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| **Name Of Drug** | **Mechanism of Action** | **Parasite it affects (lifecycle)** | **Dose** | **Contraindications and Side effects** | **Route of Administration** | **Other Information** |
| Avermectins  -Abamectin  -Doramectin  -Eprinomectin  -Selamectin | Binds selectively with high affinity to glutamate-gated chloride ion channels, which are in close proximity to GABA-gated sites. At high doses, they potentiates GABA-gated sites inducing flaccid paralysis  Also interfere with the reproduction of nematode and arthropod parasites including (reduced oviposition by ticks, sterility of both male filarial nematodes, abnormal egg formation) |  |  | Collie and Australian shepherds are usually susceptible to certain macrocylic lactones anthelmintics |  | Endectocides (both internal and external parasites)  No activity against cestodes, trematodes and protozoa  Produced by Streptomyces avermitilis (soil-dwelling fungi)  Broad spectrum of activity and effective at low concentrations  Wide margin of safety due to them not readily crossing the blood brain barrier (BBB) |
| Avermectin  -**Ivermectin** (Cardomomec®, Double impact®, Equimectrin®,  Eqvalan®, Heartgard-30®, Ivomec®,  Mectizan®, Oramec®, Rotectin 1®,  Topline®, Ultramectrin®, Zimecterin®). | Ivermectin enhances the release of gamma amino butyric acid (GABA) at presynaptic neurons. GABA acts as an inhibitory neurotransmitter and blocks the post-synaptic stimulation of the adjacent neuron in nematodes or the muscle fiber in arthropods. By stimulating the release of GABA, ivermectin causes paralysis of the parasite and eventual death. As liver flukes  and tapeworms do not use GABA as a peripheral nerve transmitter, ivermectin is ineffective against these parasites. | Cattle and sheep:  Adult and 4th stage larvae forms of Haemonchus, Ostertagia, Cooperia, Trichostrongylus, Strongyloides, Bunostomum, Nematodirus, Trichuris, Oesophagostomum, Dictyocaulus, Chabertia ovina, oestrid larvae, mites, sucking lice, ticks (reduce reproduction potential)  Horses:  4th larvae stage of Cyathostomes, large strongyles, ascarids, pinworms, stomach worms, threadworms, lungworms, migrating or stomach-attached stages of bots, and Onchocera  Swine:  Immature and adult stages of most intestinal worms (not muscular stages of Trichinella spiralis), lice and mange mites. Prevention of vertical transmission of Strongyloides ransomi  Dogs:  Heartworm prevention (Heartgard)  Heartgard-30 plus also contains pyrantel pamoate for hookworms and ascarids also  Cats:  Heartworm prevention | Dogs:  Heartworm:  0.006 mg/kg PO once monthly  Microfilaricide:  50 – 200 micrograms/kg (0.05 - 0.2 mg/kg) as a single dose; contraindicated in collies  Ectoparasiticides (miticide):  For treatment of Sarcoptes scabiei or Otodectes cynotis infestations: 300 micrograms/  kg (0.3 mg/kg) SQ or PO; repeat in 14 days  Endoparasiticide:  -For treatment of parasitic lung disease (Capillaria spp.): 0.2 mg/kg PO once.  -For roundworms, hooks, or whips: 200 micrograms/kg PO once. DO not use in Collies  Cats:  Heartworm:  Minimum effective dosage: 0.024 mg/kg (24 micrograms/kg) PO every 30-45 days.  Aelurostrongylus abstrusus:  0.4 mg/kg SubQ once  Cattle:  For psoroptic mange: 200 mg/kg IM (Note: Reference was written before approval of  the SQ labeled bovine product); isolate from other cattle for at least 5 days after treatment.  Horses:  0.2 mg/kg PO; 0.2 mg/kg PO at 4 day intervals for lice and mange.  Swine:  300 micrograms/kg (0.3 mg/kg) SQ in the neck immediately behind the ear  Sheep:  200 micrograms/kg for nasal bot infection | Tenfold safety margin in ruminants, horses, swine, and most breeds except Collie and some Australian Shepherds  Signs of toxicity:  Ataxia, depression and visual impairment  Toxicity results from gross overdose  normal dose = 200 μg/kg (oral)  toxic dose = 2000 μg/kg | Oral  Intraruminal sustained-release bolus  Intravenous  Subcutaneous | Semisynthetic derivative of Avermectin  Broad spectrum of activity against a wide variety of arthropods and nematodes of domestic animals and humans  Off-white powder which is highly lipophilic and hydrophobic  Fecal excretion is main route of elimination |
| Milbemycins  -Milbemycin  -Moxidectin | Milbemycin is thought to act by disrupting the transmission of the neurotransmitter  gamma amino butyric acid (GABA) in invertebrates | Once-a-month heartworm preventative  (Dirofilaria immitis.) And for hookworm control (Ancylostoma caninum). It also has activity against a variety of other parasites, including roundworms (Toxocara canis), Trichuris vulpis, and for demodicosis. In cats, milbemycin has been used successfully to prevent larval infection of  Dirofilaria immitis. | Dogs:  Heartworm:  0.5 - 0.99 mg/kg PO once monthly  Cats:  Heartworm:  0.5 - 0.99 mg/kg PO once monthly | Collie and Australian shepherds are usually susceptible to certain macrocylic lactones anthelmintics |  | Endectocides (both internal and external parasites)  Produced by  Streptomyces hygroscopicus aureolscrimosus (soil-dwelling fungi)  Broad spectrum of activity and effective at low concentrations  Wide margin of safety due to them not readily crossing the blood brain barrier (BBB) |