Docket #: S16-189

5A6, a monoclonal antibody targeting the human tetraspanin CD81

Cancers including breast, lung, colon and prostate account for almost ten million deaths worldwide every year. The main cause of cancer deaths is metastasis, which is the propensity of cancer cells to spread throughout the body. There is no existing treatment specifically tackling the issue of cancer metastasis.

CD81 is a protein found on immune cells and cancer cells. CD81 inhibits cancer cell invasion and modulates host adaptive and innate immune responses against cancer, such as regulatory T-cells (Tregs) and myeloid-derived suppressor cells (MDSCs).

Stanford innovators therefore developed a unique anti-CD81 monoclonal antibody, dubbed 5A6, with specific biological properties compared to other anti-CD81 monoclonal antibodies. 5A6 stops the spreading of solid human tumors and B-cell lymphomas in xenograft models.

5A6 works independently from the tumor histotype; its clinical development could therefore be envisioned across cancers.

Stage of Development
Pre-clinical

Applications

- Neo-adjuvant or adjuvant systemic therapy of localized solid tumors to prevent tumor metastasis
- Systemic consolidation therapy after standard of care for metastatic cancers to prevent subsequent relapses
- Systemic therapy of anti-CD20 refractory B-cell lymphomas.
- Loco-regional therapy of neoplastic lesions to avoid metastasis spreading (e.g intravesical therapy of urothelial carcinomas, topical therapy for skin

metastasis of triple negative breast cancers,...)

Advantages

- The 5A6 clone possesses unique biological properties not shared by other monoclonal antibodies targeting human CD81.

Publications

- Vences-Catalán F, et al. Targeting the tetraspanin CD81 reduces cancer invasion and metastasis. PNAS. 2021 Jun 15;118(24):e2018961118.
- Vences-Catalán F, et al. CD81 is a novel immunotherapeutic target for B cell lymphoma. J Exp Med. 2019 Jul 1;216(7):1497-1508.
- Vences-Catalán F, et al. Tetraspanin CD81 promotes tumor growth and metastasis by modulating the functions of T regulatory and myeloid-derived suppressor cells. Cancer Research. 2015 Nov 1;75(21):4517-26.

Patents

- Published Application: WO2017218691
- Published Application: 20190177425
- Issued: 10,815,306 (USA)

Innovators

- Shoshana Levy
- Ranjani Rajapaksa
- Aurelien Marabelle
- Felipe Vences-Catalan
- Ronald Levy
- Chiung-Chi Kuo

Licensing Contact

Mona Wan

Senior Licensing Manager for Special Projects

Email