ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Vanilloid Receptor Like-1 (VRL-1) Antibodies

Cat. # VRL11-P	Rat VRL-1 Control Peptide	**SIZE**: 100 ug
Cat. # VRL11-S	Rabbit Anti-rat VRL-1 antiserum #1	**SIZE**: 100 ul
Cat. # VRL11-A	Rabbit Anti-rat VRL-1 Ig G #1 (aff pure)	**SIZE**: 100 ug

Nociception, the process of detecting noxious chemical, mechanical, or thermal stimuli, occurs predominantly at the peripheral terminal neurons known as polymodal nociceptors. Nociceptors transduce noxious stimuli into membrane depolarization that triggers action potential, conducts the action potential from the sensory sites to the synapses in the CNS, and conversion of action potentials invokes a perception of pain, discomfort, and appropriate mechanical/physical protective reflexes. At the molecular level, nociception is carried out by ion channels or receptors..

Capsaicin receptor, termed **vanilloid receptor subtype 1 (VR1)**, has been cloned from sensory neurons. VR1 protein is a heat-gated cation channel. VR1 is also activated by noxious heat (elevation in temperature causing pain) and high proton concentrations (pH <6.0). Rat VR1 encodes a membrane protein of 838 aa (~95 kDa) with 6 transmembrane domains. VR1 expression is limited to small to medium diameter primary sensory neurons. Recently, a structural homolog of VR1, termed **VRL-1 (VR1 like proteins**; rat 761 aa, human 764 aa) have been cloned and characterized. There is ~49% identity between VRL-1 and VR1. In contrast to VR1, VRL-1 does not respond to capsaicin, acid or moderate heat. Instead, it is activated by high temperatures with a threshold of ~52oC. Within sensory ganglia, VRL-1 is most prominently expressed by a subset of medium to large-diameter neurons, and in many non-neuronal tissues (lung, spleen, and intestine) that are unlikely to encounter temperatures of >50oC. It is possible that VRL-1 is also activated by stimuli other than heat.

Source of Antigen and Antibodies

Antigen	18aa peptide of Rat VRL **Designated (VRL11-P)** epitope location ~ N-terminus
Ab Host/type	Rabbit, polyclonal Unpurified antiserum (cat #VRL11-S) Aff pure IgG (**cat #VRL11-A)** purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control IgG	**# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control**

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied 0.05% azide, **Reconstitute** powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure antibody using ECL technique).

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1:10-50K for neat serum and 0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: We recommend the use of affinity purified antibody at 1-20 ug/ml in paraformaldehyde fixed sections of tissues (1).

Specificity & Cross-reactivity

The 18 AA rat VRL11-P control peptide has only 50% homology with human and 100% homologous to mouse VRL-1. It is 100% conserved in mouse growth factor regulated calcium channel (2). No significant sequence homology of VRL11-P is found with VR1 or other proteins. Actual cross-reactivity of antibodies in various species has not been studied. The VRL11-P control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site).

General References: Caterina MJ et al (1997) Nature 398, 436-441, Kanzaki M et al (199) Nature Cell Biol. 1, 165-170.

2. Citations for ADI Antibodies (see updates at the web site)

Carlton SM 2004 Pain, 110, 3, 616-627, IHC
Carlton SM, 2001, Neuroscience Lett., 310, 53-56, IHC

*This product is for In vitro research use only.

Related material available from ADI

Antibodies VR1, VRL-1, proton gated ion channels (ASIC1-3), CNG1-3; Gustducin-alpha and Taste receptor TR1 and TR2. Chloride channels 1-7.

VRL11-S-A-P 71219A