Non-engineered multi-targeted T cell-based immunotherapies for cancer

With its unique multi-targeted T cell-based immunotherapies that simultaneously attack tumors and trigger a broad spectrum antitumor immune response, Marker has generated promising clinical data in more than 150 patients in both hematological malignancies and solid tumors.

Marker Therapeutics is a clinical-stage immuno-oncology company focused on the development of next-generation T cell-based immunotherapies for the treatment of hematological malignancies and solid tumor indications. The company’s multi-tumor associated antigen (multiTAA) technology, originally developed at the Baylor College of Medicine in Houston, Texas, USA, is based on the selective expansion of a broad range of non-engineered, tumor-specific T cells that recognize different tumor-associated antigens and kill tumor cells expressing those targets (Fig. 1). In clinical trials, the initial tumor lysis is followed by epitope spreading, the activation of the endogenous immune system against non-targeted antigens, resulting in a lasting immune effect.

Marker is pursuing clinical trials across different indications. MT-401 is being tested in a company-sponsored phase 2 clinical trial in patients with post-transplant acute myeloid leukemia (AML). Marker also expects to test a six-antigen product candidate, MT-601, in a trial for pancreatic cancer. In addition, the company is advancing its off-the-shelf (OTS) platform through a version of MT-401 in an initial trial in relapsed myelodysplastic syndrome and AML patients. Both MT-401 and MT-601 have received orphan drug designation from the US Food and Drug Administration for the treatment of AML patients after receiving an allogeneic stem cell transplant and for the treatment of pancreatic cancer, respectively.

The power of many

Today’s leading T cell cancer therapies, including chimeric antigen receptor-T cell and T cell receptor-based therapies, rely on the engineering of single, highly tumor-specific receptors that when expressed in T cells target the body’s immune response to cancer cells displaying the corresponding tumor antigen. Most tumors, however, are heterogeneous, consisting of a variety of cells expressing different antigens, which can substantially diminish the effectiveness of the T cell therapy by leaving many tumor cells intact.

Marker’s multiTAA technology targets numerous antigens simultaneously, improving the initial tumoricidal activity of the therapy. This initial phase in tumor killing results in epitope spreading where the endogenous immune system joins in the fight resulting in a broader and more durable antitumor effect. The multi-antigen approach has been well-tolerated to date, with no dose-limiting toxicities, cytokine release syndromes, or neurotoxicities, and has shown enhanced tumor killing and antitumor immune capability.

Marker’s multiTAA technology has been initially tested in more than 150 patients in phase 1/2 clinical trials at the Baylor College of Medicine across seven indications. The trials generated proof-of-concept clinical data in AML, lymphoma and pancreatic cancer. Marker is rapidly advancing its multiTAA therapies through phase 1 and 2 proof-of-concept trials supported by, among others, a $13.1 million product development research award from the Cancer Prevention and Research Institute of Texas. In addition to its ongoing trials with MT-401—targeting four tumor-associated antigens—and MT-601—targeting six tumor-associated antigens—in post-transplant AML and pancreatic cancer, respectively, Marker is starting a phase 1 trial with an off-the-shelf version of MT-401, referred to as MT-401 OTS. This pre-manufactured investigational therapy uses banked donor cells, and is matched to patients with the help of human leukocyte antigen typing. The company is also performing pre-IND studies to advance MT-601 for the treatment of lymphoma.

Marker has advanced its manufacturing technology, reducing overall manufacturing time to nine days and generating a product with higher potency due to improved T cell composition and specificity.

Benefits of Marker Therapeutics’ multi-tumor antigen targeted (mTAA) T cell therapy over conventional immunotherapies (CAR-T, TCR, NK)
- Multiple targets → enhanced tumoricidal effect → minimized tumor immune escape
- Epitope spreading → broad patient T cell expansion → durable endogenous antitumor immune response
- Clinical safety → no reported cytokine release syndrome (CRS) or other severe adverse effects (SAEs)
- Standard IV administration → outpatient treatment → enhanced accessibility
- Non-engineered → reduced manufacturing complexity → lower cost

CONTACT
Neda Safarzadeh, VP / Head of Investor Relations, PR & Marketing
Marker Therapeutics, Inc.
Houston, TX, USA
Tel: +1-713-400-6451
Email: nsafarzadeh@markertherapeutics.com