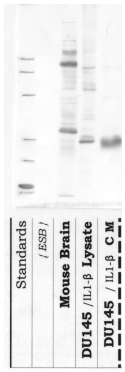
Anti-DPP6 Rabbit Polyclonal Antibody

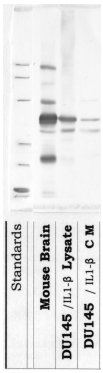
Dipeptidyl aminopeptidase-like protein 6, DPPX, Dipeptidyl aminopeptidase-related protein, Dipeptidyl peptidase 6, Dipeptidyl peptidase IV-like protein, Dipeptidyl peptidase VI, DPP VI,

Gene: DPP6 **UniProt:** P42658 **Host:** Rabbit **Clonality:** Polyclonal (pAb)

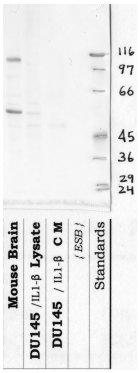
Product Image



Stalk region
RP1DPP6



Â Spacer Region
RP2DPP6



Catalytic domain
RP3DPP6

— Western Blot (3-panel validation across domain-specific antibody clones)

Actual Western blot validation for anti-DPP6 rabbit polyclonal antibody. 3-panel validation across domain-specific antibody clones — each panel labeled with its catalog number and target domain. Reducing conditions; 10–20 µg/lane on 7.5–10% SDS-PAGE.

Key Product Facts

Supplier	Triple Point Biologics, Inc. (Sudbury, Ontario, Canada)
Product Name	Anti-DPP6 Rabbit Polyclonal Antibody
Gene Symbol	DPP6
Alternative Names	Dipeptidyl aminopeptidase-like protein 6, DPPX, Dipeptidyl aminopeptidase-related protein, Dipeptidyl peptidase 6, Dipeptidyl peptidase IV-like protein, Dipeptidyl peptidase VI, DPP VI,
UniProt ID	P42658
Host Species	Rabbit
Clonality	Polyclonal (pAb)
Isotype	IgG
Concentration	1mg/ml
Purity	Affinity purified
Pack Size	100ug
Validated Application	WB
Recommended Dilution	WB-1/1000
Species Reactivity	Validated- Human Potential-Mouse, Rat, Pan, Monkey, Dog
Immunogen Type	Synthetic Peptide from Uniprot Sequence
Conjugation	none
Buffer / Preservatives	Sodium Chloride 500 mM, Sodium Phosphate 10 mM, Potassium Phosphate 1.8 mM, Potassium Chloride 2.7 mM, Glycerol 50% (v/v)
Website	triplepointbiologics.com/anti-dpp-6-rabbit-polyclonal-antibody

Available Domain-Specific Variants

Triple Point Biologics produces antibodies to defined structural domains of DPP6. Each variant is directed at a specific structural region of the protein. Exact peptide sequences are proprietary; each variant is validated for the applications listed.

Domain / Variant	Epitope Region (approx. residues)	Cat. No.	Availability

Stalk Region	**76–95** Region within the extracellular stalk segment of human DPP-6, immediately distal to the single-pass transmembrane domain and proximal to the catalytic-like α/β-hydrolase domain; this region forms an elongated arm that projects from the plasma membrane and is implicated in direct contact with the voltage-sensing domain of Kv4 α-subunits	RP1DPP6	In catalog
Â Spacer Region	**~271–430** Region spanning the mid-extracellular spacer segment of human DPP-6, situated between the membrane-proximal stalk and the globular catalytic-like domain; this portion of the ectodomain contributes to overall extracellular architecture and is accessible to autoantibodies identified in DPP-6-associated autoimmune encephalitis	RP2DPP6	In catalog
Catalytic domain	**1–865** Region encompassing the C-terminal α/β-hydrolase fold domain of human DPP-6, which is structurally homologous to the catalytic domains of active S9 serine proteases but is enzymatically inactive due to substitution of canonical catalytic triad residues; this domain forms the globular head of the extracellular portion of the protein	RP3DPP6	In catalog
—	**1–865** Broad extracellular region of human DPP-6 spanning the stalk, spacer, and catalytic-like α/β-hydrolase fold domains; this multi-domain antigen is suited to applications requiring recognition of multiple epitopes across the ectodomain and provides broad immunoreactivity against the full-length protein	RP-DPP6	In catalog

Applications & Recommended Dilutions

App.	Species	Dilution Range	Notes
WB	Validated-Human Potential-Mouse, Rat, Pan, Monkey, Dog	1:1000	Optimal dilution should be determined per laboratory and lot.

Optimal dilutions should be determined by each laboratory for each application. Triple Point Biologics antibodies include a peptide-neutralized negative control aliquot for specific-signal confirmation.

Storage & Handling

Short-term Storage	+4°C (1–2 weeks)
Long-term Storage	Aliquot and store at -20°C
Shipping Conditions	Shipped in styrofoam cooler on blue ice
Hazard Warning	Product may contain Sodium Azide — POISONOUS AND HAZARDOUS. Handle by trained personnel only.
Shelf Life	12 months from date of receipt under recommended conditions

Target Background

Family & General Biology

Dipeptidyl peptidase 6 (DPP-6, also designated DPPX) is an 865-amino acid type II transmembrane glycoprotein that belongs to the S9B sub-family of the prolyl oligopeptidase clan. Although it shares substantial sequence similarity with catalytically active dipeptidyl peptidases such as DPP-4 and FAP, DPP-6 harbours substitutions at two of the three canonical catalytic triad residues, rendering it enzymatically inactive as a protease. Its biological significance lies instead in its role as an obligate auxiliary subunit of voltage-gated potassium channels, placing it in a functionally distinct category from other S9 family members.

