Rat Poison **ANTICOAGULANT RODENTICIDES AND YOUR PET** Home Mankind and the rat have been at odds for thousands of years. Rats spread disease, eat Pet Web our crops, leave droppings and make nests in our storage areas, and infest our homes. Library Rodent removal services are an important part of pest extermination even now in the 21st century. Rat poison can obtained in most hardware stores, grocery stores, and even for free from city agencies in some areas. While one may want to get rid of rats, one Addison's Disease certainly does not want a hazard to the children or pets of the family. Research continues to create a product that fits this bill but in the meantime one should be aware of the signs of rat poisoning particularly if your pet travels with you to places outside the home where bait may be left out. Alopecia X There are several types of rodenticides available. The traditional products are called "anticoagulant rodenticides" and are discussed here. If one intends to use a rodenticide we Anal Sacs encourage you to choose this type over others as there is a readily available antidote for the anti-coagulant rodenticides. Other rodenticides are more toxic and no antidote is Arthritis / available. Joint Disease Feline Asthma Babesia Infection Bartonella Birth of Kittens Birth of Puppies HET MT 4 CP Bladder Stones THE PRODUCTS SHOWN ABOVE ARE ANTICOAGULANT RODENTICIDES. Bloat



Typical active ingredients are: brodificoum, diphacinone, warfarin, bromadiolone, and others. Most of these products include green dyes for a characteristic appearance; however, dogs and cats have poor color vision and to them these pellets may look like kibbled pet food.

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HOW DOES RAT POISON WORK?

To understand what these poisons do, it is necessary to have some understanding of how blood clots. A blood vessel is sort of like a pipe carrying rapidly flowing blood along its path. The "pipe" is lined by smooth flat cells called "endothelial cells" which facilitate the smooth flow of the blood. If the pipe breaks, the structure of the pipe below the lining is exposed to the flowing blood inside. From there the sequence of events is as follows:



Mellitus

1. The blood vessel automatically constricts and spasms. This restricts the blood flowing to the damaged area and helps minimize blood loss.

2. The exposed "pipe" attracts circulating platelets, cloud-like cells that circulate ready to assist in clotting should the need arise. Platelets clump together over the tear in the blood vessel forming a plug within the first 5 minutes of the injury. This is all a good thing but the platelets will stay in place unless a substance called "fibrin" can be made to bind them.

3. Platelets have on their surface binding sites for coagulation proteins, which also circulate normally in inactive forms. These coagulation proteins must be activated in order to produce fibrin. There are two ways to do this: a so-called "intrinsic pathway" and a so-called "extrinsic pathway." There are twelve clotting factors involved between these two pathways and we will not confuse you by reviewing these steps but suffice it to say that calcium is one of the factors as are 4 enzymes called "serine proteases." It is the serine proteases which are relevant to rat poisoning. The end product of these pathways is protein fiber called "fibrin" which binds the platelets and serves as a scaffolding for the permanent healing of

the vessel tear. **ABOUT THOSE SERINE PROTEASES:** Dialysis Clotting factors are identified by number and the serine proteases (also called "K-KCS dependent factors for reasons which are about to become clear) are factors II, VII, IX, and (Dry Eye) X. These factors are produced in an inactive state by the liver and go happily circulating through the bloodstream awaiting activation. When a vessel tears and it becomes necessary to form a clot, these factors are activated in a process that requires Vitamin K Ear Infections (a fat soluble vitamin not as famous as its fat-soluble cousins Vitamins A and E). As the clotting factors are activated, Vitamin K is inactivated but later recycled by another set of enzymes to be ready to participate in clotting factor activation again later. Ear Mites As long as there is plenty of Vitamin K, Ehrlichia the serine proteases can be activated and clotting can proceed Infection (K9) normally. Eosinophilic The anticoagulant rodenticides abolish Vitamin K recycling. Granuloma This means that as soon as one's active Vitamin K reserves are depleted. there can be no meaningful blood clotting. Euthanasia at Our Hospital As long as there is plenty of Vitamin K, the serine proteases can be activated and clotting can proceed normally. EPI The anticoagulant rodenticides abolish Vitamin K recycling. This means that as soon as False one's active Vitamin K reserves are depleted, there can be no meaningful blood clotting. Pregnancy In cases of poisoning one would expect symptoms to be nearly immediate but in the case of anticoagulant rodenticide poisoning, it takes several days to deplete Vitamin K. After Owning an FIV+ Cat that, even the smallest of jostles and traumas can lead to life-threatening bleeds. **SYMPTOMS** Infectious Anemia 4b Most of the time external bleeding is not obvious and one only notices the pet is weak and/ or cold. If one looks at the gums, they are pale. Sometimes bloody urine or stool is evident or nose bleeds may be seen. Signs of bleeding in more than one body location are FLUTD a good hint that there is a problem with blood coagulation and appropriate testing and treatment can be started. FCE **TESTING** Blood clotting tests of the intrinsic and extrinsic pathways are called the PTT ("partial Flea Anemia thromboplastin time") and PT ("prothrombin time") respectively. If both of these









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