clinical phase 1 program in solid tumors beginning in 2026.

About RK-33

RK-33 is a first-in-class inhibitor of DDX3, an RNA helicase that plays a key role in tumor cell survival and proliferation. DDX3 is overexpressed in many aggressive cancers, where it supports essential processes such as DNA repair, signaling, motility, and energy regulation. By inhibiting DDX3, RK-33 disrupts multiple oncogenic pathways simultaneously, leading to selective tumor cell death while sparing normal cells.

In preclinical studies, RK-33 has demonstrated broad anti-tumor activity across multiple models, including sarcoma, brain tumors, pancreatic cancer, lung cancer, and breast cancer bone metastasis. Importantly, RK-33 also acts as a potent radiosensitizer, enhancing the effectiveness of radiation therapy and creating opportunities for use in combination with standard-of-care regimens.

About Natsar Pharmaceuticals, Inc.

Natsar Pharmaceuticals is a privately held U.S.-based pharmaceutical company dedicated to developing innovative therapies for cancer and other serious diseases. The company's lead program, RK-33, is a novel small molecule that targets DDX3, an RNA helicase implicated in multiple aggressive and metastatic cancers. With strong preclinical evidence of efficacy and a differentiated mechanism of action, RK-33 is now being advanced by Natsar into Phase 1 clinical trials.