

Association of cell wall structure with plant defense is dependent on phytorostane- A_1 and ABA mediated by Expansin-like *Botrytis* Resistant 1

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Expansins are cell wall-loosening agents, known for their endogenous function in cell wall extensibility. The *Arabidopsis* EBR1 (Expansin-like *Botrytis* Resistant 1) gene was identified based on its down-regulation to the necrotrophic pathogen *Botrytis cinerea* infection and enhanced *B. cinerea* resistance phenotype of its mutant. In the EBR1 mutant, the bacterial growth was not altered when inoculated with *Pseudomonas syringae*, however, the mutant was highly resistant to *Alternaria brassicicola* when compared with the wild-type and the ectopic EBR1 overexpression transgenic plants. This suggests a common host response strategy against necrotrophic fungi mediated by EBR1 through the nonenzymatic product PPA1 and COI1-dependent signaling pathway. The EBR1 is significantly induced by salinity and cold, and exogenous application of ABA, BL and IAA, suggesting a cross-talk between pathogen and abiotic stress responses. This pleiotropic mutant also showed hypersensitivity towards increased salt and cold mediated by ABA. The differential temporal expression of EBR1 and the several phenotypes in transgenic plants with altered expression in EBR1, indicate that plant cell wall structure is an important player during *Arabidopsis* developmental stages. Our results indicate that EBR1 appears to respond to various biotic and abiotic stresses, particularly in the pathogenesis of necrotrophic pathogens and tolerance to abiotic stress.

Biography

Synan Abu Qamar completed his Ph.D. from Purdue University/Department of Botany & Plant Pathology in 2007 and his postdoctoral studies in the same university in the area of Molecular Genetics of Plant Immunity. In August 2008, he joined the Department of Biology at United Arab Emirates University as an Assistant Professor. His current research interest is in the area of plant molecular genetics/plant biotechnology. He co-authored a number of publications in peer-reviewed international journals and serves as an editorial board member of reputed journals.

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