SANTA CRUZ BIOTECHNOLOGY, INC.

RNA pol σ N (6RN3): sc-101598

BACKGROUND

RNA polymerase transcribes DNA to synthesize RNA using the four ribonucleoside triphosphates as substrates. In prokaryotes, a catalytic core known as RNAP is formed from α, β and σ RNA pol subunits that, once complexed, can initiate transcription. RNA pol σ N, also known as rpoN, glnF or ntrA, is a 477 amino acid protein that belongs to the σ 54 factor family of *E. coli* peptides. σ factors, such as RNA pol σ N, function as initiation factors that work together to promote the attachment of RNA polymerase to target initiation sites. RNA pol σ N is specifically responsible for mediating the expression of proteins that are involved in arginine catabolism and may be involved in other events during transcription.

REFERENCES

1. Hunt, T.P. and Magasanik, B. 1985. Transcription of glnA by purified *Escherichia coli* components: core RNA polymerase and the products of glnF, glnG, and glnL. Proc. Natl. Acad. Sci. USA 82: 8453-8457.
2. Sasse-Dwight, S. and Gralla, J.D. 1990. Role of eukaryotic-type functional domains found in the prokaryotic enhancer receptor factor sigma 54. Cell 62: 945-954.
3. Merrick, M., Jones, D.H. and Thomas, C.M. 1993. Location of the rpoN gene on the physical map of *Escherichia coli*. J. Bacteriol. 175: 1548-1549.
4. Imaishi, H., Gomada, M., Inouye, S. and Nakazawa, A. 1993. Physical map location of the rpoN gene of *Escherichia coli*. J. Bacteriol. 175: 1550-1551.
5. Jones, D.H., Franklin, F.C. and Thomas, C.M. 1994. Molecular analysis of the operon which encodes the RNA polymerase sigma factor σ 54 of *Escherichia coli*. Microbiology 140: 1035-1043.
6. Powell, B.S., Court, D.L., Inada, T., Nakamura, Y., Michotey, V., Cui, X., Reizer, A., Saier, M.H. and Reizer, J. 1995. Novel proteins of the phosphotransferase system encoded within the rpoN operon of *Escherichia coli*. Enzyme IIANtr affects growth on organic nitrogen and the conditional lethality of an erats mutant. J. Biol. Chem. 270: 4822-4839.
7. Jishage, M., Iwata, A., Ueda, S. and Ishihama, A. 1996. Regulation of RNA polymerase σ subunit synthesis in *Escherichia coli:* intracellular levels of four species of σ subunit under various growth conditions. J. Bacteriol. 178: 5447-5451.
8. Buck, M., Gallegos, M.T., Studholme, D.J., Guo, Y. and Gralla, J.D. 2000. The bacterial enhancer-dependent σ 54 (σ N) transcription factor. J. Bacteriol. 182: 4129-4136.
9. Terui, Y., Higashi, K., Taniguchi, S., Shigemasa, A., Nishimura, K., Yamamoto, K., Kashiwagi, K., Ishihama, A. and Igarashi, K. 2007. Enhancement of the synthesis of RpoN, Cra, and H-NS by polyamines at the level of translation in *Escherichia coli* cultured with glucose and glutamate. J. Bacteriol. 189: 2359-2368.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

SOURCE

RNA pol σ N (6RN3) is a mouse monoclonal antibody raised against RNA polymerase σ factor N of *E. coli* origin, with epitope mapping to amino acids 88-137.

PRODUCT

Each vial contains 100 µl ascites containing IgG_{2a} with < 0.1% sodium azide. Also available azide-free for inhibition of transcription initiation in S30, sc-101598 L, 100 µl ascites.

APPLICATIONS

RNA pol σ N (6RN3) is recommended for detection of RNA pol σ N of *E. coli* origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000).

Molecular Weight of RNA pol σ N: 54 kDa.

RESEARCH USE

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

PROTOCOLS

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