HOOKIPA Pharma Inc.
www.hookipapharma.com

Setting a new standard in T cell cancer therapy

HOOKIPA Pharma is developing a new class of arenavirus-based immunotherapies that activate and amplify targeted T cells to fight cancer. The company is seeking development and commercialization partners for several of its preclinical and clinical programs.

HOOKIPA Pharma Inc. is a clinical-stage biopharmaceutical company developing cancer immunotherapies that harness arenaviruses to induce robust and durable antigen-specific CD8⁺ T cells to kill tumors. With its proprietary platform of engineered arenaviruses targeted to cancer-relevant antigens, the company has built a pipeline of wholly owned investigational immunotherapeutics targeting human papilloma virus (HPV)16⁺ cancers, prostate cancer, KRAS-mutated colorectal, pancreatic and lung cancers, and other undisclosed indications.

HOOKIPA's platform capitalizes on several natural advantages of the arenavirus to deliver differentiated clinical benefits (Fig. 1). First, arenaviruses efficiently target and infect antigen-presenting cells (APCs), especially dendritic cells, to deliver prolonged activation of the immune system. Second, arenaviruses are naturally able to hinder neutralization by antibodies, which enables repeated intravenous dosing. Third, arenaviruses generate unprecedented increases in tumor antigen-specific T cells to deliver effective disease control in patients with advanced cancers.

"At HOOKIPA we have developed an immunotherapeutic solution that reprograms a patient's immune system to build a highly specific and robust T cell response through natural means without bypassing the immune system's normal control mechanisms," said Christine Baker, HOOKIPA's COO. "Our first-in-class arenaviral therapies have established clinical impact as monotherapies for HPV⁺ cancers and we are advancing other projects rapidly to the clinic."

HOOKIPA is seeking to advance its pipeline of oncology therapeutics through novel development and commercialization partnerships, and to develop novel immuno-oncology combinations through creative clinical collaboration agreements.

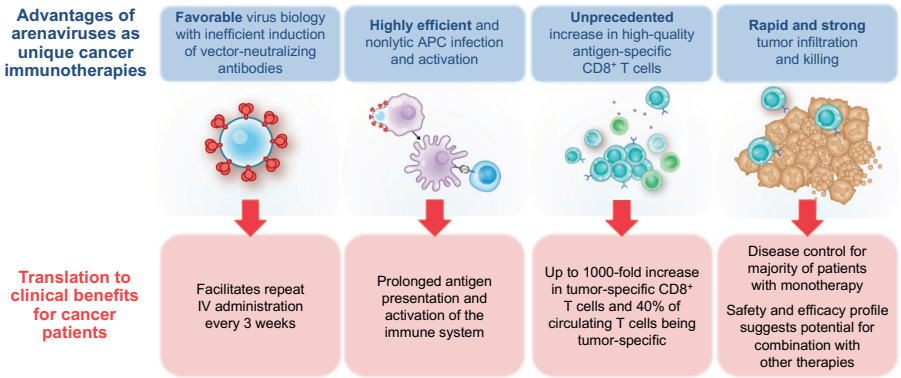

Fig. 1 | HOOKIPA's arenavirus-based immunotherapy platform. HOOKIPA has developed an intravenously administered, replication-competent arenavirus-based cancer immunotherapy platform that capitalizes on natural advantages of the arenavirus to deliver differentiated clinical benefits. APC, antigen presenting cell; HPV, human papillomavirus; IV, intravenous; nAbs, neutralizing antibodies; TILs, tumor-infiltrating lymphocytes.

Broad therapeutic applicability

Immuno-oncology has opened a new universe of possibilities for cancer therapy, but its promise has fallen short, often because of a lack of functional cancer-relevant killer T cells. Active immunization strategies that induce clinically effective cytotoxic T cell responses against tumors have garnered interest. The success of such immunotherapies depends heavily on two factors: the effectiveness of the T cell response, and the choice and quality of the target antigen. HOOKIPA is tackling both of these challenges.

The company has developed an intravenously administered, replication-competent, arenavirus-based vector technology that delivers tumor antigens to APCs, activating antigen-specific CD8⁺ T cells that migrate to and infiltrate the tumor microenvironment with high efficiency. Importantly, the T cell response induced by HOOKIPA's proprietary technology can direct up to 40% of the body's T cells towards a chosen target. Preclinical studies show this is accompanied by a long-term T cell response that confers protection against cancer rechallenge months after the primary treatment.

On the antigen side, HOOKIPA's technology has a critical advantage over other immunotherapeutic approaches. By delivering full-length proteins to the APCs, the company's platform maximizes the probability that effective epitopes will be naturally presented by the major histocompatibility complex (MHC) class I to the T cells. HOOKIPA's platform can utilize the full variety of cancer antigens: oncoviral, tissue specific, cancer testis and shared driver mutations, and focus the immune system on the cancer antigens of interest.

"With our unique platform, we are rapidly advancing a new class of immunotherapies that are simpler, more straightforward and cost effective to manufacture and administer than other patient-derived cellular approaches, such as TCR therapies, paving the way for wider clinical adoption," said Baker.

A diverse pipeline

HOOKIPA's most advanced immuno-oncology program is HB-200, an arenavirus-based product candidate that targets the highly antigenic HPV16 E6 and E7 proteins and is currently being developed to treat HPV-associated head and neck cancers. HB-200 is in a phase 1/2 clinical trial for treatment-refractory HPV16⁺ cancers and in a phase 2 combination clinical trial with pembrolizumab for head and neck squamous cell carcinomas (HNSCCs).

A second product candidate, HB-300, is in the final pre-investigational new drug (IND) stages for metastatic, hormone-resistant prostate cancer. HB-300 targets three antigens that are highly specific to prostate cancer cells: prostatic acid phosphatase (PAP), prostate-specific antigen (PSA), and prostate-specific membrane antigen (PSMA).

A third program that is approaching the clinic is HB-700, a product candidate designed to target five different KRAS mutations, specifically G12C and four others. This immunotherapy has the potential to treat more than 80% of patients with KRAS-mutated pancreatic cancers as well as substantial percentages of patients with either KRAS-mutated lung adenocarcinoma or colorectal cancers.

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