

# SignalSlide® Phospho-ErbB Family IHC Controls

✓ 1 Pack  
(5 slides)

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New 06/09

This product is for *in vitro* research use only and is not intended for use in humans or animals.  
This product is not intended for use as a therapeutic or in diagnostic procedures.

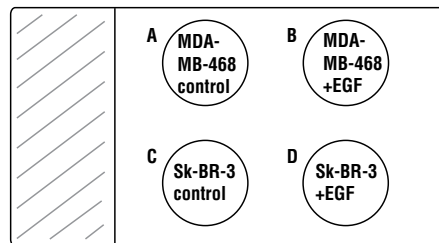
**Description:** Each control slide contains formalin-fixed and paraffin-embedded MDA-MB-468 cells, untreated and EGF-treated, that can serve as a control for Phospho-EGF Receptor (Tyr1173) immunostaining. Paraffin-embedded SK-BR-3 cells, untreated and EGF-treated, can be used as a control for Phospho-EGF Receptor (Tyr1173), Phospho-HER2/ErbB2 (Tyr1221/1222) and Phospho-HER3/ErbB3 (Tyr1289) immunostaining. Both sets of cell pellets will stain with EGF Receptor (D38B1) Rabbit mAb. Western blot analysis was performed on extracts derived from the same cells to verify treatment efficacy.

**Background:** The epidermal growth factor (EGF) receptor is a 170 kDa transmembrane tyrosine kinase that belongs to the HER/ErbB protein family. Ligand binding results in receptor dimerization, autophosphorylation, activation of downstream signaling and lysosomal degradation (1,2). EGFR is phosphorylated on multiple tyrosine residues, each of which leads to activation of a specific downstream pathway. Major residues involved in EGFR signaling include: Tyr845, Tyr992, Tyr1045, Tyr1068, Tyr1148 and Tyr1173 (2-9). Phosphorylation of EGFR at specific serine and threonine residues attenuates EGFR kinase activity. EGFR carboxy-terminal residues Ser1046 and Ser1047 are phosphorylated by CaM kinase II; a mutation to either of these serines results in upregulated EGFR tyrosine autophosphorylation (10).

The ErbB2 (HER2) proto-oncogene encodes a 185 kDa transmembrane, receptor-like glycoprotein with intrinsic tyrosine kinase activity (11). While ErbB2 lacks an identified ligand, ErbB2 kinase activity can be activated in the absence of a ligand when overexpressed and through heteromeric associations with other ErbB family members (12). Amplification of the ErbB2 gene and overexpression of its product are detected in almost 40% of human breast cancers, making it a key therapeutic target (13). ErbB2 has several key residues that are phosphorylated upon its activation including Tyr877, Tyr1221/1222 and Tyr1248 (11,14).

HER3/ErbB3 is a member of the ErbB receptor protein tyrosine kinase family that lacks tyrosine kinase activity. Tyrosine phosphorylation of ErbB3 depends on its association with other ErbB tyrosine kinases. Ligand binding promotes formation of a heterodimer containing ErbB3 and another ErbB protein and subsequent tyrosine phosphorylation of ErbB3 by the activated ErbB kinase (15,16). At least nine putative carboxy-terminal tail tyrosine phosphorylation sites are found in ErbB3, including Tyr1222 and Tyr1289 (17). ErbB3 may function as an oncogenic unit together with other ErbB members in tumor development; ErbB2 requires ErbB3 to drive breast tumor cell proliferation (18). A novel anti-tumor strategy involves inhibiting the interaction between ErbB3 and ErbB tyrosine kinases.

**Applications:** These slides are intended for use in immunohistochemical assays. Please see our website for a list of companion products that can be used with these slides.



**Entrez-Gene ID** #1956, 2064, 2065  
**Swiss-Prot Acc.** #P00533, P04626, P21860

**Storage:** Store at 4°C.

Optimal staining is achieved if slides are stained following CST's standard IHC protocols and are used within 8 weeks of assay date; however, signals may persist beyond two months.

