

What is claimed is:

1. An isolated polynucleotide selected from the group consisting of:

(a) a fragment of at least 21 contiguous nucleotides of a nucleic acid sequence of SEQ ID NOs:3-15; SEQ ID NOs:18-23, SEQ ID NO:29, or SEQ ID NOs:33-35 wherein uptake by a fungal or oomycete plant pathogen of a double stranded ribonucleotide sequence comprising at least one strand that is complementary to said fragment inhibits the growth of said pathogen; and

(b) a complement of the sequence of (a).

2. The isolated polynucleotide of claim 1, defined as operably linked to a heterologous promoter.

3. The isolated polynucleotide of claim 1, defined as comprised on a plant transformation vector.

4. A double stranded ribonucleotide sequence produced from the expression of a polynucleotide according to claim 1, wherein the taking up of said ribonucleotide sequence by a fungal or oomycete plant pathogen inhibits the growth of said pathogen.

5. The double stranded ribonucleotide sequence of claim 4, defined as produced by preparing a recombinant polynucleotide sequence comprising a first, a second and a third polynucleotide sequence, wherein the first polynucleotide sequence comprises the isolated polynucleotide of claim 1, wherein the third polynucleotide sequence is linked to the first polynucleotide sequence by the second polynucleotide sequence, and wherein the third polynucleotide sequence is substantially the reverse complement of the first polynucleotide sequence such that the first and the third polynucleotide sequences hybridize when transcribed into a ribonucleic acid to form the double stranded ribonucleotide molecule stabilized by the linked second ribonucleotide sequence.

6. The double stranded ribonucleotide sequence of claim 4, wherein the taking up of the polynucleotide sequence by the pathogen inhibits the expression of a nucleotide sequence substantially complementary to said polynucleotide sequence.

7. A cell transformed with the polynucleotide of claim 1.

8. The cell of claim 7, defined as prokaryotic cell.

9. The cell of claim 7, defined as a eukaryotic cell.

10. The cell of claim 7, defined as a plant cell.

11. A plant transformed with the polynucleotide of claim 1.

12. A seed of the plant of claim 11, wherein the seed comprises the polynucleotide.

13. The plant of claim 11, wherein said polynucleotide is expressed in the plant cell as a double stranded ribonucleotide sequence.

14. The plant of claim 13, wherein the pathogen is selected from the group consisting of ascomycetes, basidiomycetes, deuteromycetes, and oomycetes.

15. The plant of claim 13, wherein the taking up of the pathogen inhibitory amount of the double stranded ribonucleotide sequence inhibits growth of the pathogen.

16. A commodity product produced from a plant according to claim 11, wherein said commodity product comprises a detectable amount of the polynucleotide of claim 1 or a ribonucleotide expressed therefrom.

17. A method for controlling fungal or oomycete plant disease comprising providing an agent comprising a double

stranded ribonucleotide sequence that functions upon being taken up by the pathogen to inhibit a biological function within said pathogen.

18. A method for controlling fungal or oomycete plant disease comprising providing an agent comprising a first polynucleotide sequence that functions upon being taken up by the pathogen to inhibit a biological function within said pathogen, wherein said polynucleotide sequence exhibits from about 95 to about 100% nucleotide sequence identity along at least from about 19 to about 25 contiguous nucleotides to a coding sequence derived from said pathogen or its host plant and is hybridized to a second polynucleotide sequence that is complementary to said first polynucleotide sequence, and wherein said coding sequence derived from said pathogen or host is selected from the group consisting of SEQ ID NOs:3-15; SEQ ID NOs:18-23, SEQ ID NO:29, or SEQ ID NOs:33-35 and the complements thereof.

19. The method of claim 18, wherein said pathogen is an ascomycete, a basidiomycete, a deuteromycete, or an oomycete.

20. A method for controlling a fungal or oomycete plant disease comprising providing in the host plant of a fungal or oomycete plant pathogen a transformed plant cell expressing a polynucleotide sequence according to claim 1, wherein the polynucleotide is expressed to produce a double stranded ribonucleic acid that functions upon being taken up by the pathogen to inhibit the expression of a target sequence within said pathogen and results in decreased growth, in or on the host of the pathogen, relative to a host lacking the transformed plant cell.

21. The method of claim 20, wherein the pathogen exhibits decreased growth following infection of the host plant.

22. The method of claim 20, wherein the target sequence encodes a protein, the predicted function of which is selected from the group consisting of: ion regulation and transport, enzyme synthesis, nutrient assimilation, viability of the pathogen, sexual reproduction by the pathogen, maintenance of cell membrane potential, amino acid biosynthesis, amino acid degradation, development and differentiation, infection, penetration, development of appressoria or haustoria, mycelial growth, fruiting body growth; sporulation; melanin synthesis, toxin synthesis, siderophore synthesis, sporulation, fruiting body synthesis, cell division, energy metabolism, respiration, cytoskeletal structure synthesis and maintenance, nucleotide metabolism, nitrogen metabolism, carbon metabolism and apoptosis.

23. The method of claim 20, wherein said pathogen is selected from the group consisting of biotrophic, necrotrophic, and hemibiotrophic fungi.

24. The method of claim 20, wherein the polynucleotide functions upon being taken up by the pathogen to suppress a gene that performs a function essential for pathogen survival or growth, said function being selected from the group consisting of ion regulation and transport, enzyme synthesis, nutrient assimilation, viability of the pathogen, sexual reproduction by the pathogen, maintenance of cell membrane potential, amino acid biosynthesis, amino acid degradation, development and differentiation, infection, penetration, development of appressoria or haustoria, mycelial growth, fruiting body growth; sporulation; melanin synthesis, toxin synthesis, siderophore synthesis, sporulation, fruiting body synthesis, cell division, energy metabolism, respiration, cytoskeletal structure synthesis and main-