miR-30

miR-30 microRNA precursor is a small non-coding RNA that regulates gene expression. Animal microRNAs are transcribed as pri-miRNA (primary miRNA) of varying length which in turns are processed in the nucleus by Drosha into ~70 nucleotide stem-loop precursor called pre-miRNA (preliminary miRNA) and subsequently processed by the Dicer enzyme to give a mature ~22 nucleotide product. In this case the mature sequence comes from both the 3' (miR-30) and 5' (mir-97-6) arms of the precursor.

The products are thought to have regulatory roles through complementarity to mRNA.

A screen of 17 miRNAs that have been predicted to regulate a number of breast cancer associated genes found variations in the microRNAs miR-17 and miR-30c-1, these patients were noncarriers of BRCA1 or BRCA2 mutations, lending the possibility that familial breast cancer may be caused by variation in these miRNAs.

Members of the miR-30 family have been found to be highly expressed in heart cells.

MiR-30a-5p promotes glioma cell growth invasion by repressing neural cell adhesion molecule (NCAM). The findings demonstrate a novel Wnt/β-catenin-miR-30a-5p-NCAM regulatory axis which plays important roles in controlling glioma cell invasion and tumorigenesis [1)].

Li et al. showed that the expression of miR-30b was significantly increased in glioblastoma tissues and cell lines. Moreover, high expression of miR-30b was significantly associated with shorter survival time of glioblastoma patients. Knockdown of miR-30b caused a significant reduction in the proliferation, migration, and invasion of U87 and A172 cells. Proline-rich transmembrane protein 2 (PRRT2) was further identified as a novel target gene of miR-30b, and its protein expression was negatively regulated by miR-30b in U87 and A172 cells. Furthermore, PRRT2 was significantly downregulated in glioblastoma tissues and cell lines, and we found an inverse correlation between miR-30b and PRRT2 expression in glioblastoma tissues. The increased expression of PRRT2 was significantly associated with poor prognosis of glioblastoma patients. In addition, inhibition of PRRT2 reversed the suppressive effects of miR-30b downregulation on the malignant phenotypes of U87 and A172 cells. Accordingly, we demonstrate that miR-30b promotes glioblastoma cell proliferation, migration and invasion via targeting PRRT2. Therefore, miR-30b may be used as a promising therapeutic target for glioblastoma [2)].

1)
Wang Z, Dai X, Chen Y, Sun C, Zhu Q, Zhao H, Liu G, Huang Q, Lan Q. MiR-30a-5p is induced by Wnt/β-catenin pathway and promotes glioma cell invasion by repressing NCAM. Biochem Biophys Res Commun. 2015 Aug 5. pii: S0006-291X(15)30397-1. doi: 10.1016/j.bbrc.2015.08.007. [Epub ahead of print] PubMed PMID: 26255203.
2)
Li Z, Guo J, Ma Y, Lin Z, Zhang L. Oncogenic Role of MicroRNA-30b-5p in Glioblastoma Through Targeting Proline-Rich Transmembrane Protein 2. Oncol Res. 2017 May 17. doi: 10.3727/096504017×14944585873659. [Epub ahead of print] PubMed PMID: 28550683.