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Cross-species RNAi: Selected *Ascaris suum* dsRNAs can sterilize *Caenorhabditis elegans*

Studies have shown that nematode infections in pigs and humans by *Ascaris* worms are steadily increasing, and there is a growing concern in the scientific community about drug-resistant nematodes. Cross-species RNA interference (RNAi), a gene silencing mechanism found in many eukaryotes, has been used in attempt sterilize *Ascaris* with the long-term aim of developing RNAi as an anti-parasitic agent. RNAi results in the specific degradation of targeted cellular transcripts when the organism is exposed to dsRNAs corresponding to the cognate mRNA. Four *Ascaris suum* genes have been successfully used for cross-species RNAi with *Caenorhabditis elegans* (*C. elegans*) used as a “tester” species. Cultured worms were injected with the gene’s corresponding dsRNA and have shown that *Ascaris* dsRNAs can knock out gene function. This demonstrates that dsRNA from one nematode species is able to effectively commandeer the RNAi machinery of another species to knock down an essential endogenous mRNA resulting in sterility. The success with cross-species RNAi suggests that by using nematode-specific dsRNAs, it may be possible to target multiple parasitic nematodes infecting a single host with one or more consensus dsRNAs. The *Ascaris* dsRNAs that sterilize *C. elegans* will be tested in *Ascaris suum* for their ability to sterilize these parasitic worms. Also, RNAs that have proved successful in sterilizing *Ascaris* worms will be tested in *Ascaris*-infected pigs to determine whether or not they work to sterilize worms in the mammalian host.