

## PHARMACOLOGY OF CORAL SNAKE VENOMS

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Coral snakes, the New World Elapidae are included in the genera *Micruroides* and *Micrurus*. The genus *Micrurus* comprises nearly all human snake-bite accidents. Coral snake venoms as the venoms of other Elapidae are neurotoxic, producing loss of muscle strength and, in general, death by respiratory paralysis of peripheral origin in animals and humans. They display phospholipase A<sub>2</sub> activity. Proteolysis activity is absent or of very low grade.

The main toxins from elapid venoms are: 1. postsynaptic neurotoxins; 2. presynaptic neurotoxins; 3. cardiotoxins; and 4. myotoxic phospholipase A<sub>2</sub>.

From the study of the mechanisms of action of the coral snake venoms so far carried out, it can be deduced that postsynaptic neurotoxins are probably components of all coral snake venoms while presynaptic neurotoxins and cardiotoxins or myotoxic phospholipases occur in some of them. We can, therefore, divide the coral snake venoms according to their mode of action in<sup>5</sup>: 1. coral snake venoms that exert only postsynaptic neurotoxin-like action (blockade of end-plate receptors); 2. coral snake venoms that block the end-plate receptors (postsynaptic neurotoxin-like action) and inhibit evoked acetylcholine release by the motor nerve endings (presynaptic neurotoxin-like action); 3. coral snake venoms that block the end-plate receptors (postsynaptic neurotoxin-like action) and depolarize the muscle fibre membrane (cardiotoxin or myotoxic phospholipase A<sub>2</sub>-like action).

Belong to group 1 by their mode of action the venoms of *M. frontalis*<sup>7</sup> and *M. lemniscatus*<sup>4</sup>. The first species is distributed over centraleastern, central-western and southern Brazil and is also found in Argentine, Uruguay and Paraguay. *M. lemniscatus* occurs in the Guyanas, Trinidad, Venezuela, Colombia, Ecuador, Bolivia and in northern, northeastern and central Brazil until Paraná and Mato Grosso.

*M. corallinus* venom<sup>6</sup> blocks the end-plate receptor and the evoked acetylcholine release by the motor nerve endings (group 2 by its mode of action). *M. corallinus* is distributed over central and southern Brazil, south of Amazon Basin and northern Argentine.

The venoms of *M. fulvius*<sup>3,8</sup> and *M. nigrocinctus*<sup>1,2</sup> exert postsynaptic neurotoxin-like action and depolarization of the muscle fibre membrane. *M. fulvius* is a coral snake species from southern United States and northeastern Mexico. *M. nigrocinctus* occur from South of Mexico to North of Colombia.

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