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# Bispecific Antibodies for Detection and Treatment of Cancers Associated with EGFR Overexpression

Tech ID: 28684 / UC Case 2003-A81-0

## INVENTION NOVELTY

This invention identifies novel bispecific antibodies that can be used to detect and/or treat various cancers that overexpress EGFR family of proteins.

## VALUE PROPOSITION

Current treatment modalities for tumors that overexpress the EGFR protein family include anti-EGFR monoclonal antibodies and small molecule tyrosine kinase inhibitors. However, these therapies are either not very effective as single agents or are associated with significant morbidity and mortality. Bispecific antibodies can potentially overcome limitations posed by existing anti-cancer drugs by simultaneous binding to two different targets since signal transduction through members of the EGFR family involves formation of homodimers or heterodimers.

This novel invention provides the following advantages:

- ▶ Simultaneous targeting of multiple members of the EGFR protein family
- ▶ Ability to specifically label and detect cancer cells and solid tumors
- ▶ Ability to deliver any conjugated or coupled effector such as radioisotope, cytotoxin, drug, etc. in a targeted manner
- ▶ Can be used alone or in combination with existing chemotherapeutics to treat a variety of cancers including breast, colon, ovarian, endometrial, gastric, pancreatic, prostate and salivary gland cancers.

## TECHNOLOGY DESCRIPTION

Scientists at the University of California at San Francisco, in collaboration with the Fox Chase Cancer Center have identified novel bispecific antibodies which bind simultaneously to different targets in the EGFR family of receptors. The bispecific scFv molecules are linked by a novel peptide linker designed to protect against proteolytic degradation. In addition, these antibodies can specifically bind to distinct epitopes on the same target or on two different targets. In vitro and in vivo experiments demonstrate the ability of the therapeutic antibodies to inhibit growth of tumor cells that overexpress EGFR proteins.

## LOOKING FOR PARTNERS

To develop & commercialize the technology as therapeutics for cancers associated with overexpression of EGFR proteins

## STAGE OF DEVELOPMENT

### CONTACT

Lei Wan  
[lei.wan@ucsf.edu](mailto:lei.wan@ucsf.edu)  
tel: .



### INVENTORS

- ▶ Adams, Gregory P.
- ▶ Horak, Eva M.
- ▶ Marks, James D.
- ▶ Weiner, Louis M.

### OTHER INFORMATION

#### KEYWORDS

Cancer, Cancer therapeutics, Anti-cancer, Antibodies, Bispecific antibodies, scFv antibodies

#### CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Other
- ▶ **Medical**
- ▶ Disease: Cancer
- ▶ Therapeutics

#### RELATED CASES

2003-A81-0

RELATED MATERIALS

► [Adams, G. P., Schier, R., McCall, A. M., Simmons, H. H., Horak, E. M., Alpaugh, R. K., ... & Weiner, L. M. \(2001\). High affinity restricts the localization and tumor penetration of single-chain fv antibody molecules. Cancer research, 61\(12\), 4750-4755.](#)

DATA AVAILABILITY

Under CDA / NDA

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,580,263	11/12/2013	2003-A81

ADDRESS

**UCSF**  
**Innovation Ventures**  
600 16th St, Genentech Hall, S-272,  
San Francisco,CA 94158

CONTACT

Tel:  
innovation@ucsf.edu  
https://innovation.ucsf.edu  
Fax:

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