Recombinant NPAS4 protein (His tag)

Catalog Number	538422
Synonyms	Neuronal PAS4; Class E basic helix-loop-helix protein 79; bHLHe79; HLH-PAS transcription factor NXF; PAS domain-containing protein 10
Species	Human
Expression System	E. coli
Accession	Q8IUM7
Molecular Weight	Predictes a molecular mass of 38.20 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 38 kDa band.

Product Information

Sequence Region	1-331
Form	Lyophilized powder
Formulation	Lyophilized from sterile PBS, pH 7.4
Purity	>87%, by SDS-PAGE with Coomassie Brilliant Blue staining.
Endotoxin	Not tested.
Activity	Not tested.
Stability	Samples are stable for up to twelve months from date of receipt at -70℃
Protein Construction	DNA encoding 1-331 aa (Q8IUM7) were fused with 6His tag.

Storage & Handling

Reconstitution	Reconstitute at 0.25 μg/μl in sterile water for short-term storage. Reconstitution with 50% glycerol solution is recommended for longer term storage (see Stability and Storage for more details). If a different concentration is needed for your purposes please adjust the reconstitution volume as required (please note: the ion concentration of the final solution will vary according to the volume used). Note: Centrifuge vial before opening. When reconstituting, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution.
Storage	Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.
Shipping	In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature. Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise.

Description

Description	Recombinant Neuronal PAS4 (NPAS4) Fragment (1-331) is a high-purity protein designed for studying the structural and functional roles of the bHLH, PAS 1, PAS 2, and PAC domains. This fragment supports research into neuronal plasticity, excitatory-inhibitory balance, and memory formation, offering a targeted tool for neuroscience investigations. Neuronal PAS4 (NPAS4) is a transcription factor expressed in brain neurons that plays a critical role in maintaining excitatory-inhibitory balance within neural circuits and is essential for contextual memory in the hippocampus. It acts as an early-response factor in both excitatory and inhibitory neurons, inducing distinct sets of late-response genes to modify synapses in a circuit-specific manner, thereby facilitating adaptive responses to sensory experience. In excitatory neurons, NPAS4 activates BDNF expression to promote inhibitory synapse formation, while in inhibitory neurons, it regulates genes that enhance excitatory input, supporting feedback inhibition. This protein also influences dendritic spine development in olfactory bulb granule cells and requires dimerization with partners like ARNT or BMAL1 for efficient DNA binding. NPAS4 is localized to the nucleus, underscoring its role in transcriptional regulation of processes such as memory, stress response, and social behavior.