

NOVEL CANCER IMMUNOTHERAPY: A T CELL RECEPTOR THAT SPECIFICALLY RECOGNIZES COMMON KRAS MUTATIONS

SUMMARY

NCI's Surgery Branch seeks partners interested in licensing or co-developing a T cell therapy for treating KRAS mutant positive cancers.

REFERENCE NUMBER

E-028-2015

PRODUCT TYPE

- Therapeutics

KEYWORDS

- KRAS
- oncogenesis
- colorectal
- pancreas
- prostate
- lung
- TCR
- T cell
- immunotherapy

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

Several malignancies associated with a poor prognosis such as lung, pancreatic and colorectal cancers frequently harbor constitutively active KRAS mutants, which play a pivotal role in oncogenesis. Currently, there are no potentially curative treatments against most mutant KRAS harboring cancers once they become metastatic and unresectable. Despite intensive efforts to develop potent mutant KRAS inhibitors, none have shown a significant improvement to patients.

Researchers at NCI's [Surgery Branch](#) have used their expertise in T-cell based therapies to develop a T cell receptor (TCR) that specifically recognizes G12D KRAS, a common driver of oncogenesis. This invention offers an alternative therapy to direct inhibition of mutant KRAS that has been demonstrative to be an effective treatment for advanced melanoma, lymphoma and sarcomas. The inventors have demonstrated that lymphocytes expressing the engineered TCR selectively target pancreatic G12D KRAS cells.

The NCI seeks co-development or licensing partners to extend the research toward *in vivo* efficacy testing and clinical trials.

POTENTIAL COMMERCIAL APPLICATIONS

- T-cell therapy to treat a variety of cancers that harbor KRAS mutations, in particular, G12D mutation
- Therapy for cancers that harbor additional constitutively active KRAS mutations

COMPETITIVE ADVANTAGES

- Proven therapeutic strategy for targeting cancers that harbor mutant target proteins
- Alternative strategy to previously unsuccessful small molecule KRAS inhibitors

INVENTOR(S)

[James C. Yang \(NCI\)](#)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PATENT STATUS

- **U.S. Filed:** US Provisional Patent Application No. 62/084,654 filed 26 Nov 2014

RELATED TECHNOLOGIES

- E-106-2006
- E-226-2014

THERAPEUTIC AREA

- Cancer/Neoplasm