

## An anti-CD133 monoclonal antibody CMAb-43 exerts anti-tumor and anti-metastasis activities for colon cancers

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**Background:** Cancer stem cells contribute to tumorigenesis, metastasis, and chemoresistance. A pentaspan membrane glycoprotein CD133 has been used for the isolation of stem-like cells from several cancers.

**Purpose:** In this study, we aimed to develop sensitive and specific anti-CD133 mAbs, which exerts anti-tumor and anti-metastasis activities.

**Methods:** Cell-Based Immunization and Screening (CBIS) method was employed for the development of anti-CD133 mAbs. LN229/CD133 glioblastoma cells were immunized into mice, and FCM was used for the first screening. WB and IHC screenings were further performed. Human colon cancer cell lines were used for examining the anti-tumor and the anti-metastasis activities of anti-CD133 mAbs.

**Results:** We established a novel anti-CD133 mAb, CMAb-43 (IgG<sub>2a</sub>, kappa), which demonstrated a sensitive and specific reaction against colon cancer cells in FCM, WB, and IHC analyses. CMAb-43 showed cancer-specific staining patterns in colon cancer tissues. Furthermore, CMAb-43 significantly reduced tumor development of colon cancer cell xenografts, and inhibited experimental metastasis of colon cancer cells.

**Conclusion:** CMAb-43 is useful for many applications and exerts anti-tumor or anti-metastasis activities. CMAb-43 could be advantageous for antibody therapy against CD133-expressing colon cancers.