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## Product Information

### MONOCLONAL ANTI-ESTROGEN RECEPTOR $\beta$ (ER- $\beta$ ), CLONE 9.88, Mouse Ascites Fluid

Product Number **E 1276**

#### Product Description

Monoclonal Anti-Estrogen Receptor  $\beta$  (ER- $\beta$ ) (mouse IgM isotype) is derived from the 9.88 hybridoma produced by the fusion of NS-1 mouse myeloma cells and splenocytes from a BALB/c mouse immunized with recombinant human estrogen receptor  $\beta$ .

Monoclonal Anti-Estrogen Receptor  $\beta$  detects recombinant human ER- $\beta$  by immunoblotting (53 kDa). No cross reactivity is observed with estrogen receptor  $\alpha$  protein. The antibody reacts with human, mouse and rat ER- $\beta$ . Monoclonal Anti-Estrogen Receptor  $\beta$  may be used for immunoblotting and immunoprecipitation. The antibody is not recommended for use with immunohistochemistry on paraffin-embedded tissues.

The discovery of a second estrogen receptor has redefined the estrogen signaling pathway and may have broad implications on estrogen-responsive tissues.<sup>1</sup> The new estrogen receptor, named estrogen receptor-beta (ER $\beta$ ), is preferentially expressed in the prostate and maintains some characteristics that are different from ER $\alpha$ .<sup>2</sup> The rat tissue distribution and/or the relative level of ER $\alpha$  and ER $\beta$  expression seems to be quite different, i.e., moderate to high expression in uterus, testis, pituitary, ovary, kidney, epididymis, and adrenal for ER $\alpha$  and prostate, ovary, lung, bladder, brain, bone, uterus, and testis for ER $\beta$ . Within the same organ it often appears that the ER subtypes are expressed in different cell types, supporting the hypothesis that the ER's may have different biological functions. The discovery of ER $\beta$  suggests the existence of two previously unrecognized pathways of estrogen signaling, via the ER $\beta$  subtype in tissues exclusively expressing this subtype and via the formation of heterodimers in tissues expressing both ER subtypes. The existence of two ER subtypes, their differential expression pattern, and different actions on certain response elements could provide explanations for the striking species-, cell-, and promoter-specific actions of estrogens and antiestrogens.<sup>3</sup> Both estrogen receptors appear to be involved in a multitude of regulatory events.

Estrogen receptor alpha appears to play a major role in the regulation of reproductive events and estrogen receptor alpha knockout female mice are completely infertile. Estrogen receptor  $\beta$  knockout females have severe but incomplete infertility. Both receptors appear to be of essence for the cardiovascular system.<sup>4</sup>

Five isoforms of the hER  $\beta$  gene, designated hER  $\beta$  1-5 have been identified. The hER  $\beta$  isoform mRNAs displayed a differential pattern of expression in human tissues and in tumor cell lines by RT-PCR. Further characterization of the three full length isoforms, hER  $\beta$  1-3, by *in vitro* band shift studies indicated that the isoforms were able to form DNA-binding homodimers and heterodimers with each other and with the ER  $\alpha$  subtype.<sup>5</sup>

#### Reagents

Monoclonal Anti-Estrogen Receptor  $\beta$  is supplied as mouse ascites fluid containing 0.1% sodium azide.

#### Precautions and Disclaimer

The product is for laboratory use only.

**It may NOT be used FOR *in vitro* diagnostics.**

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

#### Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

**Product Profile**

Recommended working dilution is 1:1,000 for immunoblotting using recombinant human estrogen receptor  $\beta$ , goat anti-mouse IgG (Fab specific)-peroxidase labeled and chemiluminescence.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working dilution by titration test.

**References**

1. Kuiper G. G., et al, Proc. Natl. Acad. Sci. USA, **93**, 5925 (1996).
2. Chang, W. Y., and G. S., Prins, Prostate, **40**, 115 (1999).
3. Kuiper, G. G., et al., Front. Neuroendocrinol., **19**, 253 (1998).
4. Warner, M., et al., Curr. Opin. Obstet. Gynecol., **11**, 249 (1999).
5. Moore, J. T., et al., Biochem. Biophys. Res. Commun., **247**, 75 (1998).

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