Background: The ErbB2 (HER2) proto-oncogene encodes a 185 kDa transmembrane, receptor-like glycoprotein with intrinsic tyrosine kinase activity (1). 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 (2). Amplification of the ErbB2 gene and overexpression of its product are detected in almost 40% of human breast cancers (3). Binding of the c-Cbl ubiquitin ligase to ErbB2 at Tyr1112 leads to ErbB2 poly-ubiquitination and enhances degradation of this kinase (4). ErbB2 is a key therapeutic target in the treatment of breast cancer and other carcinomas and targeting the regulation of ErbB2 degradation by the c-Cbl-regulated proteolytic pathway is one potential therapeutic strategy. Phosphorylation of the kinase domain residue Tyr877 of ErbB2 (homologous to Tyr416 of pp60c-Src) may be involved in regulating ErbB2 biological activity. The major auto phosphorylation sites in ErbB2 are Tyr1248 and Tyr1221/1222; phosphorylation of these sites couples ErbB2 to the Ras-Raf-MAP kinase signal transduction pathway (1,5).

Specificity/Sensitivity: Phospho-HER2/ErbB2 (Tyr1221/1222) (6B12) Rabbit mAb detects endogenous levels of ErbB2 only when phosphorylated at tyrosines 1221/1222. The antibody does not detect other activated ErbB family members or other tyrosine-phosphorylated proteins.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding tyrosines 1221/1222 of human ErbB2 protein.

Background References:

Recommended Antibody Dilutions:
Western Blotting 1:1000
Immunohistochemistry (Paraffin) 1:320†
Immunohistochemistry (Frozen) 1:320†

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

*Species cross-reactivity is determined by western blot.
**Anti-rabbit secondary antibodies must be used to detect this antibody.

For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com
Immunohistochemical analysis of paraffin-embedded SKBr3 cell pellets untreated (left) EGF-treated (right) either untreated (top) or alkaline phosphatase-treated (bottom), using Phospho-HER2/ErbB2 (Tyr1221/1222) (6B12) Rabbit mAb.


Immunohistochemical analysis of paraffin-embedded human renal adenocarcinoma, using Phospho-HER2/ErbB2 (Tyr1221/1222) (6B12) Rabbit mAb in the presence of control peptide (left) or Phospho-HER2/ErbB2 (Tyr1221/1222) Blocking Peptide #1254 (right).
