Unravelling the moulting degradome of nematodes: new opportunities for chemotherapy

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It is estimated that around a third of the world’s population suffer from nematode infections that are debilitating and can lead to death. Nematodes are also important economically as many species are parasites of crops and livestock. New strategies to control nematodes are now needed to combat the increasing threat of anthelmintic resistance and environmental concerns. Replacement of the nematode cuticle with newly synthesized cuticle, known as moulting, occurs four times during larval development and hence the key components of this essential developmental process are attractive targets for new chemotherapeutic strategies. We will review recent advances in understanding the molecular genetics of nematode (Caenorhabditis elegans) moulting which should stimulate and facilitate development of novel drugs that target the essential players of the moulting cycle. We argue that further understanding of the moulting degradome, and its key peptidase members, offers excellent opportunity for development of novel anti-nematode agents.