



Category: Functional Genomics

# Role of NPR1 dependent and NPR1 independent genes in response to Salicylic acid

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## Abstract

NPR1 (Nonexpressor of pathogenesis-related gene) is a transcription coactivator and central regulator of systemic acquired resistance (SAR) pathway. It controls wide range of pathogenesis related genes involved in various defense responses, acts by sensing SAR signal molecule, Salicylic acid (SA). Mutation in NPR1 results in increased susceptibility to pathogen infection and less expression of pathogenesis related genes. The present study aimed to identify the role of NPR1 in gene expression after the Salicylic acid induction. For this RNA-seq was performed in *Arabidopsis thaliana* Col-0 and *npr1-1* in response to Salicylic acid. RNA-seq analysis revealed a total of 3811 differentially expressed gene in which 2109 genes are up-regulated and 1702 genes are down-regulated. We have divided these genes in 6 categories SA induced (SI), SA repressed (SR), NPR1 dependent SI (ND-SI), NPR1 dependent SR (ND-SR), NPR1 independent SI (NI-SI), NPR1 independent SR (NI-SR). Further, Gene ontology and MapMan pathway analysis of differentially expressed genes suggested variety of biological processes and metabolic pathways that are enriched during SAR defense pathway. These results contribute to shed light on importance of both NPR1-dependent (ND) and NPR1-independent (NI) gene acting downstream to Salicylic acid induction in SAR pathway. The present study aimed to identify the role of NPR1 in gene expression after the Salicylic acid induction.

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