MAGEA3

This gene is a member of the melanoma associated antigen gene family. The members of this family encode proteins with 50 to 80% sequence identity to each other. The promoters and first exons of the MAGEA genes show considerable variability, suggesting that the existence of this gene family enables the same function to be expressed under different transcriptional controls. The MAGEA genes are clustered at chromosomal location Xq28. They have been implicated in some hereditary disorders, such as dyskeratosis congenita.

AMP-activated protein kinase (AMPK) is a metabolic regulator that acts to limit the growth of cancer cells. AMPK is downregulated by melanoma associated antigen A3/6 (MAGEA3/6), which are cancer-specific proteins that enhance the activity of specific E3 ubiquitin ligases to ubiquitinate and degrade AMP-activated protein kinase α 1 (AMPK α 1).

Using a bioinformatic approach, Wu et al., from the Department of Gastroenterology, The First Affiliated hospital of Wenzhou Medical University, Wenzhou. Department of Neurosurgery, Nanjing Medical University Affiliated Changzhou NO.2 People's Hospital. Department of Chemoradiation Oncology, The First Affiliated hospital of Wenzhou Medical University, China, identified a microRNA, miR-1273 g-3p, that is predicted to target the 3' untranslated region (UTR) of MAGEA3/6. Analyzing miR-1273 g-3p expression in human colon cancer tissues, they found a reduction in miR-1273 g-3p expression correlating with increased MAGEA3/6 expression and AMPKa1 downregulation. Expression of miR-1273 g in HT-29 cells and primary human colon cancer cells down-regulated MAGEA3/6, leading to AMPKa1 upregulation, inhibition of proliferation and cell apoptosis. The anti-CRC activity of miR-1273 g was blocked by AMPKa1 knockout. MAGEA3/6 shRNA silencing mimicked and abolished miR-1273 g-induced actions in HT-29 cells. In vivo, miR-1273 g- or MAGEA3/6 shRNA-expressing HT-29 tumors grew significantly slower than control tumors.

They propose a novel miRNA-based mechanism, whereby miR-1273 g represses MAGEA3/6 expression in human CRC cells and tissues, which may provide a novel cancer-specific therapeutic ¹⁾.

1)

Wu F, Liu F, Dong L, Yang H, He X, Li L, Zhao L, Jin S, Li G. miR-1273g silences MAGEA3/6 to inhibit human colorectal cancer cell growth via activation of AMPK signaling. Cancer Lett. 2018 Jul 26. pii: S0304-3835(18)30495-6. doi: 10.1016/j.canlet.2018.07.031. [Epub ahead of print] PubMed PMID: 30056111.

From: https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki**

Permanent link: https://neurosurgerywiki.com/wiki/doku.php?id=magea3

Last update: 2025/04/22 09:25

