Methods for Selecting and Identifying Cancer Stem Cells

Tech ID: 25331 / UC Case 2013-057-0

ABSTRACT

Methods for identifying, selecting, and isolating leukemia stem cells from a biological sample or a cell culture sample using fluorescent tagged metabolites.

FULL DESCRIPTION

Cancer stem cells (CSC) have been identified in several types of cancer, including leukemia. While CSC are key to the progression of cancer and can be resistant to chemotherapeutic drugs, Leukemia stem cells (LSC) are also resistant to most treatments, such as radiotherapy and chemotherapy. LSC are also considered the main cause of drug resistance and disease relapse. There has long been a need for methods of identifying and isolating LSC from an individual or cell culture. LSCs have been successfully identified and characterized in certain types of leukemia, such as AML; however, whether LSC exist in acute lymphoblastic leukemia (ALL), the most common childhood leukemia, is unknown as no distinct phenotypic LSC marker has been identified.

Researchers at the University of California, Davis have developed methods for identifying LSC in B-cell type ALL using fluorescent tagged metabolites. These methods can also be used to identify a subpopulation of LSC within a sample. Additionally, these methods have potential applications in the development of LSC-targeted therapeutics and can be used in drug screening methods or experimental analysis to determine or predict disease progression, relapse, and/or the development of disease resistance. LSC stem cells can also be characterized based on the expression of LSC markers and therefore can be used to identify populations of LSC.

APPLICATIONS

- Leukemia stem cell therapeutics
- Cancer stem cell therapeutics
- Cancer progression predictions
- Determining relapse
- Determining disease resistance

FEATURES/BENEFITS

- Identifying and isolating subpopulations of leukemia stem cells in acute lymphoblastic leukemia

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,509,036	12/17/2019	2013-057

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Ultrafast Light-Induced Inactivation of both Bacteria and Virus based on Bio-Affinity Ligands
- Method for Efficient Loading of Bioactives into Lipid Membrane Microcapsules
- In-situ Production of Anti-inflammatory Lipids for Treating Inflammation
- Polyphenol Infusions to Improve Gastro-Intestinal Stability of Probiotics

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OTHER INFORMATION

KEYWORDS

cancer, leukemia, stem cells, acute lymphoblastic leukemia, acute myeloid leukemia, therapeutics, CSC, LSC

CATEGORIZED AS

- **Medical**
  - Diagnostics
  - Disease: Cancer
  - Screening
  - Stem Cell
  - Therapeutics

RELATED CASES

2013-057-0

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