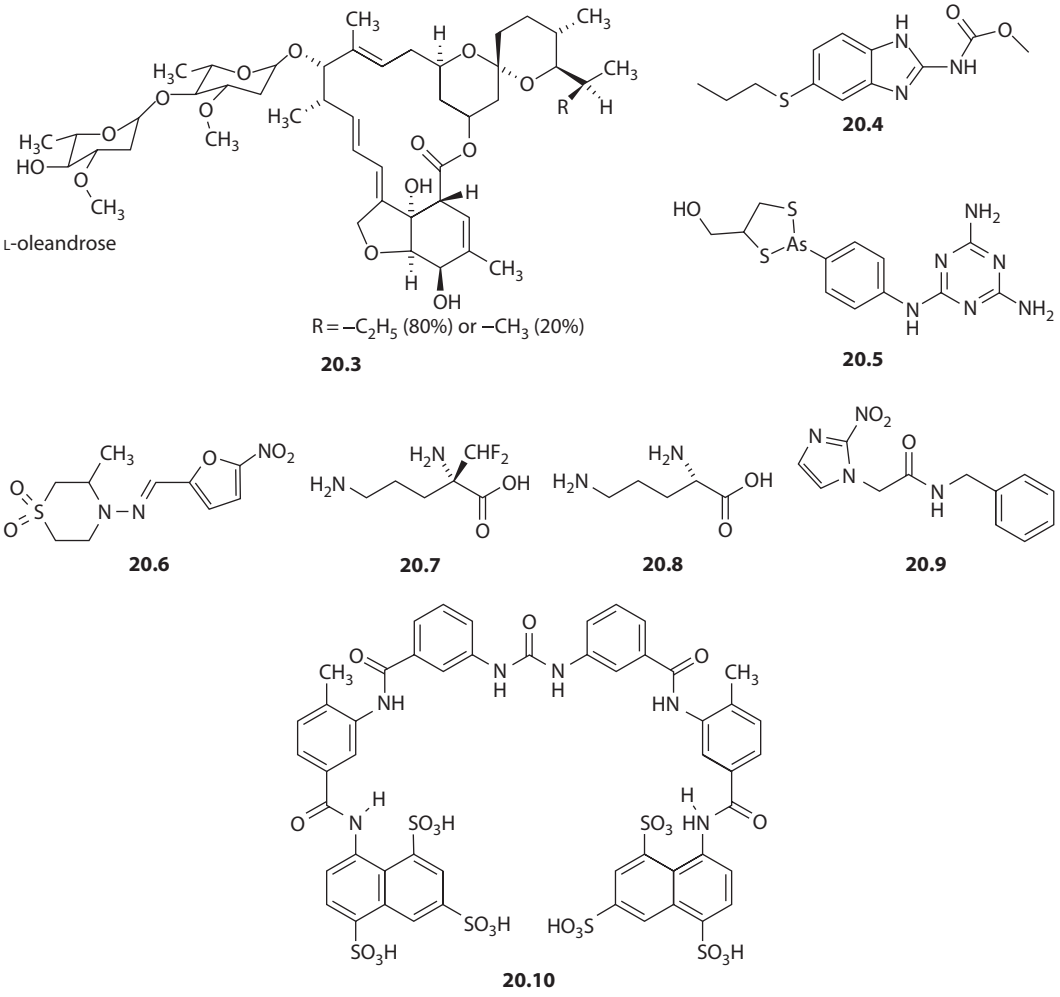

FIGURE 20.2 Structures of ivermectin (**20.3**), albendazole (**20.4**), melarsoprol (**20.5**), nifurtimox (**20.6**), eflornithine (**20.7**), ornithine (**20.8**), benznidazole (**20.9**), and suramin (**20.10**).

The presence of a difluoromethyl group in eflornithine enables the formation of a reactive intermediate which is attacked by the thiol group of cystein-360. The result is a covalent bond from ornithine decarboxylase to the substrate and thereby inactivation (Scheme 20.2).

Approximately 7.6 million persons are estimated to suffer from Chagas disease almost exclusively in Mexico, Central America, and South America. The preferred drugs are benznidazole (**20.9**) or nifurtimox (**20.6**), but there is still no effective cure. It is suggested that the two drugs act by provoking oxidative lesions of DNA in the nucleus and in the mitochondria, but other mechanisms of action are also suggested.

20.3.2 Leishmaniasis

Leishmaniasis is caused by parasites of the genus *Leishmania*. The diseases vary from simple self-healing skin ulcers (cutaneous leishmaniasis) found in South America, Africa, the Middle East, and Asia, severe disfiguring of nose, throat, and mouth cavities (mucocutaneous leishmaniasis)