

Supply of Anti-venom Horse Plasma

There are as many as 2760 species of snakes in the world, but only about 375 poisonous ones. In subtropical Taiwan, snakes are found almost everywhere, particularly in the mountains and forests. There are 52 species, including 6 poisonous sea snakes and 16 poisonous land snakes in Taiwan. However, the six most commonly encountered by people and thus most dangerous poisonous snakes here on the island are: 1) Taiwan cobra (*Naja atra*), 2) Chinese moccasin (*Deinagkistrodon acutus*), 3) Green bamboo viper (*Trimeresurus stejnegeri*), 4) Banded krait (*Bungarus multicinctus*), 5) Taiwan habu (*Protobothrops mucrosquamatus*), and 6) Russell's viper (*Daboia siamensis*). For this very purpose, in 2018, Taiwan CDC raises about 180 various poisonous snakes in a professional snake facility and raises 64 horses in National Antivenom Hyperimmune Horse Farm.

In the process of turning the hyperimmune plasma to the antivenom, from raw material to the product, we first milk venom from a specific snake and mixed with adjuvant as venom immunogen then proceeding horse immunization. When the immunized horse has reached an acceptable antivenom antibody response (40 Tanaka units; T.U.), it can be bled 5 to 9 liters of blood per horse, depending on the horse body weight. The following flow chart describes the manufacturing process of antivenom in Taiwan CDC.

Antivenin manufacturing flow chart

