

Natsar Pharmaceuticals Announces IND Submission and Authorization to Proceed with Phase 1 Clinical Investigation of NSF-1

- *Phase 1 program focuses on solid tumors and is planned to begin soon*
- *With IND clearance, Natsar progresses to a clinical stage pharma company*

September 10, 2026 – Natsar Pharmaceuticals, Inc., a U.S.-based pharmaceutical company focused on advancing targeted therapies for aggressive cancers, today announced that its Investigational New Drug (“IND”) application for NSF-1 (RK-33 I.V. formulation), a targeted small molecule DDX3 inhibitor is in effect, advancing its planned Phase 1 investigation. The IND supports initiation of a Phase 1 dose-escalation and expansion clinical trial of NSF-1 in patients with solid tumors.

“IND clearance represents a significant milestone for Natsar, and we look forward to taking this first-in-class innovation forward into clinical trials” said Natsar Co-founder Dr. Venu Raman.

DDX3 is an RNA helicase that plays a crucial role in tumor cell survival and growth. DDX3 is often overexpressed in many aggressive cancers, where it supports vital processes like DNA repair, signaling, motility, and energy regulation. In preclinical studies, RK-33 was observed to inhibit DDX3 and modulate multiple cancer-promoting pathways, with associated tumor cell death in evaluated models.

In preclinical studies, RK-33 showed anti-tumor activity across multiple models, including sarcoma, brain tumors, pancreatic cancer, lung cancer, and breast cancer bone metastasis. In preclinical studies, RK-33 exhibited radiosensitizing activity in evaluated models, providing the scientific rationale for investigating RK-33 in combination with radiation therapy in the planned clinical development program.

The Phase 1 program will involve an initial dose escalation study in solid tumors followed by an expansion arm in sarcomas. If Phase 1 is successful, Natsar envisions RK-33 could be studied in additional tumor types both as a single agent and in combination with radiation.

About RK-33

RK-33 is a first-in-class small molecule 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. NSF-1 is an intravenous formulation of RK-33 designed for administration in a clinical setting that easily integrates into treatment plans for aggressive cancers, which are typically managed in a hospital or infusion center setting.

RK-33 is investigational and has not been approved by FDA.



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, NSF-1 (RK-33 I.V. formulation), is a novel small molecule that targets DDX3, an RNA helicase implicated in multiple aggressive and metastatic cancers. Supported by preclinical findings and a differentiated mechanism of action, NSF-1 is advancing into Phase 1 clinical development.