

# PRODUCT INFORMATION



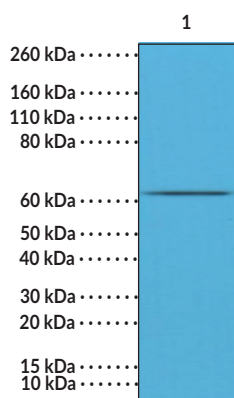
## Estrogen Receptor $\alpha$ Rabbit Monoclonal Antibody (Clone RM292)

Item No. 32234

### Overview and Properties

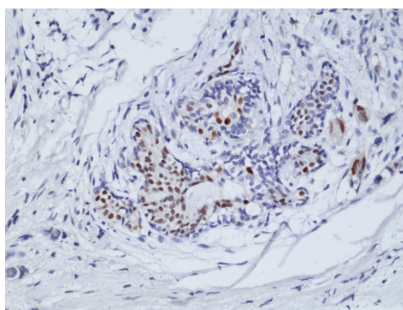
<b>Contents:</b>	This vial contains 100 $\mu$ l of protein A-affinity purified monoclonal antibody.
<b>Immunogen:</b>	Peptide corresponding to a region near the N-terminus of human ER $\alpha$
<b>Cross Reactivity:</b>	(+) ER $\alpha$
<b>Species Reactivity:</b>	(+) Human
<b>Form:</b>	Liquid
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	$\geq$ 1 year
<b>Storage Buffer:</b>	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
<b>Clone:</b>	RM292
<b>Host:</b>	Rabbit
<b>Isotype:</b>	IgG
<b>Applications:</b>	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:100-1:200 for IHC and 1:200-1:500 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

### Images



Lane 1: MCF-7 cell lysates

WB of MCF-7 cell lysates using Estrogen Receptor  $\alpha$  Rabbit Monoclonal Antibody (Clone RM292) at a dilution of 1:500.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human breast cancer tissue using Estrogen Receptor  $\alpha$  Rabbit Monoclonal Antibody (Clone RM292) at a 1:100 dilution.

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

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Estrogen receptor  $\alpha$  (ER $\alpha$ ) is a member of the nuclear receptor superfamily of transcription factors encoded by *ESR1* in humans that has a key role in reproductive function and additional roles in cancer progression and inhibition.<sup>1-3</sup> Alternative splicing of the *ESR1* pre-mRNA produces one full-length 66 kDa isoform and two short-length 46 and 36 kDa isoforms, which contain truncated C-termini.<sup>3</sup> ER $\alpha$  is comprised of an N-terminal domain that contains AF-1, which is critical for the transactivation function of ER $\alpha$ , a DNA-binding domain that recognizes estrogen response elements (EREs) on target genes, and a C-terminal ligand-binding domain (LBD) that contains the nuclear localization signal.<sup>1,2</sup> ER $\alpha$  is widely expressed in numerous tissues, including breast, prostate, uterus, liver, and bone, and localizes to the cytoplasm in a complex with heat shock protein 90 (Hsp90).<sup>2,3</sup> Upon estrogen stimulation, ER $\alpha$  dissociates from Hsp90, dimerizes, and translocates to the nucleus, where it binds EREs expressed by target genes encoding proteins that activate numerous signaling pathways, including ERK/MAPK, PI3K/Akt/mTOR, and NF- $\kappa$ B, and influence a variety of cellular processes, including reproductive function, bone homeostasis, and inflammation, as well as tumor progression and metastasis.<sup>1,2</sup> ER $\alpha$  is overexpressed in more than 50% of patients with breast cancer, but is associated with improved prognosis, whereas loss of ER $\alpha$  is a feature of triple-negative breast cancer (TNBC) and is associated with resistance to hormonal therapy.<sup>4</sup> Cayman's Estrogen Receptor  $\alpha$  Rabbit Monoclonal Antibody (Clone RM292) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

## References

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1. Liu, Y., Ma, H., and Yao, J. ER $\alpha$ , a key target for cancer therapy: A review. *Onco. Targets Ther.* **13**, 2183-2191 (2020).
2. Arnal, J.-F., Lenfant, F., Metivier, R., et al. Membrane and nuclear estrogen receptor alpha actions: From tissue specificity to medical implications. *Physiol. Rev.* **97(3)**, 1045-1087 (2017).
3. Hua, H., Zhang, H., Kong, Q., et al. Mechanisms for estrogen receptor expression in human cancer. *Exp. Hematol. Oncol.* **7**, 24 (2018).
4. Ali, S. and Coombes, R.C. Estrogen receptor alpha in human breast cancer: occurrence and significance. *J. Mammary Gland Biol. Neoplasia* **5(3)**, 271-281 (2000).

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