



**LD Biopharma, Inc.**  
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## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human NANOG-11R Protein  
**Catalog Number:** hTF-0052  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

NANOG is a transcription factor critically involved with self-renewal of undifferentiated embryonic stem cells. This human protein is encoded by the NANOG gene. It is a marker of undifferentiated human embryonic stem cells and has been used to enhance formation efficiency of induced pluripotent stem (iPS) cells from human fibroblasts.

Recombinant human NANOG-11R protein was constructed with C-terminal tag of 11 arginine domain, which will efficiently deliver protein intracellularly. This protein was expressed in *E. coli* as inclusion bodies, refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified. Incubating this protein in various culture media at 2 – 8 µg/ ml may help to increase PiPS generation efficiency when combined with proteins Oct4-11R, Sox2-11R, Klf4-11R and cMyc-11R.

**Gene Symbol:** NANOG  
**Accession Number:** NP\_079141.2  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 0.5 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Glycerol.  
**Storage:** In Liquid. Keep at -20°C for long term storage. Product is stable at 4 °C for at least 7 days

### Key References

Hongyan Zhou, et al. *Generation of induced pluripotent stem cells using recombinant protein*. Cell Stem Cell. Vol 4. Issue 5: 381-384 (2009)



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Vladimir Torchilin. *Intracellular delivery of protein and peptide therapeutics*. Drug Discovery Today's: Technologies. 01.002 (2009)

Junying Yu et al. *Induced Pluripotent Stem cell lines Derived from human somatic cells*. Science. 10.1126 (2007)

## **Applications**

1. Protein transduction for enhancing PiPS generation efficiency.
2. Active protein, may be used for ELISA based DNA/Protein binding assay.
3. As specific protein substrate for kinase assay.

## **Quality Control**

1. Purity: > 90% by SDS-PAGE.
2. DNA binding activity was demonstrated with ELISA using NANOG specific DNA binding oligo.

## **Recombinant Protein Sequence**

MASMTGGQQMGRGHHHHHGNLYFQGGFVSVDPAQPQLPCFEASDCKESSPMPVICGPEENYP  
SLQMSSAEMPHTETVSPPLPSSMDLLIQDSPDSSTSPKKGQPTSAEKSVAKKEDKVPVKKQKTRT  
VFSSTQLCVLNDRFQRQKYLSQLQMQEELSNILNLSYKQVKTWFQNRMKSKRWQKNNWPKNSNG  
VTQKASAPTYPSLYSSYHQCLVNPTGNLPMWSNQTNWNSNTWSNQTONIQSWSNHSWNTQTWCT  
QSWNNQAWNSPFYNCGEESLQSCMQFQPNSPASDLEAALEAAGEGLNVIQQTTRYFSTPQTMDL  
FLNYSMMNQPEDVESGGGGSPGRRRRRRRRRRR