Miltenyi Biotec

StemMACS™ Nurr1 (NR4a2) mRNA
human

Order no. 130-104-384

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1. Description

Components	**20 µg StemMACS™ Nurr1 (NR4a2) mRNA** encoding the transcription factor Nurr1 (NR4a2; Entrez Gene ID 4929) **1 mL Double-distilled Water,** RNase-free
Specifications	*In vitro* transcribed, polyadenylated and capped mRNA that has been modified with pseudouridine and 5-methyl-cytidine to reduce the innate antiviral response to single-stranded RNA.
Formulation	Lyophilized from a filtered (0.2 µm) solution.
Storage	Store the lyophilized product at –20 °C. The expiration date is indicated on the label. After reconstitution, the product can be stored at –70 °C for up to 3 month.
Quality control	mRNA size has been verified on an Agilent Bioanalyzer System. Nurr1 (NR4a2) protein expression after transfection was confirmed by immunofluorescence.

1.1 Principle

The transient expression of key developmental regulators, recombinases or markers via mRNA transfection is a powerful tool for modulating cell fate. StemMACS mRNAs are highly pure, *in vitro*-transcribed mRNAs that have been carefully optimized and validated to ensure high level expression after transfection.

1.2 Background information

The transcription factor Nurr1 is a member of the steroid-thyroid hormone-retinoid receptor superfamily. Mutations in this gene have been associated with disorders related to dopaminergic dysfunction, including Parkinson disease, schizophrenia, and manic depression. Nurr1 induces the expression of tyrosine hydroxylase (TH), a critical factor for differentiation into dopaminergic neurons. In pluripotent stem cell research, Nurr1 has been used in combination with other transcription factors (e.g. Mash1, Lmx1a) to promote dopaminergic neuron differentiation.

1.3 Applications

- Differentiation of pluripotent stem cells into dopaminergic neurons.

2. Protocol: Reconstitution of lyophilizate

▲ RNA is susceptible to degradation by exogenous ribonucleases. Wear gloves, use RNase-free reagents, tubes, and pipette tips.

1. Dissolve StemMACS Nurr1 (NR4a2) mRNA in 200 µL of Double-distilled Water. Vortex thoroughly. The final concentration will be 0.1 µg/µL.
2. Briefly centrifuge to collect the content at the bottom of the tube.
3. Prepare aliquots and store at –70 °C to –80 °C. Do not subject aliquots to more than two freeze-thaw cycles.

For satisfactory transfection results, use a protocol that is optimized for your specific cell type. StemMACS™ eGFP mRNA or StemMACS™ Nuclear eGFP mRNA allow easy evaluation of transfection efficiency and are recommended as positive controls.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com/local to find your nearest Miltenyi Biotec contact.

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