

# CPTC-ERBB2-2(CAB080190)

**Uniprot ID:** P04626

**Protein name:** ERBB2\_HUMAN

**Full name:** Receptor tyrosine-protein kinase erbB-2

**Tissue specificity:** Expressed in a variety of tumor tissues including primary breast tumors and tumors from small bowel, esophagus, kidney and mouth.

**Function:** Protein tyrosine kinase that is part of several cell surface receptor complexes, but that apparently needs a coreceptor for ligand binding. Essential component of a neuregulin-receptor complex, although neuregulins do not interact with it alone. GP30 is a potential ligand for this receptor. Regulates outgrowth and stabilization of peripheral microtubules (MTs). Upon ERBB2 activation, the MEMO1-RHOA-DIAPH1 signaling pathway elicits the phosphorylation and thus the inhibition of GSK3B at cell membrane. This prevents the phosphorylation of APC and CLASP2, allowing its association with the cell membrane. In turn, membrane-bound APC allows the localization of MACF1 to the cell membrane, which is required for microtubule capture and stabilization. In the nucleus is involved in transcriptional regulation. Associates with the 5'-TCAAATTC-3' sequence in the PTGS2/COX-2 promoter and activates its transcription. Implicated in transcriptional activation of CDKN1A; the function involves STAT3 and SRC. Involved in the transcription of rRNA genes by RNA Pol I and enhances protein synthesis and cell growth.

**Subcellular location:**

**Isoform 1:**

Cell membrane (*experimental evidence*) (Topo: Single-pass type I membrane protein)

Early endosome (*experimental evidence*)

Cytoplasm > Perinuclear region

Nucleus

*NOTE:* Translocation to the nucleus requires endocytosis, probably endosomal sorting and is mediated by importin beta-1/KPNB1. Also detected in VPS35-positive endosome-to-TGN retrograde vesicles (PubMed:31138794).

**Isoform 2:**

Cytoplasm

Nucleus

**Isoform 3:**

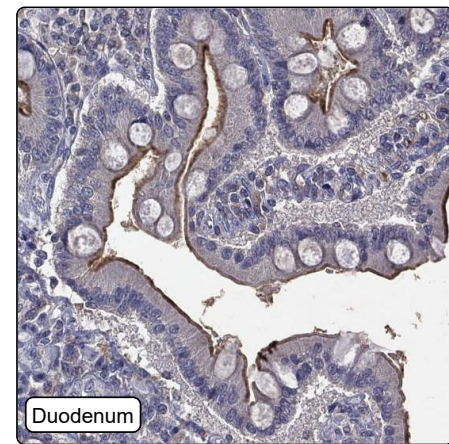
Cytoplasm

Nucleus

**Protein existence:** Experimental evidence at protein level

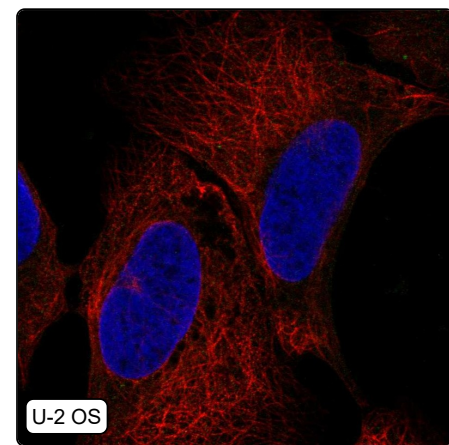
**Comment:**

## Immunohistochemistry



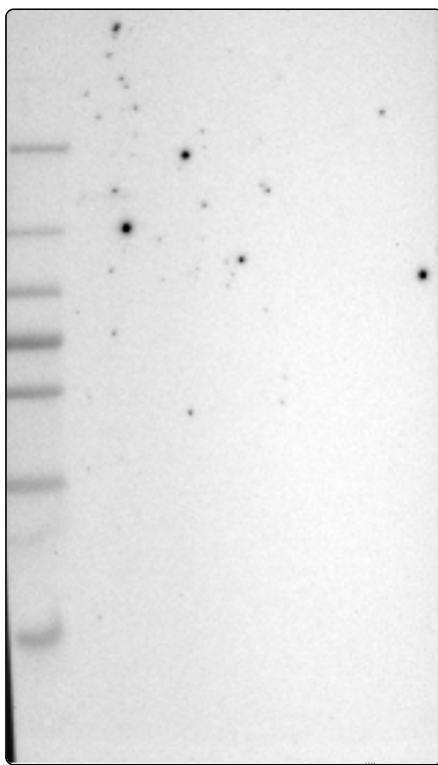
<b>IHC protocol:</b>	HIER pH6, Dilution 1:800
<b>IHC test staining:</b>	Positivity in the apical membrane of the gastrointestinal tract.
<b>Literature conformance:</b>	Not consistent with gene/protein characterization data
<b>Literature significance:</b>	
<b>RNA similarity:</b>	Very low consistency between antibody staining and RNA expression data
<b>RNA tissue specificity:</b>	Low tissue specificity
<b>RNA tissue distribution:</b>	Detected in all
<b>IHC Sibling similarity:</b>	Other antibody shows dissimilar IHC staining pattern
<b>IHC fail comment:</b>	ANTIBODY FAILED: Not consistent with RNA

## Immunofluorescence



<b>IF Overlay:</b>	antibody (green), anti-tubulin (red) and DAPI (blue)
<b>IF main location:</b>	
<b>IF additional location:</b>	
<b>IF approved for publication on HPA:</b>	No
<b>IF in THP-1:</b>	Negative
<b>IF in U-2 OS:</b>	Negative

# Western blot



<b>WB Size markers (kDa):</b>	250, 130, 100, 70, 55, 35, 25, 15, 10
<b>WB Lanes:</b>	Marker (1), RT4 (2), U-251 MG (3), Plasma (4), Liver (5), Tonsil (6)
<b>WB Target weight (kDa):</b>	11, 18, 19, 28, 67, 108, 117, 135, 135, 136, 138
<b>WB Validation:</b>	Uncertain (No bands detected.)