NapaJen Pharma Announces First Patient Dosed in Phase 1 First-in-Human Clinical Trial of Novel RNA Interference (RNAi) Therapeutic

NJA-730 is an Anti-CD-40 Small Interfering RNA (siRNA) Combined with Beta-Glucan Delivery Vehicle with Potential to Treat Acute Graft-versus-Host Disease

Program Leverages NapaJen's Immune Cell-Targeted Delivery Technology Allowing Oligonucleotides to Effectively and Selectively Reach Dendritic Cells and Macrophages

SAN FRANCISCO, CA AND TOKYO, JAPAN – November 15, 2018 – NapaJen Pharma Co., Ltd., a biotherapeutics company leveraging its proprietary immune cell-targeted oligonucleotide delivery technology to develop novel immunotherapeutic agents, today announced dosing of the first patient in a Phase 1 first-in-human clinical trial of NJA-730 in healthy volunteers. NJA-730 is a novel immunosuppressive therapeutic that combines an anti-CD-40 small interfering RNA (siRNA) with the company's beta-glucan delivery technology. The compound is designed to be delivered selectively to dendritic cells and macrophages, allowing for the desired immunosuppressive activity in the target cells without off-target, systemic side effects. NapaJen is initially developing NJA-730 as a potential treatment for graft-versus-host disease (GVHD), though the company believes there are numerous immunoreactive conditions against which the compound may hold therapeutic promise.

The Phase 1 trial, which is being conducted in Australia, is a randomized, double-blind, placebo-controlled, single ascending dose (SAD) and multiple ascending dose (MAD) study investigating the safety, tolerability, and pharmacokinetics of NJA-730 in approximately 80 healthy adult male volunteers. The primary objective of the study is to evaluate the safety and tolerability of single and multiple ascending doses of NJA-730 administered intravenously. Key secondary objectives will include an assessment of the pharmacokinetic profile of the compound. Investigators will also evaluate the impact of NJA-730 on CD-40 gene suppression.

"The initiation of this first-in-human clinical trial of NJA-730 represents a key milestone for NapaJen as it provides the first opportunity to evaluate the activity of not just the compound but also our novel, immune cell-targeted oligonucleotide delivery technology in humans. Data from our preclinical studies of NJA-730, which demonstrated both the CD-40 suppressive mechanism of the compound, as well as its promising safety and tolerability, support our belief that this drug may have the profile to offer a new treatment option for a range of inflammatory immunoreactive conditions," said Hironori Ando, co-founder, president and chief executive officer of NapaJen. "Importantly, this trial will offer key information on the ability of our technology to effectively and safely deliver an oligonucleotide to targeted dendritic cells and macrophages without unwanted systemic exposure. We look forward to efficiently completing the study and expect preliminary results will be available during the first half of 2019."

Preclinical studies in non-human primates demonstrated NJA-730 to be safe and well-tolerated at doses 100 times greater than the expected therapeutic dose in humans. Furthermore, NJA-730 was

confirmed to cleave the CD40 messenger RNA (mRNA) in peripheral blood mononuclear cells following intravenous administration in monkeys, providing evidence of the compound's *in vivo* activity.

About NapaJen Novel Immune Cell-Targeted Delivery Technology

NapaJen's proprietary drug delivery platform is designed to overcome delivery limitations that continue to present challenges for the development of oligonucleotide-based therapeutics. The primary challenge in this area is the lack of delivery technologies of oligonucleotides. Due to the high instability, low bioavailability, and poor cellular uptake associated with oligonucleotides, efficient and selective delivery technologies are critical for the development of effective and safe oligonucleotide-based therapeutics. NapaJen's novel, proprietary delivery vehicle is built upon schizophyllan, a beta-glucan that specifically binds to Dectin-1, a cell surface receptor expressed on antigen presenting immune cells, namely dendritic cells and macrophages. By complexing oligonucleotides with schizophyllan, NapaJen's delivery platform uniquely enables the efficient and selective delivery of oligonucleotides to cells playing key roles in regulating immune responses.

About NapaJen

NapaJen Pharma Co., Ltd., is a clinical-stage, biotherapeutics company leveraging its proprietary immune cell-targeted oligonucleotide delivery technology to develop novel immunotherapeutic agents. Founded in 2004 as a Japanese subsidiary of a California-based biotech company, NapaJen has developed a proprietary platform technology in which oligonucleotide compounds are stably and selectively delivered to immune cells. Leveraging the versatility of the platform technology, NapaJen aims to create new oligonucleotide therapeutics in the area of immune-related conditions, such as autoimmune diseases, cancer, transplantation and vaccine, through collaborative work with industry and academia. The company's lead therapeutic candidate, NJA-730, is a siRNA drug targeting CD40 that is currently being evaluated in a Phase 1 first-in-human clinical study in healthy volunteers. The compound is initially being developed as a potential treatment for graft-versus-host disease (GVHD), though the company believes there are numerous inflammatory immunoreactive conditions against which the compound may hold therapeutic promise.

For more information, please visit www.napajen.com

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