Nucleic Acid Tetramers For High Efficiency Multiplexed Cell Sorting
Tech ID: 27466 / UC Case 2008-685-0

SUMMARY

UCLA researchers in the Departments of Medicine and Pharmacology have a highly specific method of sorting cells by using multiplexed tetramers with unique DNA-oligomer signatures.

BACKGROUND

The standard methods of isolating cells of interest include FACS (fluorescence-activated cell sorting) and ‘panning.’ Both methods use antibodies as a means of selecting for specific cell populations. A limitation of FACS is that the surface bound antibodies on the cell are often improperly oriented. This often leads to a decreased affinity and therefore decreased affinity for isolating cells. This makes FACS and panning unreliable techniques for isolating extremely rare cell populations.

INNOVATION

Researchers at UCLA have developed a highly specific method of sorting cells by using multiplexed tetramers with unique DNA-oligomer signatures. This will allow users to very specifically isolate rare cells within the sample. This technique is currently being applied to isolate T cells from cancer patients for use in personalized immunotherapy.

APPLICATIONS

▶ Cell Sorting
▶ In research settings
▶ Detection of very rare cell types
▶ In clinical settings
▶ T-cell isolation from patients for cancer therapy

ADVANTAGES

▶ Higher affinity than antibodies for certain targets (high specificity)
▶ Modular design / Flexibility
▶ Control over number of copies of specific affinity agent used on protein scaffold for detection
▶ Oligomer sequence can be modified for very specific targeting of antigen
▶ Allows for the sorting of extremely rare cell types

STATE OF DEVELOPMENT

The invention is currently in the testing phase using mouse and human samples. Development is ongoing. U.S. and international patents have been filed.

PATENT STATUS

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<td>United States Of America</td>
<td>Issued Patent</td>
<td>8,394,590</td>
<td>03/12/2013</td>
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RELATED MATERIALS

Additional Technologies by These Inventors

- Mouse Model Deficient for the Proton Sensing GPCR T-cell Death-associated Gene 8 (tdag)
- Surfaceome Profiling Of Advanced Prostate Cancer To Identify Target Antigens For Immune-Based Therapy
- Anti-Human Deoxycytidine Kinase (dCK) Monoclonal Antibody
- A Novel Positron Emission Tomography Probe for Imaging Liver Disease and Metabolic Imbalance
- Novel Non-Immunogenic Positron Emission Tomography Gene Reporter
- Human-Derived Reporter Gene for Positron Emission Tomography Imaging
- Targeted Mass Spectrometry Approaches To Detect Kinase Pathways For Personalized Medicine
- G2A GPCR Deficient Mouse Model and G2A Monoclonal Antibody
- Proton-sensing G Protein-coupled Receptor 4 Knockout
- Derivation Of A Human Neuroendocrine Prostate Cancer Cell Line With Defined Oncogenic Drivers
- Novel Polyclonal Antibody to Detect a Bruton’s Tyrosine Kinase Phosphorylation Site
- Non-Immunogenic Positron Emission Tomography Gene Reporter Systems
- Composition of NY-ESO-1-Specific T Cell Receptors Restricted on Multiple Major Histocompatibility Complex Molecules