Docket #: S17-013

METHODS FOR TREATING TRIPLE NEGATIVE BREAST CANCER

Researchers at Stanford, funded in part by the Chan Zuckerberg Biohub, have developed a method for treating and predicting treatment efficacy of triple negative breast cancer (TNBC).

TNBC is an aggressive subtype of breast cancer that is characterized by a lack of expression of three receptors commonly targeted by breast cancer therapies: estrogen, progesterone and HER2. This cancer affects 20% of all breast cancer patients, yet TNBC currently has no clinically approved targeted therapies. The inventors have now shown that reducing expression or activity of CDK19 in TNBC cell lines or breast cancer-derived xenografts inhibits growth and metastases of TNBC tumors.

Stage of Research
The inventors have found that inhibitors of CDK19 expression or activity can be used to treat TNBC. This inhibition is carried out through multiple methods, such as the use of shRNA or miRNA, RNase H-dependent antisense oligonucleotides, CRISPR/Cas9, antibodies, and small molecule inhibitors for CDK19. Additionally, these inhibitors were found to act preferentially on CDK19 compared to CDK8. The inventors have also designed a method to predict the responsiveness of a patient to this targeted treatment using tumor samples.

Stage of Development
Research - *in vitro*

Applications

- Treating TNBC patients with CDK19 inhibitors to reduce tumor mass, metastasis, disease progression, cachexia, and tumor burden

Advantages

- First TNBC targeted therapy
- Highly CDK19 specific, so fewer adverse side effects
- Increased efficacy against highly tumor initiating cells

Patents

- Published Application: WO2019055977
- Published Application: 20210121495
- Published Application: 20230285439
- Issued: 11,471,477 (USA)

Innovators

- Michael Clarke
- Robert Hsieh

Licensing Contact

Kimberly Griffin

Technology Licensing and Strategic Alliances Manager

Email