E208 Characterization of Transgenic Tobacco Plants Expressing Sense and Antisense ACC Oxidase(*pNGACO1*)

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We produced the transgenic tobaccos which expressed the sense or antisense copies of an tobacco ACC oxidase RNA(*pNGACO1*) under the control of the 35S promoter using *Agrobacterium*-mediated transformation. Genomic southern blot analysis of transformants showed that one, two or four copies of pNGACO1 inserted into the tobacco genome. pNGACO1 expression in the steady-state was only detected in the some of transformants which expressed sense copies(S transformants). ACC oxidase(ACO) activity of the S transformants was higher than that of wild type(WT) by two or three times, but in the case of the transformants which expressed antisense copies(A transformants) ACO activity was comparable to WT. When transformants were infected with TMV, *pNGACO1* was induced very strongly, in which there was not notable difference in ACO activity and transcript level between A transformants and S transformants. However the expression of the PR-1 gene reduced only in S transformant while increased in A transformants and WT.

E209 Isolation and Characterizaion of Tobacco (*Nicotiana glutinosa*) cDNA Clones Encoding ACC Synthases

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To study the regulation of the ethylene biosynthesis, we have cloned cDNAs encoding tobacco ACC synthase. We performed RT-PCR using the two degenerated oligonucleotide primers and then PCR product was used as probes to screen a cDNA library constructed from TMV-infected tobacco leaf tissues. We isolated three clones represented *ACS1*, *ACS2* and *ACS3*. In all these clones, the active sites are conserved well and the 11 conserved amino acid residues found in various aminotransferases existed. Each *ACS1*(1815bp), *ACS2*(1895bp) and *ACS3*(1975bp) contained a single open reading frame encoding 490, 475 and 483 amino acid respectively. *ACS2* and *ACS3* shared 81% identity in their amino acid sequences while *ACS1* shared 67% and 64% identity with *ACS2* and *ACS3*, respectively. Genomic Southern blot analysis showed two copies of *ACS2* and *ACS3* and one copy of *ACS1* in the tobacco genome. The expression of these clones were not detectable in yong leaves, old leaves, root, stem and seedlings, because those were cloned from TMV-infected tobacco leaf tissues. They are differentially expressed in response to auxin(2,4-dichlorophenoxyacetic acid) and *ACS1* was only induced in response to auxin