

Diagnosis and treatment of prostate cancer using a prostate cancer antibody

Brief Description

Monoclonal antibody and immunotherapy use in prostate cancer

INVENTOR

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http://www.afcri.upenn.edu/ourfaculty/green_bio.html

STATE OF DEVELOPMENT

- Data obtained in in vitro and in vivo tumor xenografts on mice model.
- Demonstrated that radio nuclear labeled F77 can localize small human prostate tumor in mice.
- Cloned and sequenced cDNA of a variable region of F77; humanization of F77 in development

INTELLECTUAL PROPERTY

US Patent application number US-2014-0348831-A1

REFERENCE MEDIA

- Noneka et al. 2014, J Biol Chem. doi:10.1074/jbc.M114.559047
- Gao et al. 2014. J Biol Chem. doi: 10.1074/jbc.M114.558932
- Zhang et al. 2010. PNAS. doi: 10.1073/pnas.0911397107

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Technology Overview

Both androgen dependent and independent prostatic carcinomas have a high potential to metastasize; unfortunately, the overall 5-year survival rate for metastatic prostate cancer is only 34%. Dr. Greene and his collaborators at the University of Pennsylvania have developed a novel approach to detect and treat prostate cancer using an antibody that detect a glycan antigen that is carried on proteins and glycolipids and expressed on both androgen dependent and independent prostate cancer cells. This cell surface accessibility of the antigen, its specificity to prostate tissue, and upregulated expression in prostatic carcinomas make this antibody a potential therapy unmatched to current technologies.

Advantages

- F77 monoclonal antibody can recognize prostate cancer cell surface antigen and inhibit tumor growth on both androgen independent (PC-3 and DU 145) and androgen dependent (LNCaP) cell lines in immunoassays.
- The F77 antibody is readily internalized which makes it suitable to deliver tumoricidal agents to the tumor.
- F77 is highly specific to prostate tissue/tumors compared to other known prostate tumor therapeutic antibodies.

Applications

- Use of the monoclonal antibodies or functionally active fragments thereof for diagnosing the presence and the progression of prostate cancer in an individual.
- Use of the monoclonal antibodies or functional active fragments thereof for treatment of prostate cancer, especially for recurrent androgen-independent metastatic prostate cancer.

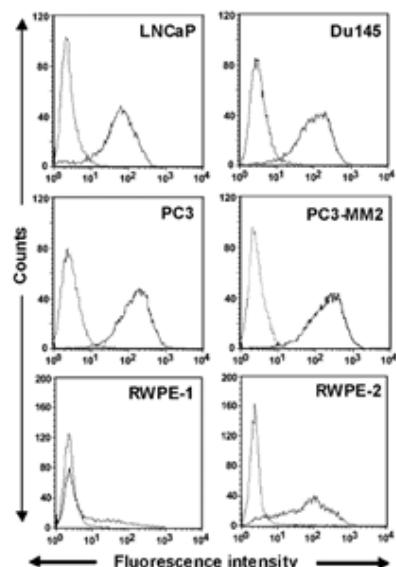


Figure 1. Binding of mAb F77 to prostate cancer cell lines¹⁵. MAb F77 (bold line) and irrelevant mouse IgG3 (dashed line) were used for FACS staining of androgen independent prostate cancer cell lines (LNCaP, PC3, PC3MM2, and Du145) or prostate epithelial cell lines (RWPE-1 and Ki-ras transformed RWPE-2).