

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human DDR2 when phosphorylated at Y740.
Source	Recombinant Monoclonal Rabbit IgG Clone # 1119D
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Phosphopeptide containing the human DDR2 Y740 site Accession # Q16832
Formulation	Supplied as a solution in PBS containing BSA, Glycerol and Sodium Azide. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Western Blot	1:1000 dilution	See Below
Simple Western	1:100 dilution	See Below

DATA

Western Blot

Detection of Human Phospho-DDR2 (Y740) by Western Blot. Western blot shows lysates of HEK293 human embryonic kidney cell line transfected with human DDR2 untreated (-) or treated (+) with Calyculin A for 10 minutes. PVDF membrane was probed with 1:1000 dilution of Rabbit Anti-Human Phospho-DDR2 (Y740) Monoclonal Antibody (Catalog # MAB25382) followed by HRP-conjugated Anti-Rabbit IgG Secondary Antibody (Catalog # HAF008). A specific band was detected for Phospho-DDR2 (Y740) at approximately 120-130 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Simple Western

Detection of Human Phospho-DDR2 (Y740) by Simple Western™. Simple Western lane view shows lysates of HEK293 human embryonic kidney cell line transfected with human DDR2 untreated (-) or treated (+) with Calyculin A for 10 minutes, loaded at 0.2 mg/mL. A specific band was detected for Phospho-DDR2 (Y740) at approximately 130 kDa (as indicated) using 1:100 dilution of Rabbit Anti-Human Phospho-DDR2 (Y740) Monoclonal Antibody (Catalog # MAB25382). This experiment was conducted under reducing conditions and using the 66-440 kDa separation system.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C, as supplied. ● 1 month, 2 to 8 °C under sterile conditions after opening. ● 6 months, -20 to -70 °C under sterile conditions after opening.

BACKGROUND

DDR2, also known as TYR010 and TKT, is a widely expressed 130 kDa type I transmembrane glycoprotein belonging to the discoidin-like domain containing subfamily of receptor tyrosine kinases (1). Mature human DDR2 consists of a 378 amino acid (aa) extracellular domain (ECD) that includes the discoidin-like domain, a 22 aa transmembrane segment, and a 434 aa cytoplasmic domain that includes the kinase domain (2). Within the ECD, human DDR2 shares 53% aa sequence identity with DDR1 and 97% aa sequence identity with mouse DDR2. The discoidin-like domain mediates DDR2 interactions with collagens I, III, and X (3-5). Collagens II and V are less efficacious ligands (3). DDR2 selectively recognizes the triple helical structure of collagen compared to monomeric or denatured collagen (3, 5, 6). Within collagen II, the D2 period is required for DDR2 binding, and the D1 period is additionally required to trigger DDR2 autophosphorylation (6). The ECD of DDR2 exists as a non-covalent dimer in solution, and dimerization of the receptor greatly enhances collagen binding (4, 7). DDR2 interaction with collagen I inhibits collagen fibrillogenesis and alters collagen fiber morphology (7). Ligand binding induces DDR2 autophosphorylation in the cytoplasmic domain (3, 5, 8), which promotes associations with Shc and Src (9). In addition to the above mechanism, DDR2 exhibits a distinct interaction with collagen X. A region other than the discoidin-like domain of DDR2 recognizes the non-helical NC1 domain of collagen X, and this interaction does not lead to receptor autophosphorylation (5). Activation of DDR2 by collagen induces upregulation of MMP-1, -2, and -13 as well as DDR2 itself (3, 8, 10). DDR2 is implicated in collagenous matrix destruction and cell invasiveness (8, 10). DDR2 is also upregulated in several pathological conditions, including hepatic fibrosis following injury, rheumatoid and osteoarthritis, and smooth muscle cell hyperplasia (8, 10-12).

References:

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2. Karn, T. *et al.* (1993) *Oncogene* **8**:3433.
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4. Leitinger, B. (2003) *J. Biol. Chem.* **278**:16761.
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6. Leitinger, B. *et al.* (2004) *J. Mol. Biol.* **344**:993.
7. Mihai, C. *et al.* (2006) *J. Mol. Biol.* **361**:864.
8. Olaso, E. *et al.* (2001) *J. Clin. Invest.* **108**:1369.
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11. Wang, J. *et al.* (2002) *J. Autoimmun.* **19**:161.
12. Ferri, N. *et al.* (2004) *Am. J. Pathol.* **164**:1575.

PRODUCT SPECIFIC NOTICES

* Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to SDS for additional information and handling instructions.