

Furin (575-794): sc-4492 WB

BACKGROUND

Furin (FUR, PACE, PCSK3, SPC1, Kex2p) is a calcium-dependent serine endoprotease that belongs to the subtilisin-like proprotein convertase family. The members of this family process latent precursor proteins into their biologically active products. Furin cleaves at paired basic amino acid processing sites within parathyroid hormone, transforming growth factor beta 1 precursor, proalbumin, pro-beta-secretase, membrane type-1 matrix metalloproteinase, beta subunit of pro-nerve growth factor and von Willebrand factor. Furin can directly cleave proMMP-2 within the trans-Golgi network leading to an inactive form of matrix metalloproteinase-2 (MMP-2). Furin is synthesized as an inactive zymogen that may minimize the occurrence of premature enzymatic activity that would lead to alternative protein activation or degradation. The inhibitory mechanism is based on the presence of an inactivating prosegment at the NH₂ terminal of the Furin. After initial autocatalytic cleavage, the prosegment remains tightly associated until it reaches the trans-Golgi network where the dissociation of the prosegment and activation of furin occurs.

REFERENCES

1. Hatsuzawa, K., Hosaka, M., Nakagawa, T., Nagase, M., Shoda, A., Murakami, K., and Nakayama, K. 1990. Structure and expression of mouse furin, a yeast Kex2-related protease. Lack of processing of coexpressed prorenin in GH4C1 cells. *J. Biol. Chem.* 265: 22075-22078.
2. Van de Ven, W.J., Creemers, J.W., and Roebroek, A.J. 1991. Furin: the prototype mammalian subtilisin-like proprotein-processing enzyme. Endo-proteolytic cleavage at paired basic residues of pro-proteins of the eukaryotic secretory pathway. *Enzyme* 45: 257-270.
3. Van de Ven, W.J., Roebroek, A.J., and Van Duijnhoven, H.L. 1993. Structure and function of eukaryotic proprotein processing enzymes of the subtilisin family of serine proteases. *Crit. Rev. Oncogene* 4: 1115-1136.
4. Van de Ven, W.J., Creemers, J.W., and Roebroek, A.J. 1994. Furin-mediated proprotein processing activity: involvement of negatively charged amino acid residues in the substrate binding region. *Biochimie*. 76: 210-216.
5. Denault, J.B. and Leduc, R. 1996. Furin/PACE/SPC1: a convertase involved in exocytic and endocytic processing of precursor proteins. *FEBS Lett.* 379: 113-116.
6. Nakayama, K. 1997. Furin: a mammalian subtilisin/Kex2p-like endoprotease involved in processing of a wide variety of precursor proteins. *Biochem. J.* 327: 625-635.
7. Lopez de Cicco, R., Bassi, D.E., Zucker, S., Seidah, N.G., and Klein-Szanto, A.J. 2005. Human carcinoma cell growth and invasiveness is impaired by the propeptide of the ubiquitous proprotein convertase Furin. *Cancer Res.* 65: 4162-4171.

SOURCE

Furin (575-794) is expressed in *E. coli* as a 52 kDa tagged fusion protein corresponding to amino acids 575-794 of Furin of human origin.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

PRODUCT

Furin (575-794) is purified from bacterial lysates (>98%) by glutathione agarose affinity chromatography; supplied as 10 µg in 0.1 ml SDS-PAGE loading buffer.

APPLICATIONS

Furin (575-794) is suitable as a Western blotting control for sc-12485 and sc-20801.

RESEARCH USE

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