10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Nanog Rabbit mAb

Catalog # AP76939

Product Information

Application	WB, IHC-P, FC, IP
Primary Accession	Q9H9S0
Reactivity	Human
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Chromatography
Calculated MW	34620

Additional Information

Gene ID	79923
Other Names	NANOG
Dilution	WB~~1:1000 IHC-P~~N/A FC~~1:10~50 IP~~N/A
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	NANOG
Function	Transcription regulator involved in inner cell mass and embryonic stem (ES) cells proliferation and self-renewal. Imposes pluripotency on ES cells and prevents their differentiation towards extraembryonic endoderm and trophectoderm lineages. Blocks bone morphogenetic protein-induced mesoderm differentiation of ES cells by physically interacting with SMAD1 and interfering with the recruitment of coactivators to the active SMAD transcriptional complexes. Acts as a transcriptional activator or repressor. Binds optimally to the DNA consensus sequence 5'-TAAT[GT][GT]-3' or 5'-[CG][GA][CG]C[GC]ATTAN[GC]- 3'. Binds to the POU5F1/OCT4 promoter (PubMed:25825768). Able to autorepress its expression in differentiating (ES) cells: binds to its own promoter following interaction with ZNF281/ZFP281, leading to recruitment of the NuRD complex and subsequent repression of expression. When overexpressed, promotes cells to enter into S phase and proliferation.

Cellular Location	Nucleus {ECO:0000255|PROSITE-ProRule:PRU00108, ECO:0000269|PubMed:15983365}
Tissue Location	Expressed in testicular carcinoma and derived germ cell tumors (at protein level). Expressed in fetal gonads, ovary and testis. Also expressed in ovary teratocarcinoma cell line and testicular embryonic carcinoma. Not expressed in many somatic organs and oocytes.

Background

NANOG (Nanog homeobox) is a divergent homeodomain protein that directs pluripotency and differentiation of undifferentiated embryonic stem cells. NANOG mRNA is present in pluripotent mouse and human cell lines, and absent from differentiated cells. Human NANOG protein shares 52% overall amino acid identity with the mouse protein, and 85% identity in the homeodomain. Human NANOG maps to gene locus 12p13.31, while the mouse NANOG maps to gene loci 6 F2. Murine embryonic NANOG expression is detected in the inner cell mass of the blastocyst. Research studies have shown that high levels of human NANOG expression in the undifferentiated N-Tera embryonal carcinoma cell line. Further, NANOG is a transcription regulator involved in inner cell mass and embryonic stem (ES) cells proliferation and self-renewal. The role of NANOG in embryonic development suggested that it might be useful in the creation of stem cells that might be useful in cell replacement therapies in the treatment of several degenerative diseases. Artificial stem cells, termed induced pluripotent stem (iPS) cells, can be created by expressing POU5F1 (also known as Oct-4), another germline-specific transcription factor, and the transcription factors Sox2, Klf4 and Lin28 along with c-Myc in mouse fibroblasts. Experiments have demonstrated that iPS cells could be generated using expression plasmids expressing NANOG, Sox2, KlfF4 and c-Myc, eliminating the need for virus introduction, thereby addressing a safety concern for potential use of iPS cells in regenerative medicine. When overexpressed, NANOG promotes cells to enter into S phase and proliferation. Diseases associated with dysfunction in the NANOG protein include tetracarcinoma and germ cell/embryonal cancer.