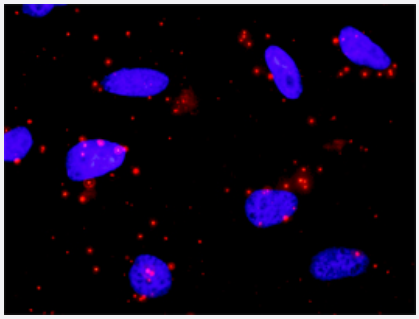
# CAMK2A & SMAD2 Protein Protein Interaction Antibody Pair

Catalog # DI0543 Size 1 Set

## Applications



Representative image of Proximity Ligation Assay of protein-protein interactions between CAMK2A and SMAD2. HeLa cells were stained with anti-CAMK2A rabbit purified polyclonal antibody 1:1200 and anti-SMAD2 mouse monoclonal antibody 1:50. Each red dot represents the detection of protein-protein interaction complex. The images were analyzed using an optimized freeware (BlobFinder) download from The Centre for Image Analysis at Uppsala University.

## Specification

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| **Product Description** | This protein protein interaction antibody pair set comes with two antibodies to detect the protein-protein interaction, one against the CAMK2A protein, and the other against the SMAD2 protein for use in *in situ* Proximity Ligation Assay. See Publication Reference below. |
| **Reactivity** | Human |
| **Quality Control Testing** | Protein protein interaction immunofluorescence result.<br>Representative image of Proximity Ligation Assay of protein-protein interactions between CAMK2A and SMAD2. HeLa cells were stained with anti-CAMK2A rabbit purified polyclonal antibody 1:1200 and anti-SMAD2 mouse monoclonal antibody 1:50. Each red dot represents the detection of protein-protein interaction complex. The images were analyzed using an optimized freeware (BlobFinder) download from The Centre for Image Analysis at Uppsala University. |
| **Supplied Product** | Antibody pair set content:<br>1. CAMK2A rabbit purified polyclonal antibody (100 ug)<br>2. SMAD2 mouse monoclonal antibody (40 ug)<br>*Reagents are sufficient for at least 30-50 assays using recommended protocols. |
| **Storage Instruction** | Store reagents of the antibody pair set at -20°C or lower. Please aliquot to avoid repeated freeze thaw cycle. Reagents should be returned to -20°C storage immediately after use. |

## Applications

- *In situ* Proximity Ligation Assay (Cell)

## Gene Info — CAMK2A

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| **Entrez GeneID** | 815 |
| **Gene Name** | CAMK2A |
| **Gene Alias** | CAMKA, KIAA0968 |
| **Gene Description** | calcium/calmodulin-dependent protein kinase II alpha |
| **Omim ID** | 114078 |
| **Gene Ontology** | Hyperlink |
| **Gene Summary** | The product of this gene belongs to the serine/threonine protein kinases family, and to the Ca(2+)/ calmodulin-dependent protein kinases subfamily. Calcium signaling is crucial for several aspects of plasticity at glutamatergic synapses. This calcium calmodulin-dependent protein kinase is com posed of four different chains: alpha, beta, gamma, and delta. The alpha chain encoded by this ge ne is required for hippocampal long-term potentiation (LTP) and spatial learning. In addition to its calcium-calmodulin (CaM)-dependent activity, this protein can undergo autophosphorylation, resul ting in CaM-independent activity. Two transcript variants encoding distinct isoforms have been id entified for this gene. [provided by RefSeq |
| **Other Designations** | CaM kinase II alpha subunit\|CaM-kinase II alpha chain\|CaMK-II alpha subunit\|CaMKIINalpha\|OTT HUMP00000165787\|OTTHUMP00000165788\|calcium/calmodulin-dependent protein kinase (Ca M kinase) II alpha\|calcium/calmodulin-dependent protein kinase II alpha-B subunit |

## Gene Info — SMAD2

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| **Entrez GeneID** | 4087 |
| **Gene Name** | SMAD2 |
| **Gene Alias** | JV18, JV18-1, MADH2, MADR2, MGC22139, MGC34440, hMAD-2, hSMAD2 |
| **Gene Description** | SMAD family member 2 |
| **Omim ID** | 601366 |
| **Gene Ontology** | Hyperlink |

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| **Gene Summary** | The protein encoded by this gene belongs to the SMAD, a family of proteins similar to the gene products of the Drosophila gene 'mothers against decapentaplegic' (Mad) and the C. elegans gene Sma. SMAD proteins are signal transducers and transcriptional modulators that mediate multiple signaling pathways. This protein mediates the signal of the transforming growth factor (TGF)-beta, and thus regulates multiple cellular processes, such as cell proliferation, apoptosis, and differentiation. This protein is recruited to the TGF-beta receptors through its interaction with the SMAD anchor for receptor activation (SARA) protein. In response to TGF-beta signal, this protein is phosphorylated by the TGF-beta receptors. The phosphorylation induces the dissociation of this protein with SARA and the association with the family member SMAD4. The association with SMAD4 is important for the translocation of this protein into the nucleus, where it binds to target promoters and forms a transcription repressor complex with other cofactors. This protein can also be phosphorylated by activin type 1 receptor kinase, and mediates the signal from the activin. Alternatively spliced transcript variants encoding the same protein have been observed. [provided by RefSeq |
| **Other Designations** | MAD, mothers against decapentaplegic homolog 2\|Mad protein homolog\|Mad, mothers against decapentaplegic homolog 2\|Mad-related protein 2\|SMAD, mothers against DPP homolog 2\|Sma- and Mad-related protein 2\|mother against DPP homolog 2 |

## Pathway

- Adherens junction
- Calcium signaling pathway
- Cell cycle
- Colorectal cancer
- ErbB signaling pathway
- Glioma
- GnRH signaling pathway
- Long-term potentiation
- Melanogenesis
- Neurotrophin signaling pathway
- Olfactory transduction
- Pancreatic cancer
- Pathways in cancer
- TGF-beta signaling pathway
- Wnt signaling pathway

- Wnt signaling pathway

## Disease

- Adenocarcinoma
- Bipolar Disorder
- Cleft Lip
- Cleft Palate
- Cognition
- Colitis
- Colorectal Neoplasms
- Esophageal Neoplasms
- Genetic Predisposition to Disease
- Genetic Predisposition to Disease
- Hypertension
- Inflammatory Bowel Diseases
- Liver Cirrhosis
- Obesity
- Osteoporosis
- Ovarian Failure
- Pancreatic cancer
- Pancreatic Neoplasms
- Polycystic Ovary Syndrome
- Puberty
- Schizophrenia
- Schizophrenic Psychology
- Thrombophilia

- Tobacco Use Disorder
- Tobacco Use Disorder
- Weight Gain