Monoclonal Anticytokeratin Antibody (KA2)

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Technology description

Background

Prostate cancer is the most common type of cancer, displacing lung cancer as the number one visceral malignancy in males in the United States. Despite its growing prevalence relatively little is known about its malignancy. Currently, there is a lack of animal models to further research and supplies of cell culture lines are limited. The resulting incomplete knowledge of it pathogenesis has led to few definitive techniques for its diagnosis especially in early stages of the disease. Development of an effective targeted diagnostic would enable physicians to detect the onset of the disease early and effectively initiate treatment.

The Technology

Scientists at The University of Arizona have identified a monoclonal, anticytokeratin antibody (KA2) that is specific for cytokeratins 5 and 14. These cytokeratins are specifically expressed in prostate basal cells and therefore are a good target for diagnosis. The normal prostate gland consists of basal cells amongst other cells that can be identified by specific cellular protein makers such as cytokeratins 5 and 14 unique to basal cells. During the progression of prostate cancer, tumor cells gradually replace normal healthy cells leading to the eventual loss of the basal cell layer altogether in late stage cancer. Thus an antibody with the ability to identify a specific protein found only in basal cells of prostate cancer cells may be a useful diagnostic tool. Furthermore, the invention suggests obtaining and preserving frozen tissue sample from biopsies allow for a more optimal diagnosis using the monoclonal antibody KA2. In late stages of prostate cancer, infected cells can metastasize and migrate throughout the body infecting other organs. A monoclonal antibody designed to identify specific proteins such as cytokeratin 5 and 14 may be useful in detecting where in the body the infected cells have escaped. Monoclonal antibody KA2 may be a useful diagnostic tool in detecting primary prostate cancer and detecting the spread of tumor cells throughout the body.

Application area

*Development of a diagnostic antibody for use in immunohistochemical applicationsAdvantages
*Increased specificity and accuracy when identifying cytokeratin proteins unique to basal cells
*Possibly extend the diagnosis to detection of the spread of prostate cancer cells in late stage cancers

Institution

University of Arizona

Inventors

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