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(54) **PLANT-DERIVED RESISTANCE GENE****Publication Classification**(76) Inventors: **Christiane Gebhardt**, Frechen (DE);  
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**Philadelphia, PA 19103 (US)**(57) **ABSTRACT**

Disclosed are nucleic acid molecules encoding polypeptides which are capable of conferring resistance against, and being triggered by, plant pathogens such as fungi (e.g. *Phytophthora infestans* and related isolates). Preferred nucleic acid molecules encode R1 from *Solanum tuberosum*, or a variety of homologs, naturally occurring or derivatives) thereof. Particular methods of activating resistance by using the R1 resistance gene are disclosed, which in certain cases lead to a hypersensitive response. Further aspects of the invention include specific primers, vectors, host cells, polypeptides, antibodies, aptamers, transgenic plants, methods of producing and employing these, and methods of influencing the resistance trait in a plant. Furthermore, screening methods for identifying and obtaining plant protective compounds are provided.

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