Expression & Localisation

DPP-6 is most abundantly expressed in the central nervous system, with particularly high levels in the cerebellum, hippocampus, and cerebral cortex. Significant expression is also detected in cardiac myocytes, where the protein contributes to repolarisation. As a type II transmembrane protein, DPP-6 is oriented with a short cytoplasmic N-terminus, a single-pass transmembrane domain, and a large extracellular region comprising a stalk segment and a C-terminal α/β-hydrolase fold catalytic-like domain. At the cell surface it co-localises with Kv4 channel complexes in neuronal dendrites and at the intercalated discs of cardiomyocytes.

Potassium Channel Auxiliary Subunit Function

DPP-6 associates with pore-forming KCND2 (Kv4.2) and KCND3 (Kv4.3) α-subunits together with KChIP proteins to form the native A-type (rapidly inactivating) potassium channel complex. Co-assembly with DPP-6 markedly accelerates both the activation and inactivation kinetics of Kv4 channels and shifts their voltage dependence of activation, resulting in a substantially larger transient outward current (I_to). DPP-6 also promotes anterograde trafficking of Kv4.2 to the plasma membrane, increasing surface channel density. The extracellular stalk region of DPP-6 is thought to mediate direct contact with the voltage-sensing domain of the Kv4 α-subunit, whereas the intracellular N-terminus stabilises the intracellular KChIP interaction interface.

Role in Neuronal Excitability

In hippocampal and cerebellar granule neurons, the DPP-6–Kv4.2 complex underlies the somatodendritic A-type current that dampens back-propagating action potentials and controls dendritic integration. Loss of DPP-6 function reduces I_to density in these neurons, broadening action potentials and increasing excitability. In the cerebellum, DPP-6 is critical for the characteristic high-frequency pacemaking of granule cells. Genetic deletion studies in rodents demonstrate that absence of DPP-6 results in altered hippocampal network oscillations and impaired spatial memory, consistent with the protein's central role in regulating the temporal precision of neuronal firing.

Cardiac Relevance

In the heart, DPP-6 modulates the rapidly recovering I_to that governs the early phase of action potential repolarisation in the ventricular epicardium. Reduced DPP-6 expression or loss-of-function variants alter the balance between inward sodium and

outward potassium currents, predisposing to abnormal repolarisation and ventricular arrhythmias. Rare copy-number variants and missense mutations in DPP6 have been associated with idiopathic ventricular fibrillation and Brugada-pattern ECG changes in human genetic studies, underscoring the protein's non-redundant contribution to cardiac electrophysiology.

Disease Relevance & Autoimmune Encephalitis

Autoantibodies directed against the extracellular domain of DPP-6 have been identified in patients presenting with a severe, treatment-refractory autoimmune encephalitis characterised by progressive cognitive decline, psychiatric features, and profound CNS hyperexcitability including status epilepticus. The autoantibodies reduce surface expression of DPP-6–Kv4.2 complexes, thereby diminishing I_to and increasing neuronal firing rates. Beyond autoimmunity, DPP6 locus variants have been reported in genome-wide association studies of amyotrophic lateral sclerosis, although the mechanistic link remains under investigation. Together, these associations make DPP-6 a target of significant interest in both channelopathy research and autoimmune neurology.

Gene & Protein Reference

Gene Symbol	DPP6
HGNC	HGNC:3004
NCBI Gene ID (Human)	1803
NCBI Gene ID (Mouse)	13382
Ensembl	ENSG00000170412
OMIM	126141
UniProt (Human)	P42658
UniProt (Mouse)	Q9Z1N6
Protein Family	S9B serine protease family (prolyl oligopeptidase clan); catalytically inactive auxiliary subunit
Predicted MW	~97 kDa (full-length; multiple isoforms: DPP6-S ~83 kDa, DPP6-L ~97 kDa, DPP6-K ~78 kDa)
Observed MW	~97–110 kDa (variable due to N-linked glycosylation)
Chromosome	7q36.2
Paralogue	DPP10 (DPPY); also related to DPP4 and FAP within the S9 clan
Key Substrates	None — DPP-6 is catalytically inactive; functions as a non-enzymatic auxiliary subunit of Kv4.2 (KCND2) and Kv4.3 (KCND3) potassium channel complexes
Activated by	N/A (no enzymatic activity); channel-modulatory function constitutive upon co-assembly with Kv4 α-subunits
Inhibited by	Autoantibodies (patient-derived IgG in DPP-6 autoimmune encephalitis) reduce surface expression of DPP-6–Kv4 complexes; no small-molecule inhibitors of DPP-6 channel-modulatory activity are established

About Triple Point Biologics

With over 30 years dedicated to antibody production, Triple Point Biologics is a Canadian company and the premier resource for proteinase and proteinase inhibitor research. Products have been cited in thousands of peer-reviewed publications.

The domain-specific antibody strategy — available in standard, ATK, SPA, and GSK kit formats — delivers predefined epitopes, built-in peptide-neutralized negative controls, and superior specificity for Western blot.

Website: www.triplepointbiologics.com

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Product specifications subject to change. Contact Triple Point Biologics for current product and availability information.