



## Increasing Resistance to Soybean Cyst Nematode with Polypeptides

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing genetic methods for increasing the resistance of soybeans and other crops to destructive roundworms.**

### Overview

Soybean cyst nematode (SCN) is the most economically damaging pathogen for United States soybean production in most years. Annual losses top \$700 million. Other countries like Brazil and China also are seriously impacted.

Once a field is infested with SCN, it is almost impossible to eliminate. Primary means of control are crop rotation and the planting of SCN-resistant soybean varieties. However, no varieties are completely resistant.

The genetic basis for effective SCN resistance that already is in widespread commercial use previously had been traced to a chromosome location, or locus, known as *Rhg1*. Pinpointing the specific genes and gene products at *Rhg1* that combat these devastating nematodes was critically important to allow improvement of cyst nematode resistance.

### The Invention

UW–Madison researchers and others have developed methods to increase the expression of polypeptides that help root cells resist SCN. They also have developed ways to detect naturally occurring genetic configurations that may confer improved SCN resistance.

The polypeptides are Glyma18g02580, Glyma18g02590 and Glyma18g2610. Their expression in plants, including soybean, potato, sugar beet and corn, can be increased using strong or tissue-specific promoters or by introducing extra copies of the polynucleotides into cells.

### Applications

- Screening plants for resistance to nematodes
- Identifying or generating new non-GMO forms of *Rhg1* that confer better resistance
- Developing transgenic soybeans and other crops with improved cyst nematode resistance

### Key Benefits

- May boost resistance to SCN, one of the most devastating crop pathogens
- May be applicable to cyst nematode diseases of other plant species

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#### For More Information About the Inventors

- [Andrew Bent](#)

#### Related Technologies

- [WARF reference number P07305US describes two soybean lines that show resistance to soybean cyst nematode and brown stem rot.](#)

#### Related Intellectual Property

- [View Divisional Patent in PDF format.](#)

#### Publications

- Cook et al. 2012. Copy Number Variation of Multiple Genes at *Rhg1* Mediates Nematode Resistance in Soybean. Science 338, 1206-1209.

#### Tech Fields

- [Animals, Agriculture & Food : Plant biotech](#)

For current licensing status, please contact Emily Bauer at [emily@warf.org](mailto:emily@warf.org) or 608-960-9842

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