Purified anti-Pax-6 Antibody (Previously Covance catalog# PRB-278P)

- **Catalog# / Size**: 901302 / 25 µl, 901301 / 100 µl
- **Clone**: Poly19013 (See other available formats)
- **Isotype**: Rabbit Polyclonal IgG
- **Other Names**: Paired box protein Pax-6, oculorhombin, aniridia type II protein, Sey, Protein eyeless, PRB-278P-100
- **Previously**: Covance Catalog# PRB-278P

**Description**

Pax6 is a transcription factor present during embryonic development. The encoded protein contains two different binding sites that are known to bind DNA and function as a regulator of gene transcription. It is a key regulatory gene of eye and brain development. Within the brain, the protein is involved in development of specialized cells that process smell. Pax-6 acts as a critical gene for the development of eyes and other sensory organs, certain neural and epidermal tissues as well as other homologous structures, usually derived from ectodermal tissues. Pax6 serves as a regulator in the coordination and pattern formation required for differentiation and proliferation to successfully take place, ensuring that the processes of neurogenesis and oculogenesis are carried out successfully. As a transcription factor, Pax6 acts at the molecular level in the signaling and formation of the central nervous system. The characteristic paired DNA binding domain of Pax6 utilizes two DNA-binding domains, the paired domain (PD), and the paired-type homeodomain (HD). These domains function separately. An example of this lies in HD’s regulatory involvement in the formation of the lens and retina throughout oculogenesis contrasted by the molecular mechanisms of control exhibited on the patterns of neurogenesis in brain development by PD. The HD and PD domains act in close coordination, giving Pax6 its multifunctional nature in directing molecular signaling in formation of the CNS.

The vertebrate PAX6 locus encodes at least three different protein isoforms, these being the canonical PAX6, PAX6(5a), and PAX6(ΔPD). The canonical PAX6 protein contains an N-terminal paired domain, connected by a linker region to a paired-type homeodomain, and a proline/threonine/threonine (P/S/T)-rich C-terminal domain. The paired domain and paired-type homeodomain each have DNA binding activities, while the P/S/T-rich domain possesses a transactivation function. PAX6(5a) is a product of the alternatively spliced exon 5a resulting in a 14 residue insertion in the paired domain which alters the specificity of this DNA binding activity. The nucleotide sequence corresponding to the linker region encodes a set of three alternative translation start codons from which the third PAX6 isoform originates. Collectively known as the PAX6(ΔPD) or pairedless isoforms, these three gene products all lack a paired domain. The pairedless proteins possess molecular weights of 43, 33, or 32kDa, depending on the particular start codon used. PAX6 transactivation function is attributed to the variable length C-terminal P/S/T-rich domain which stretches to 153 residues in human and mouse proteins.

**Product Details**

- **Reactivity**: Human, Mouse, Rat
- **Antibody Type**: Polyclonal
- **Host Species**: Rabbit
- **Immunogen**: This antibody was generated against the peptide (QVPGSEPDSQYWPRLQ) derived from the C-terminus of the mouse Pax-6 protein.
- **Formulation**: Phosphate-buffered solution + 0.03% Thimerosal.
- **Preparation**: The antibody was purified by affinity chromatography.
- **Concentration**: 2 mg/ml
- **Storage & Handling**: The antibody solution should be stored undiluted between 2°C and 8°C. Please note the storage condition for this antibody has been changed from -20°C to between 2°C and 8°C. You can also check your vial or your CoA to find the most accurate storage condition for this antibody.
- **Application**: WB, IHC-P - Quality tested
- **Recommended Usage**: Each lot of this antibody is quality control tested by Western blotting and formalin-fixed paraffin-embedded immunohistochemical staining. For Western blotting, the suggested use of this reagent is
For immunohistochemistry, a dilution of 1:50 - 1:100 is suggested. It is recommended that the reagent be titrated for optimal performance for each application.

**Application Notes**

This antibody weakly reacts with rat. It has also shown reactivity with GFP and is therefore not recommended for use in GFP-expressing systems (as determined by in-house testing).

Pax-6 has two isoforms in human and mice at 46.6 and 48.2 Kd. This antibody recognizes both. The sequence is highly conserved among Pax-6 of various species. The antibody was subsequently purified on a Protein A column and is useful in studying brain, neuronal and olfactory development in higher eukaryotes.

This clone is not recommended for ChIP (Chromatin Immunoprecipitation) assays (as determined by in-house testing).

**Application References**


**Product Citations**


**RRID**

AB_2749901 (BioLegend Cat. No. 901302)
AB_2565003 (BioLegend Cat. No. 901301)

**Antigen Details**

- **Cell Type**: Neural Stem Cells
- **Biology Area**: Cell Biology, Neuroscience, Neuroscience Cell Markers, Signal Transduction, Stem Cells, Synaptic Biology, Transcription Factors
- **Molecular Family**: Nuclear Markers
- **Gene ID**: 5080
- **18508**
- **25509**

**Related Protocols**

- Western Blotting Protocol
- Immunohistochemistry Protocol for Paraffin-Embedded Sections

**Product Data**
Western blot analysis of cell lysates from 293T (human), UMR106 (rat) and Raw264.7 (mouse) using Pax-6 rabbit primary antibody (Clone Poly19013, 1:2000 dilution, 1 µg/ml) and HRP Donkey anti-rabbit secondary antibody (Cat. No. 406401, 1:3000 dilution). GAPDH (Cat. No. 919501) was used as a loading control (1:2500 dilution).

IHC staining of purified anti-Pax-6 antibody (clone Poly19013) on formalin-fixed paraffin-embedded human epididymis tissue. Following antigen retrieval using Sodium Citrate H.I.E.R., the tissue was incubated with 20 µg/ml of the primary antibody for 60 minutes at room temperature. BioLegend’s Ultra-Streptavidin (USA) HRP kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective.

IHC staining of purified anti-Pax-6 antibody (clone Poly19013) on formalin-fixed paraffin-embedded mouse brain tissue. Following antigen retrieval using Sodium Citrate H.I.E.R., the tissue was incubated with 20 µg/ml of the primary antibody for 60 minutes at room temperature. BioLegend’s Ultra-Streptavidin (USA) HRP kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective.
Total lysates (15 µg protein) from 293T cells (lane 1) and HeLa cells transfected with GFP (lane 2) were resolved by electrophoresis (4-12% Bis-Tris gel), transferred to nitrocellulose, and probed with either 1 µg/mL purified anti-Pax-6 antibody, clone Poly19013 (upper left panel), or 1 µg/mL purified anti-GFP antibody, clone 1GFP63 (upper right panel). Proteins were visualized using chemiluminescence detection by incubation with HRP Donkey anti-rabbit secondary antibody (Cat. No. 406401, 1:3000 dilution) or HRP Goat anti-mouse secondary antibody (Cat. No. 405306, 1:3000 dilution), respectively. Direct-Blot™ HRP anti-GAPDH antibody was used as a loading control (Cat. No. 607904, 1:10,000 dilution) (lower panel). Western-Ready™ ECL Substrate Kit (Cat. No. 426303) was used for the develop. Lane M: Molecular weight ladder.

Frozen human iPSC derived neural rosettes stained with purified anti-Pax-6 (red, clone Poly19013) and ZO-1 (green). Image generously submitted to the 2017 Cell Life Imaging Competition by Milad Riazifar from University of California, Irvine.