

Product Specification Sheet

**Vanilloid Receptor subtype 1 (VR1) Antibodies**

Cat. # VR11-P	Rat VR1 Control/blocking Peptide	<b>SIZE:</b> 100 ug
Cat. # VR11-S	Rabbit Anti-rat VR1 antiserum #1	<b>SIZE:</b> 100 ul
Cat. # VR11-A	Rabbit Anti-rat VR1 IgG #1 (aff pure)	<b>SIZE:</b> 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 that exchanges ~10 Ca<sup>+</sup> ions for every Na<sup>+</sup> ion resulting into neuronal membrane depolarization and elevated intracellular Ca<sup>+</sup> levels. Over-expression of VR1 caused cell death because of continuous influx of Ca<sup>+</sup> ions. 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. The cytoplasmic, N-terminal hydrophilic segment (432 aa) contains a relatively proline rich region followed by three ankyrin-repeat domains. Structurally, VR1 closely resembles putative store-operated channels (SOC) similar to Drosophila retinal proteins TRP (transient receptor protein channel) and TRPL. However, VR1 does not appear to be a functional SOC. VR1 expression is limited to small to medium diameter primary sensory neurons.

**Source of Antigen and Antibodies**

<b>Antigen</b>	15aa peptide of Rat VR1 <b>Designated (VR11-P or control peptide). Epitope location ~ C-terminus, Cytoplasmic</b>
<b>Ab Host/type</b>	Rabbit, polyclonal, Unpurified antiserum ( <b>cat #VR11-S</b> ) Aff pure IgG ( <b>cat #VR11-A</b> ) purified over the antigen column
<b>2ab</b>	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available)
<b>-ve control</b>	# 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 in Buffer: 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 20°C and powder at 4°C or -20°C..

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

**Stability:** 6-12 months at -20°C or below.

**Shipping:** 4°C 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). Recombinant VR1 is ~90 kDa (1).

**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 (2).

**Specificity & Cross-reactivity**

Rat VR11-P control peptide is 93% conserved in guinea pig, mouse, chicken (TRPV1) and 66% conserved in human VR1. It has no significant sequence homology with VRL-1 or TRP or other proteins. Antibody cross-reactivity in various species has not been studied. 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:** (1) Caterina MJ et al (1997) Nature 389, 816-824; Tominaga M et al (1998) Neuron 21, 531-543; Jordt S-E et al (2002) Cell 108, 421-430.

**2. Citation for ADI's Antibodies for Vanilloid Receptors:**

Balaban CD, 2002, Hearing Research 4039, 1-6, Type 1 vanilloid receptor expression by mammalian inner ear ganglion cells

\*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.

VR11-S-A-P

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