The Development and Evaluation of Highly Specific Monoclonal Antibodies against Human LGR5

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Introduction

The cancer stem cells is a subpopulation of cancer cells which is responsible for cancer initiation, development and metastasis. The identification of cancer stem cells is considered as one of the most important objectives for clinical diagnostic and therapeutic purposes. Research evidences indicated that Leucine-rich repeat containing G-protein-coupled receptor 5 (LGR5) is one of the biomarkers specifically expressed on colon cancer stem cells. LGR5 can be activated by extracellular Wnt signaling molecules and this results in cancer development. Therefore, it is critical to develop a LGR5 antibody with high sensitivity and specificity to detect endogenous LGR5 expression in cancer stem cells.

In this research, several LGR5 mouse monoclonal antibodies were generated for multiple applications. These LGR5 antibodies can be used for flow cytometry application and proved to be highly specific with our proprietary high density protein microchip assay. These newly generated LGR5 antibodies could provide new tools for earlier diagnosis and therapeutic guidance on colon cancers.

OriGene developed a high density protein microarray to test antibody-antigen interaction in a high-throughput manner

The newly developed LGR5 monoclonal antibody (UMAB212) is highly specific

UMAB212 recognizes both human and mouse LGR5, but does not cross-react with LGR4 and LGR6

1. We developed a highly specific LGR5 UltraMAB with our high density protein microarray chip technology.
2. UMAB212 does not cross-react with other LGR family members such as LGR4 and LGR6.
3. UMAB212 recognizes mouse LGR5.
4. UMAB212 can be used for multiple immunoassays (Western blot, Flow cytometry, and IF).

UMAB212 for multiple applications (WB, Flow cytometry, and IF)

NIH-3T3 (left lane) or stable expressed LGR5-3T3 cell lysate (right lane) were immunoblotted with anti-LGR5 UMAB212

Flow cytometric analysis of NIH-3T3 cells using anti-LGR5 antibody (UMAB212) (Red) in negative NXT (Green)

Conclusions

The world's largest collection of human proteins were printed to the chip.

More than 10,000 human full length cDNA clones were transferred into HEK293. The cell lysates containing overexpressed human proteins were printed to the chip.

Western blot analysis of extracts from seven different cDNA transiently transfected HEK293T cell lysates by using UMAB212

Flow cytometric Analysis of HEK293T cells transiently transfected with human or mouse LGR5, human or mouse LGR4, or control vector pCMV-Entry using UMAB212

Current UltraMAB availability (http://www.origene.com/UltraMAB/)

References