

E203

Molecular Cloning and Characterization of Gene for
Nitrite Reductase in Soybean (*Glycine max* L.)

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To study the mechanism of the nitrate (NO_3^-) assimilation in higher plants, genomic clones for nitrite reductase (NiR) in soybean were isolated. Using two highly conserved regions from the comparison of nucleotide sequences on *nir* between PCC7942, spinach, corn and tobacco oligonucleotides were synthesized and PCR amplification of genomic DNA was done. Direct cloning of PCR product was obtained clone which had 605 bp of partial *nir* clone containing 171 bp of second intron. Using this clone as a probe, we selected one from 8 positive clones by screening of genomic DNA library. Patterns of genomic DNA blot and NiR isozymes showed that *nir* gene is constructed with small multigene family more than two copies. And this result support by the difference of sequences between PCR clone and genomic clone. Sequence analysis of soybean *nir* reveal that there are 4 exons and 3 introns. The analysis of promoter structure are in progress. We are focussing on the transcriptional activation of *nir* by the environmental factors.

E204

Lipid Body Membrane Proteins Related to Lipid Metabolism Are
Specifically Expressed During Corn Seed Germination

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Lipid body membrane proteins were isolated from scutellum tissue of 6-day germinated corn seeds. Lipid bodies were purified through several centrifugations and their membrane proteins were analysed by SDS-PAGE and native PAGE. Also, membrane proteins were chromatographed through Sephadex G-200 and DEAE-cellulose column in order to separate each protein. Membrane proteins from non germinated seeds and seeds which germination were inhibited by ABA treatment for 4 days, were used for the comparison. Four differently sized proteins, 98, 66, 54 and 37kd, were identified only in germinating seeds, and their antibodies were made from rabbits for western hybridizations. These proteins seemed to be agglutinated together to form larger than 220kd macromolecule and this huge protein showed lipase activity. Three proteins other than a 66kd protein, which has been reported as the maize lipase, seemed to be involved in lipid metabolism during corn seed germination as a co-lipase like animal system. and were only expressed during seed germination.(HRC-96-0302)