G protein coupled receptor 56 also known as TM7XN1 is a protein encoded by the ADGRG1 gene.

GPR56 is a member of the adhesion GPCR family.

Adhesion GPCRs are characterized by an extended extracellular region often possessing N-terminal protein modules that is linked to a TM7 region via a domain known as the GPCR-Autoproteolysis INducing (GAIN) domain.

GPR56 is expressed in liver, muscle, neural, and cytotoxic lymphoid cells in human as well as in hematopoietic precursor, muscle, and developing neural cells in the mouse.

GPR56 has been shown to have numerous role in cell guidance/adhesion as exemplified by its roles in tumour inhibition and neuron development.

More recently it has been shown to be a marker for cytotoxic T cells and a subgroup of Natural killer cells.

GPR56/ADGRG1, inhibits GBM mesenchymal differentiation and radioresistance. GPR56 is enriched in proneural glioblastoma and classical GBMs and is lost during their transition toward a mesenchymal subtype. GPR56 loss of function promotes mesenchymal differentiation and radioresistance of glioma initiating cells both in vitro and in vivo. Accordingly, a low GPR56-associated signature is prognostic of a poor outcome in GBM patients even within non-G-CIMP GBMs. Mechanistically, Moreno et al. reveal GPR56 as an inhibitor of the nuclear factor kappa B (NF-κB) signaling pathway, thereby providing the rationale by which this receptor prevents mesenchymal differentiation and radioresistance. A pan-cancer analysis suggests that GPR56 might be an inhibitor of the mesenchymal transition across multiple tumor types beyond GBM [1].

1)
Moreno M, Pedrosa L, Paré L, Pineda E, Bejarano L, Martínez J, Balasubramaniyan V, Ezhilarasan R, Kallarackal N, Kim SH, Wang J, Audia A, Conroy S, Marin M, Ribalta T, Pujol T, Herreros A, Tortosa A, Mira H, Alonso MM, Gómez-Manzano C, Graus F, Sulman EP, Piao X, Nakano I, Prat A, Bhat KP, de la Iglesia N. GPR56/ADGRG1 Inhibits Mesenchymal Differentiation and Radioresistance in Glioblastoma. Cell Rep. 2017 Nov 21;21(8):2183-2197. doi: 10.1016/j.celrep.2017.10.083. PubMed PMID: 29166609.