ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Western Diamondback Rattlesnake (Crotalus atrox) Antibodies

Cat # CATX14-S Sheep Anti-Western Diamondback Rattlesnake (Crotalus atrox) venom antiserum **SIZE**: 100 ul

Snake venom is highly modified saliva containing zootoxins used by snakes to immobilize and digest prey or to serve as a defense mechanism against a potential predator or other threat. The venom produced by the snake's venom gland is delivered by an injection system of modified fangs that enable the venom to penetrate into the target. Venoms contain more than 20 different compounds, 100s proteins and polypeptides. A complex mixture of proteins, enzymes, and various other substances with toxic and lethal properties serves to immobilize the prey animal, enzymes play an important role in the digestion of prey, and various other substances are responsible for important but non-lethal biological effects. Some of the proteins in snake venom have very specific effects on various biological functions including **blood coagulation**, blood pressure regulation, and transmission of the nervous or muscular impulse and have been developed for use as pharmacological or diagnostic tools or even useful drugs. Snakebite often results in puncture wounds from fangs and sometimes results in **envenomation**, the process by which venom is injected into animals and humans. Although the majority of snake species are non-venomous and typically kill their prey with constriction rather than venom, venomous snakes can be found on every continent except Antarctica. The number of human fatalities attributed to snake bites varies greatly by geographical area. The morbidity and mortality associated with snake bites is a serious public health problem in many regions of the world, particularly in rural areas lacking medical facilities, and each year tens of thousands of people die from snake bites.

Antivenom (or antivenin or antivenene) is a biological product used in the treatment of venomous bites or stings. It is created by milking venom from the desired snake, spider or insect. The venom is then diluted and injected into a horse, sheep or goat (antivenom host). The subject animal will undergo an immune response to the venom, producing antibodies against the venom's active molecule which can then be harvested from the animal's blood and used to treat envenomation. Antivenoms can be classified into **monovalent** (effective against a given species' venom) or **polyvalent** (effective against a range of species, or several different species at the same time). The first antivenom for snakes (called an anti-ophidic serum) was developed in 1895 against the **Indian Cobra** (Naja naja) by Albert Calmette, a Pasteur Institute. Antivenoms for therapeutic use are often preserved as freeze-dried ampoules (powder), but some are available only in liquid form and must be kept refrigerated. Antivenoms bind to and neutralize the venom, halting further damage, but do not reverse damage already done. Thus, they should be administered as soon as possible after the venom has been injected. Antivenom is typically the sole effective treatment for a life-threatening condition. Antivenoms preparations are included in the World Health Organization (WHO) List of Essential Medicines and should be part of any primary health care package where snakebites occur. Antivenom (whole antiserum from horse (equine), sheep (ovine), goat (caprine) or chicken) is usually purified to remove most serum proteins leaving mostly immunoglobulin (Ig's). Whole crude antibodies may also be subjected to antibody fragmentation to prepare only the Fab2 fragments of the antibodies to minimize exposure to the foreign proteins to minimize subsequent hypersensitivity reaction (anaphylaxis) or a delayed hypersensitivity (serum sickness).

Source of Antigen and Antibodies

Antigen	Western Diamondback Rattlesnake (Crotalus atrox)) venom absorbed onto Alhydrogel
Antibody Host/type	Sheep Polyclonal antiserum (Cat# CATX14-S) supplied in 0.05% azide as preservative
Secondary Antibody	Rabbit Anti- Sheep IgG-HRP cat # **30620** (AP, biotin, FITC conjugates)
Secondary control IgG	# **20009-1**, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control.

Form & Storage of Antibodies/Peptide Control

Antiserum:

- **100 ul solution**: Buffer: Neat serum+0.05% azide
- **Lyophilized powder:** Reconstitute powder 100 ul of water.

Storage

Short-term: unopened, undiluted vials for a month at 4°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 temperature for lyophilized powder.

Recommended Usage

Western Blotting
ELISA

References: Lalla JK (2013) Sch. Acad. J. Pharm 2(3):252-259; Nalbantsoy A (2012); J. Venom. Anim. Toxins incl. Trop. Dis 18(2), 208-216; Gutierrez, Current Pharmaceutical Design 13 (28): 2935–50.

*This product is for In vitro research use only.

Related material available from ADI

CKT11-S	Anti-Indian krait (Bungarus caeruleus) venom antiserum
CKT12-S	Chicken Anti-Indian krait (Bungarus caeruleus) venom antiserum
CKT13-S	Horse Anti-Indian krait (Bungarus caeruleus) venom antiserum
ICO11-S	Rabbit Anti-venom Indian Cobra (Naja naja) antiserum
ICO12-S	Chicken Anti-venom Indian Cobra (Naja naja) antiserum
ICO13-S	Horse Anti-venom Indian Cobra (Naja naja) antiserum
RVR11-S	Anti-Russell's Viper (Vipera russelli) venom antiserum
RVR12-S	Chicken Anti-Russell's Viper (Vipera russelli) venom antiserum
RVR13-S	Horse Anti-Russell's Viper (Vipera russelli) venom antiserum
SSV11-S	Anti-Saw-scaled Viper (Echnis carinatus) venom antiserum
SSV12-S	Chicken Anti-Saw-scaled Viper (Echnis carinatus) venom antiserum
SSV13-S	Horse Anti-Saw-scaled viper (Echis crinatus) venom antiserum
570-100-CHG	Horse Anti-Cobra (Naja Naja) Antibody ELISA Kits, 96 tests, Quantitative
570-110-KHG	Horse Anti-Indian Krait (Bungarus Caeruleus) Antibody ELISA Kits, 96 tests, Quantitative
570-120-RHG	Horse Anti-Russell's Viper (Vipera Russelli) Antibody ELISA Kits, 96 tests, Quantitative
570-130-SHG	Horse Anti-Saw Scaled Viper (Echis Carinatus) Antibody ELISA Kits, 96 tests, Quantitative

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