

## BACKGROUND

Nanog is a homeobox-containing transcription factor with an essential function in maintaining the pluripotent cells of the inner cell mass and in the derivation of embryonic stem cells (ESCs) from these. Furthermore, overexpression of Nanog is capable of maintaining the pluripotency and self-renewing characteristics of ESCs under what normally would be differentiation-inducing culture conditions. Concomitant with this essential function in pluripotent cell maintenance is its restricted expression pattern. Nanog transcripts first appear in the inner cells of the morula prior to blastocyst formation, are restricted to the inner cell mass in the blastocyst, and are no longer detectable at implantation. Expression of Nanog reappears in the proximal epiblast at embryonic day 6 and remains restricted to the epiblast as development progresses.<sup>1</sup>

Several extrinsic signals such as LIF, BMP and Wnt can support the self-renewal and pluripotency of embryonic stem (ES) cells through regulating the "pluripotent genes." A unique homeobox transcription factor, Nanog, is one of the key downstream effectors of these signals. Elevated level of Nanog can maintain the mouse ES cell self-renewal independent of LIF and enable human ES cell growth without feeder cells. In addition to the external signal pathways, intrinsic transcription factors such as FoxD3, P53 and Oct4 are also involved in regulating the expression of Nanog.<sup>2</sup> Functionally, Nanog works together with other key pluripotent factors such as Oct4 and Sox2 to control a set of target genes that have important functions in ES cell pluripotency. These key factors form a regulatory network to support or limit each other's expression level, which maintains the properties of ES cells.<sup>3</sup>

### References:

1. Cavaleri, F. & Schöler, H.R.: Cell 113:551-2, 2003
2. Amois, S.: nature Rev. Genet. 7:587-8, 2006
3. Bhattacharya, B. et al: Curr. Stem Cell Res. Ther. 4:98-106, 2009

## TECHNICAL INFORMATION

### Source:

Nanog antibody is a mouse monoclonal antibody raised against purified recombinant human nanog fragments expressed in *E. coli*.

### Specificity and Sensitivity:

This antibody detects endogenous nanog proteins without cross-reactivity with other family members.

**Storage Buffer:** PBS and 30% glycerol

### Storage:

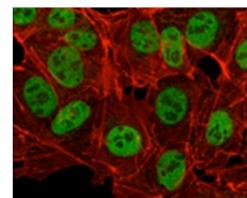
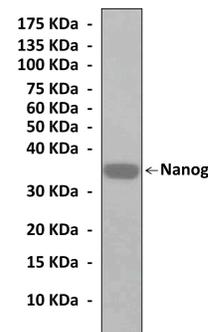
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	n/d
ICC	1:200
FACS	n/d

*\*Optimal dilutions must be determined by end user.*

## QUALITY CONTROL DATA



**Top:** Western Blot detection of Nanog proteins in NTERA-2 cell lysate using Nanog Antibody. **Bottom:** This antibody stains NTERA-2 cells but not HeLa cells that express no Nanog proteins in confocal immunofluorescent analysis (Nanog Antibody: Green; Actin filament: Red).

