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α/β -dystroglycan shRNA (h) Lentiviral Particles: sc-43488-V

BACKGROUND

Dystroglycan (DG) is a cell surface receptor for several extracellular matrix molecules including Laminins, Agrin and Perlecan. Dystroglycan function is required for the formation of basement membranes in early development and the organization of Laminin on the cell surface. α -dystroglycan is a membrane-associated, extracellular glycoprotein that is anchored to the cell-membrane by binding to the transmembrane glycoprotein β -dystroglycan to form an α/β -dystroglycan-complex. Additionally, dystroglycan is part of a multimolecular complex, where it associates with dystrophin, at the sarcolemma, to form the dystrophin-associated protein complex or with utrophin, at the neuromuscular junction, to form the utrophin-associated protein complex. Dystroglycan is also thought to participate in the clustering of nicotinic acetylcholine receptors at the neuromuscular junction.

REFERENCES

1. Cote, P.D., et al. 1999. Chimaeric mice deficient in dystroglycans develop muscular dystrophy and have disrupted myoneural synapses. *Nat. Genet.* 23: 338-342.
2. Seifert, J., et al. 2000. Syntheses of α -dystroglycan derived glycosyl amino acids carrying a novel mannosyl serine/threonine linkage. *Glycoconj. J.* 17: 407-423.
3. Henry, M.D., et al. 2001. Distinct roles for dystroglycan, β 1-Integrin and Perlecan in cell surface Laminin organization. *J. Cell Sci.* 114: 1137-1144.
4. Masaki, T., et al. 2001. Expression of dystroglycan complex in satellite cells of dorsal root ganglia. *Acta Neuropathol.* 101: 174-178.
5. Marchand, S., et al. 2001. Differential targeting of components of the dystrophin complex to the postsynaptic membrane. *Eur. J. Neurosci.* 13: 221-229.
6. Bonuccelli, G., et al. 2007. Localized treatment with a novel FDA-approved proteasome inhibitor blocks the degradation of dystrophin and dystrophin-associated proteins in mdx mice. *Cell Cycle* 6: 1242-1248.

CHROMOSOMAL LOCATION

Genetic locus: DAG1 (human) mapping to 3p21.31.

PRODUCT

α/β -dystroglycan shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μ l frozen stock containing 1.0×10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see α/β -dystroglycan siRNA (h): sc-43488 and α/β -dystroglycan shRNA Plasmid (h): sc-43488-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80°C . Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4°C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

α/β -dystroglycan shRNA (h) Lentiviral Particles is recommended for the inhibition of α/β -dystroglycan expression in human cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μ l frozen viral stock containing 1.0×10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor α/β -dystroglycan gene expression knockdown using RT-PCR Primer: α/β -dystroglycan (h)-PR: sc-43488-PR (20 μ l, 599 bp). Annealing temperature for the primers should be $55-60^\circ\text{C}$ and the extension temperature should be $68-72^\circ\text{C}$.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

PROTOCOLS

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