



EGFR siRNA (r): sc-108050

BACKGROUND

The EGF receptor family comprises several related receptor tyrosine kinases that are frequently overexpressed in a variety of carcinomas. Members of this receptor family include EGFR (HER1), Neu (ErbB-2, HER2), ErbB-3 (HER3) and ErbB-4 (HER4), which form either homodimers or heterodimers upon ligand binding. Exons in the EGFR gene product are frequently either deleted or duplicated to produce deletion mutants (DM) or tandem duplication mutants (TDM), respectively, which are detected at various molecular weights. EGFR binds several ligands, including epidermal growth factor (EGF), transforming growth factor α (TGF α), Amphiregulin and heparin binding-EGF (HB-EGF). Ligand binding promotes the internalization of EGFR via Clathrin-coated pits and its subsequent degradation in response to its intrinsic tyrosine kinase. EGFR is involved in organ morphogenesis and maintenance and repair of tissues, but upregulation of EGFR is associated with tumor progression. The oncogenic effects of EGFR include initiation of DNA synthesis, enhanced cell growth, invasion and metastasis. Abrogation of EGFR results in cell cycle arrest, apoptosis or dedifferentiation of cancer cells, suggesting that EGFR may be an effective therapeutic target.

CHROMOSOMAL LOCATION

Genetic locus: Egfr (rat) mapping to 14q22.

PRODUCT

EGFR siRNA (r) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see EGFR shRNA Plasmid (r): sc-108050-SH and EGFR shRNA (r) Lentiviral Particles: sc-108050-V as alternate gene silencing products.

For independent verification of EGFR (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-108050A, sc-108050B and sc-108050C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

EGFR siRNA (r) is recommended for the inhibition of EGFR expression in rat cells.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

EGFR (A-10): sc-373746 is recommended as a control antibody for monitoring of EGFR gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor EGFR gene expression knockdown using RT-PCR Primer: EGFR (r)-PR: sc-108050-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Nagareddy, P.R., et al. 2009. Maintenance of adrenergic vascular tone by MMP transactivation of the EGFR requires PI3K and mitochondrial ATP synthesis. *Cardiovasc. Res.* 84: 368-377.
- Sandoval, Y.H., et al. 2011. Transactivation of epidermal growth factor receptor by enhanced levels of endogenous Angiotensin II contributes to the overexpression of G α_i proteins in vascular smooth muscle cells from SHR. *Cell. Signal.* 23: 1716-1726.
- Atef, M.E. and Anand-Srivastava, M.B. 2016. Oxidative stress contributes to the enhanced expression of G α_q /PLC β 1 proteins and hypertrophy of VSMC from SHR: role of growth factor receptor transactivation. *Am. J. Physiol. Heart Circ. Physiol.* 310: H608-H618.
- Li, H.J., et al. 2018. Inhibition of miR-21 ameliorates excessive astrocyte activation and promotes axon regeneration following optic nerve crush. *Neuropharmacology* 137: 33-49.
- Shen, J., et al. 2018. Lycorine inhibits glioblastoma multiforme growth through EGFR suppression. *J. Exp. Clin. Cancer Res.* 37: 157.
- Peng, J., et al. 2019. Activation of GPR30 with G α_i attenuates neuronal apoptosis via Src/EGFR/Stat3 signaling pathway after subarachnoid hemorrhage in male rats. *Exp. Neurol.* 320: 113008.
- Vang, A., et al. 2021. α 7 nicotinic acetylcholine receptor mediates right ventricular fibrosis and diastolic dysfunction in pulmonary hypertension. *JCI Insight* 6: 142945.

RESEARCH USE

For research use only, not for use in diagnostic procedures.