Tumor-Suppressing Growth Factor Decoy

Tech ID: 32670 / UC Case 2017-547-0

ABSTRACT

Researchers at the University of California, Davis have developed dominant-negative FGF2 antagonists that suppress angiogenesis and tumor growth.

FULL DESCRIPTION

The Fibroblast growth factor-1 receptor (FGFR1) has been implicated in tumor angiogenesis and is an important target for antiangiogenic therapies. A dominant-negative FGF1 mutant (the R50E mutant) - a mutant of the FGF1 ligand that simulates the FGFR1 receptor - is currently used as an anti-cancer and anti-angiogenesis therapeutic agent. However, R50E is thermodynamically unstable - affecting its usefulness as a therapy. Therefore, there is a need for a FGF-targeting therapeutic that is just as effective as, but more stable than, R50E.

Researchers at the University of California, Davis have developed dominant-negative FGF2 mutants that are more stable than R50E. Both mutants (FGF2 decoys) have thermostability and strongly suppress angiogenesis and tumor growth. These dominant-negative FGF2 decoys bind FGFR1 and are both defective in signaling functions and to integrin binding. The decoys have been successfully tested in mouse embryonic fibroblast cells to suppress ERK1/2 activation and DNA synthesis, as well as to suppress angiogenesis in HUVEC cells (tube formation; endothelial cell migration) and sprouting in aorta ring assays.

APPLICATIONS

- Anti-angiogenic agents as tumor growth suppressor

FEATURES/BENEFITS

- Thermodynamically stable
- Long (7 hour) half-life in circulation
- Injectable Defective to integrin binding

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,229,681	01/25/2022	2017-547

CONTACT

Prabakaran Soundararajan
psoundararajan@ucdavis.edu
tel: .

INVENTORS

- Takada, Yoko K.
- Takada, Yoshikazu

OTHER INFORMATION

KEYWORDS

suppress angiogenesis, suppress tumor growth, thermodynamically stable, FGF2, FGF2 antagonist, FGF2 decoy

CATEGORIZED AS

- **Biotechnology**
  - Health

RELATED CASES

2017-547-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Suppression of sPLA2-Integrin Binding for Treating an Inflammatory Condition or Suppressing Cell Proliferation
- Novel Insight into Inhibiting IGF1 Signaling
- Novel Fibroblast Growth Factor 1-Derived Peptides for Therapy and Drug Discovery
- Modulating MD-2-Integrin Interaction for Sepsis Treatment
- Integrin Binding to P-Selectin as a Treatment for Cancer and Inflammation
- Novel IGF2 Signaling Inhibition