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## What's in a worm; Uncovering polymorphisms in soybean cyst nematode parasitism genes that correlate with virulence

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Soybean cyst nematode (SCN) is a parasitic worm that penetrates and infects soybean roots resulting in billions of dollars in crop loss annually. The most cost effective and environmentally friendly SCN management strategy is to utilize resistant soybean plants. Of particular concern, however, is that genetically diverse field populations of SCN have shown the ability to overcome current sources of resistance. Previous research has confirmed that parasitism genes expressed in esophageal gland cells encode for secretions that are involved in the process of plant parasitism and may contribute to the ability of SCN to overcome resistance. However, since the function of most of the secretions has not been identified, SCN parasitism and the mechanism by which the nematode can overcome resistance is not fully understood. The goal of this study was to use publicly available SCN inbred lines to identify polymorphisms in the molecular structure of a subset of parasitism genes and assess for correlations with virulence on resistance soybean plants. Nematode genomic DNA from 15 lines was extracted for Southern Blotting and PCR analysis of 10 SCN parasitism genes. Our results indicate that several parasitism genes belong to polymorphic gene families. Interestingly, we observed a unique banding pattern for one of the parasitism genes in a subset of inbred lines that are virulent on a particular group of SCN resistant germplasm.