Docket #: S10-393

Cancer vaccine optimization with EGFRvIII-derived peptide

Disease indication - Oncology/solid tumors, notably glioblastoma

Drug format - Engineered peptide for cancer vaccine optimization.

Drug class - Improvement to existing vaccine.

Research stage and Preliminary data - The existing vaccine has been tested in clinical trials to improve survival rates in patients with glioblastoma; the inventors compared these engineered peptides to the earlier vaccine in tumor regression experiments and showed improved survival with the new peptides (55% survival with earlier peptide vs. 70-90% with the improved peptides). They have completed preclinical studies and are planning an investigational new drug (IND) submission to the U.S. Food and Drug Administration to test Y6-pepVIII in a phase 1 trial for patients with glioblastoma.

Background/Mode of Action - These patented engineered peptides are derived from EGFRvIII, a tumor-specific alteration of the EGF receptor found in a variety of solid tumors (see link with additional background information below). In animal tumor regression studies, these new peptides are more effective than the earlier EGFRvIII peptides. Therefore, they are potential therapeutic agents that could be used to enhance survival of patients with glioblastoma or other tumors that express EGFRvIII.

Keywords - cancer antigens, cancer vaccine, EGFR mutant, glioblastoma, immuno-oncology, therapeutic: peptides, tumor vaccine

Competitive edge - The engineered peptides are expected to be more effective and faster acting than earlier EGFRvIII vaccines; more animals showed tumor regression than with the earlier EGFRvIII vaccine and the tumor regression appeared to be induced in a shorter period of time than the earlier vaccine. The team has also

identified 10 new sequences derived from the first vaccine that in turn could be used as anti-glioblastoma vaccines. Further, they discovered a process to rapidly identify CD8+ T cell epitopes. That process has led to the discovery of hard-to-find epitopes.

Patent status - Issued patent in U.S. and Australia.

Publications

- Fidanza, Mario, et al. "Enhancing proteasomal processing improves survival for a peptide vaccine used to treat glioblastoma." *Science Translational Medicine* 13.598 (2021).

Patents

- Published Application: WO2014022835
- Published Application: 20150216956
- Issued: 9,694,060 (USA)

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