

## Genetics and Molecular Biology of Plant Senescence

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Senescence is a developmental phenomenon that determines longevity of a plant organ or a whole plant. Senescence is now clearly regarded as a genetically determined and evolutionarily acquired developmental process. However, genetic mechanism of senescence is poorly understood. We previously reported 3 genetic mutants of *Arabidopsis*, named *oresara 1*, *3*, and *9* (Plant J. 12, 527, 1997). These mutants cause delay of leaf senescence. We examined senescence responses of these mutants to various senescence-promoting factors, such as age, hormones, and darkness. The three mutants delayed all the senescence symptom in physiological and molecular level we examined, when they were subjected to senescence by these factors. On the other hand, we are continuing our effort to isolate and analyze mutants that exhibit altered senescence symptoms. One of our mutants isolated from a T-DNA insertional pool (*oresara4*) showed delayed leaf senescence symptoms during age-dependent senescence but not during dark-induced senescence. This mutation may define an age-dependent branch in the senescence pathway. *oresara5* is involved in flowering time and leaf senescence, so *ORE5* may provide a clue about the relationship between two processes. *oresara6* delays senescence of leaves, stems, flowers and fruits, while others mostly affects in leaf senescence. *oresara7* shows retarded growth but extended life span, and it provides a good material to examine whole-plant-senescence mechanism in *Arabidopsis*.