

## DESCRIPTION

<b>Species Reactivity</b>	Human/Mouse
<b>Specificity</b>	Detects human PAK3 in direct ELISAs and Western blots. In direct ELISAs, less than 1% cross-reactivity with recombinant human (rh) PAK1, rhPAK1B, rhPAK2, rhPAK4, rhPAK6, and rhPAK7 is observed.
<b>Source</b>	Polyclonal Sheep IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human PAK3 Leu138-Gln255 Accession # O75914
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

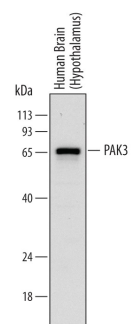
## APPLICATIONS

**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
<b>Western Blot</b>	0.25 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below

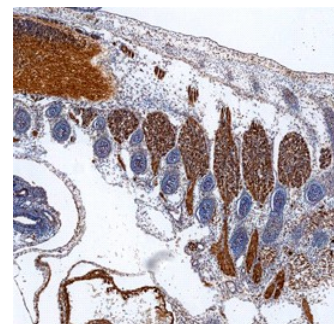
## DATA

### Western Blot



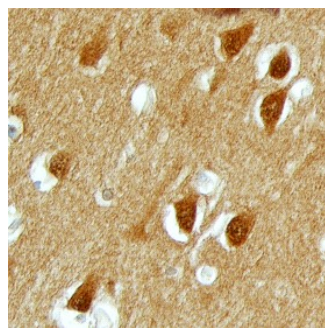
**Detection of Human PAK3 by Western Blot.** Western blot shows lysates of human brain (hypothalamus) tissue. PVDF membrane was probed with 0.25 µg/mL of Sheep Anti-Human PAK3 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6897) followed by HRP-conjugated Anti-Sheep IgG Secondary Antibody (Catalog # HAF016). A specific band was detected for PAK3 at approximately 65 kDa (as indicated). This experiment was conducted under reducing conditions and using *Immunoblot Buffer Group 1*.

### Immunohistochemistry



**PAK3 in Mouse Embryo.** PAK3 was detected in immersion fixed frozen sections of mouse embryo (15 d.p.c.) using Sheep Anti-Human PAK3 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6897) at 1.7 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Sheep HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS019) and counterstained with hematoxylin (blue). Specific staining was localized to the cytoplasm of neuronal cells. View our protocol for *Chromogenic IHC Staining of Frozen Tissue Sections*.

### Immunohistochemistry



**PAK3 in Human Brain.** PAK3 was detected in immersion fixed paraffin-embedded sections of human brain (hippocampus) using Sheep Anti-Human PAK3 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6897) at 3 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Sheep HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS019) and counterstained with hematoxylin (blue). Specific staining was localized to neuronal cell bodies and processes. View our protocol for *Chromogenic IHC Staining of Paraffin-embedded Tissue Sections*.

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Sterile PBS to a final concentration of 0.2 mg/mL.
<b>Shipping</b>	The product is shipped at ambient temperature. 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
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

PAK3 (p21-activated kinase 3; also  $\beta$ -PAK, PAK3b and oligophrenin-3) is a cytoplasmic 68 kDa member of PAK group I, STE20 subfamily, STE Ser/Thr protein kinase family of molecules. It is expressed in neurons of cortical layers II, III and V, the arcuate nucleus, and neurons in the dorsal raphe plus locus coeruleus. PAK3 mediates axon and dendrite arborization, providing volume to the mass of the CNS. It binds to active GTPases which induce PAK autophosphorylation and activation. Human PAK3(b) is 559 amino acids (aa) in length. It contains one GTPase binding domain (aa 68-128) plus a protein kinase catalytic region (aa 283-534). Acetylation occurs on Lys535, and there are at least three potential phosphorylation sites. Alternate splicing generates three isoform variants. There is a 65 kDa short form that shows a deletion of aa 93-107 (PAK3a), a 69 kDa long form that shows a 21 aa substitution for aa 93-107 (PAK3c), and a 72 kDa very long isoform that contains the aforementioned 21 aa "substitution" inserted onto PAK3b after Thr92 (PAK3cb). PAK3b, c and cb are all constitutively active, and show only modest binding affinity towards GTPases. Over aa 138-255, human PAK3(b) shares 94% aa identity with mouse PAK3(b).