G741

Antibacterial Gene Hunting from the Immunized *Bombyx mori* with *E. coli*

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Insect antimicrobial proteins have been focused because of its applicational potential and similarity to the immune system of the higher organisms including human. For several years, more than 100 peptides have been isolated and identified as induced antimicrobial proteins in some insects including *Cecropia*, *Drosophila*, silkworm in response to the microbial challenge. In this study we have compared the gene expression pattern in *B.mori* before and after bacterial challenge and screened in m-RNA library after the immunization. As a result, we found this organism induced Enbocine, Lebocine, Cecropins, Cuticle protein, and other relative peptides. In addition to the known peptide sequence we got several mRNA sequences which were thought to be induced by the bacterial immunization. We propose that these are the candidates of novel antibacterial peptides.

G742

Genetic Characteristic of Korean Wild Ginseng

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We used random amplified polymorphic DNAs (RAPDs) to estimate genetic variability in Panax Ginseng C.A. Meyer(Korean Wild Ginseng). For different group, we used Ginseng in this study. We obtained valuable polymorphic bands from total 558 bands by RAPD analysis using 10 decamer primer that represent repeatability and systematic divergence.A dendrogram was constructed using UPGMA from the polymorphic patterns generated by RAPD profiles. It indicate that Korean Wild Ginseng has a low similarity and diversevariation in the species. After the cloning of Korean Wild Ginseng specific bands and Ginseng specific band, we constructed band specific primer and then used useful marker for discriminating Korean Wild Ginseng from Ginseng. In this study, We described genetic relationship among Korean Ginsengs by RAPD method and analyzed genetic similarity among Korean Wild Ginseng, Ginseng, using each specific marker. The RAPD markers were found to be a useful tool for detecting genetic relationship within the ginsengs. We hope that this study play a fundamental role of similarity analysis and systematic analysis among Korean Wild Ginseng, Ginseng.

G743

NADP$^+$-dependent Isocitrate Dehydrogenase Protects Macrophages from LPS Induced Nitric Oxides and Reactive Oxygen Species

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Macrophages activated by microbial lipopolysaccharides (LPS) produce a burst of nitric oxide and reactive oxygen species (ROS). The diffusive nitric oxide and ROS can be toxic not only to microbial pathogens but also to the host cells including macrophage themselves. In this study, using the suppression subtractive hybridization technique, we identified cytosolic NADP+-dependent isocitrate dehydrogenases (IDPc) is one of the principal genes up-regulated by nitric oxide treatment in macrophages. IDPc generates NADPH by catalyzing oxidative decarboxylationof isocitrate. We found that mRNA level and enzymatic activity of IDPc are increased more than five folds by LPS as well as nitric oxide treatment in macrophages. The expression level of IDPc was down-regulated by co-treatment with N-acetyl -L-cysteine, a radical scavenger. Furthermore, the over-expression of IDPc in the stably transfected cells leads to enhanced survival of cultured RAW264.7 macrophages under H2O2 and nitric oxide treatment. We propose that induction of IDPc is one of major self-protectionmechanisms of macrophages against LPS induced-oxidative stress.