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Anti-phospho-SPAK Antibody (Ser373) / phospho-OSR1 Antibody (Ser325) from rabbit, purified by affinity chromatography

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Unit EA

Description

As members of the (sterile 20)-like (STE20) kinase family, the oxidative-stress-responsive kinase 1 (OSR1) and the SPS1-related proline/alanine-rich kinase (SPAK) serve as key enzymes in a signaling cascade, which mediate the activity of Na+/K+/2CI- cotransporters (NKCCs) in response to osmotic stress. Both kinases have a conserved carboxy-terminal (CCT) domain, which are 79% identical to each other at the sequence level, and are also highly conserved in orthologues of these enzymes in Caenorhabditis elegans, Drosophila, and Xenopus. The CCT domain reflects no similarity to sequences found in other proteins. This domain is known to recognize and interact with a unique peptide (Arg-Phe-Xaa-Val) motif, which is present in OSRT1- and SPAK-activating kinases (with-no-lysine-kinase 1 (WNK1 and WNK4) and also in STE20 kinase family substrates (NKCC1 and NKCC2). It is reported that phosphorylation of a Ser/Thr residue preceding the (Arg-Phe-Xaa-Val) motif results in steric clash, and subsequent dissociation from the CCT domain. Furthermore, patients suffering from Gordon syndrome carry mutated WNK1 and WNK4 genes.