**For application specific protocols please see the web page for this product at [www.cellsignaling.com](http://www.cellsignaling.com).**

**Please visit [www.cellsignaling.com](http://www.cellsignaling.com) for a complete listing of recommended companion products.**

#### Background References:

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## Certificate of Non-Hazardous Material

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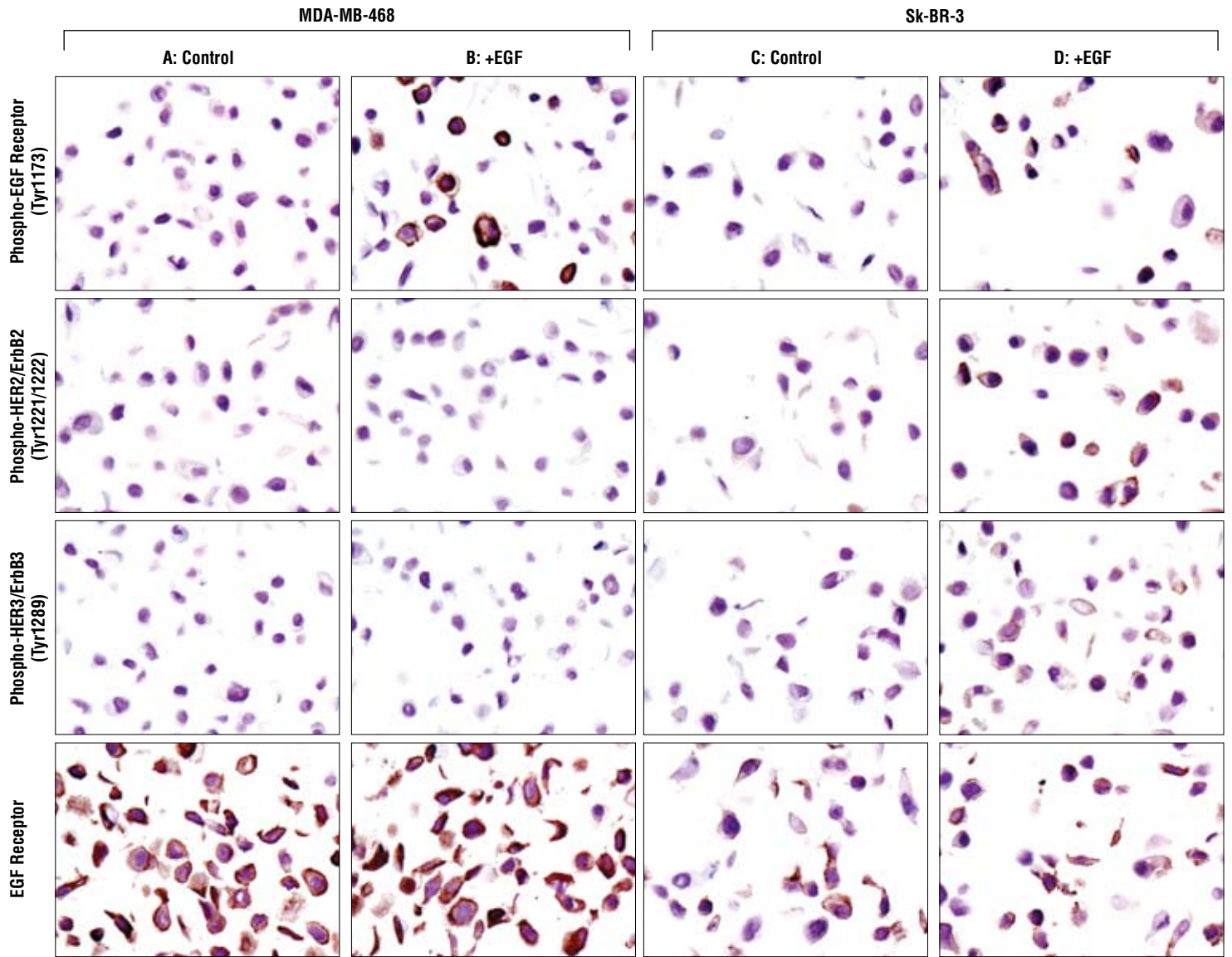
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**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide

**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine

Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.



Immunohistochemical analysis of paraffin-embedded MDA-MB-468 and SK-BR-3 cell pellets, either untreated (A,C) or EGF-treated (B,D), using Phospho-EGF Receptor (Tyr1173) (53A5) Rabbit mAb, Phospho-HER2/ErbB2 (Tyr1221/1222) (6B12) Rabbit mAb, Phospho-HER3/ErbB3 (Tyr1289) (21D3) Rabbit mAb or EGF Receptor (D38B1) Rabbit mAb.