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The product of the *Arabidopsis thaliana* RPM1 disease resistance gene is a peripheral plasma membrane protein

Jaesung Nam[1] and Jeffery L. Dangl[2]

[1]Faculty of Natural Resources and Life Sciences
[2]Dept. of Biology, University of North Carolina, Chapel Hill

Disease resistance in plants is often controlled by a gene-for-gene mechanism in which avirulence(avr) gene products of phytopathogen are recognized, either directly or indirectly, by plant resistance gene (R) products. Members of the NBS-LRR class of R genes encode proteins containing a putative nucleotide binding site(NBS) and carboxy terminal leucine-rich repeats (LRR). Because NBS-LRR proteins do not contain predicted transmembrane domains, singnal peptides for secretion, or post-translation modification sequence for targeting to membrane, it has been suspected that they are soluble cytoplasmic proteins. we determined the localization of RPM1 protein, a NBS-LRR class of R gene from Arabidopsis which confers resistance to Psedomonas syringae expressing either the avrRpm1 or avrB, by an epitope tag. In contrast to previous suggestion, the functional RPM1::Myc protein resides peripherally on the cytoplasmic face of the plasm membrane. Its association with the membrane is likely maintained through interaction with unknown integral membrane proteins, because RPM1::Myc protein does not contain any predicted sequence for membrane targeting. Recently a potential RPM1 membrane anchoring protein has been identified using the N-terminal part of RPM1 protein as a bait in a yeast two-hybrid screen. The N-terminus of this protein contains 6-7 potential transmembrane domains and a novel C-terminal cytoplasmic domain that interacts with RPM1. Furthermore, RPM1 protein is degraded coincident with the onset of the hypersensitive response, suggesting the existence of a desensitization mechanism to control the extent of cell death and overall resistance response at the site of infection.