D202 Isolation and Characterization of Three Homeodomain-Leucine Zipper Genes, *Phz1*, *Phz2* and *Phz4*, from *Pimpinella brachycarpa* Shoot Tips

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By screening a *Pimpinella bracycarpa* shoot tip cDNA library with a soybean homeodomain-leucine zipper (HD-Zip) cDNA, *Gmhl*, as a probe, we isolated three cDNA clones, *Phz1*, *Phz2* and *Phz4*, encoding a polypeptide which contained a homeodomain and a closely linked leucine zipper motif, respectively. In both nucleotide and deduced amino acid sequences, *Phz1*, *Phz2* and *Phz4* were highly homologous to two *Arabidopsis thaliana* HD-Zip genes, a soybean HD-Zip gene and a tomato HD-Zip gene in HD-Zip motif. Genomic Southern blot analysis indicated that *Phz2* and *Phz4* were members of multigene family. A RNase protection assay revealed that *Phz2* and *Phz4* were expressed at all organs including leaves, petioles, roots and shoot tips. So far, these HD-Zip proteins have been found only in dicotyledonous plants. Thus, it is to speculate that *Phz1*, *Phz2* and *Phz4* proteins may impart functional characters unique to dicotyledonous plants that express them, in such processes common in those plants.

D203 Characterization of a Putative Anther-specific Clone, RAN1, from Radish

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A putative anther-specific cDNA clone, RAN1, has been isolated from radish (*Raphanus sativus*) plants. The clone is 518 bps and contains the 195bp coding region, 46bp leader sequence, 262bp 3'-untranslated region, and a poly(A) tail. The coding region of 65 amino acids encodes a small protein of predicted Mr 7 kD. Comparison of the RAN1 amino acid sequence with sequences in database revealed that the protein is highly homologous to pollen coat protein of cabbage (*Brassica oleracea*). The homology was 92% and it suggests RAN1 is pollen coat protein of radish. It is predicted that RAN1 protein has a long α-helix in center. The expression level of RAN1 in radish was studied by RNA blot analysis. The RAN1 mRNA was present exclusively in mature floral bud but not in young floral bud and in other vegetative tissues. When considered together it seems that RAN1 is pollen- or anther-specific. To confirm the tissue specificity of RAN1 we currently conduct *in situ* analysis. Southern blot analysis showed that RAN1 is present as a member of small gene family.