SANTA CRUZ BIOTECHNOLOGY, INC.

PR (375-564): sc-4417 WB

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The effects of progesterone are mediated by two functionally different isoforms of the progesterone receptor, PR-A and PR-B, which are transcribed from distinct, estrogen-inducible promoters within a single copy of the PR gene. The PR-A and PR-B proteins are 94 kDa and 114 kDa respectively; the first 164 amino acids of PR-B are absent in PR-A. Progesterone-bound PR-A and PR-B have different transcription activation properties. Specifically, PR-B functions as a transcriptional activator in most cell and promoter contexts, while PR-A is transcriptionally inactive and functions as a strong ligand-dependent transdominant repressor of steroid hormone receptor transcriptional activity. An inhibitory domain (ID), which maps to the amino terminus of the receptor, exists within both PR isoforms. Interestingly, the ID is functionally active only in PR-A and is necessary for steroid hormone transrepression by PR-A, suggesting that PR-A and PR-B may have different conformations in the cell. Phosphorylation of human PR occurs on at least nine serine residues. Phosphorylation of three of the residues is hormone-inducible (Ser 102, Ser 294 and Ser 345); the others are basal but hormone-stimulated. The human PR gene maps to 11q13.

REFERENCES

1. Law, M.L., et al. 1987. The progesterone receptor gene maps to human chromosome band 11q13, the site of the mammary oncogene int-2. Proc. Natl. Acad. Sci. USA 84: 2877-2881.
2. Kastner, P., et al. 1990. Two distinct estrogen-regulated promoters generate transcripts encoding the two functionally different human progesterone receptor forms A and B. EMBO J. 9: 1603-1614.
3. Wen, D.X., et al. 1994. The A and B isoforms of the human progesterone receptor operate through distinct signaling pathways within target cells. Mol. Cell. Biol. 14: 8356-8364.
4. Beck, C.A., et al. 1996. Stoichiometry and site-specific phosphorylation of human progesterone receptor in native target cells and in the baculovirus expression system. J. Biol. Chem. 271: 19546-19555.
5. Zhang, Y., et al. 1997. Phosphorylation of human progesterone receptor by cyclin-dependent kinase 2 on three sites that are authentic basal phosphorylation sites in vivo. Mol. Endocrinol. 11: 823-832.
6. Giangrande, P.H., et al. 1997. Mapping and characterization of the functional domains responsible for the differential activity of the A and B isoforms of the human progesterone receptor. J. Biol. Chem. 272: 32889-32900.
7. Giangrande, P.H., et al. 1999. The A and B isoforms of the human progesterone receptor: two functionally different transcription factors encoded by a single gene. Recent Prog. Horm. Res. 54: 291-313.
8. Giangrande, P.H., et al. 2000. The opposing transcriptional activities of the two isoforms of the human progesterone receptor are due to differential cofactor binding. Mol. Cell. Biol. 20: 3102-3115.
9. Clemm, D.L., et al. 2000. Differential hormone-dependent phosphorylation of progesterone receptor A and B forms revealed by a phosphoserine site-specific monoclonal antibody. Mol. Endocrinol. 14: 52-65.

SOURCE

PR (375-564) is expressed in *E. coli* as a 48 kDa tagged fusion protein corresponding to amino acids 375-564 of PR of human origin.

PRODUCT

PR (375-564) is purified from bacterial lysates (>98%) by glutathione agarose affinity chromatography; supplied as 10 µg in 0.1 ml SDS-PAGE loading buffer.

APPLICATIONS

PR (375-564) is suitable Western blotting control for sc-539 and sc-7208.

STORAGE

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

RESEARCH USE

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