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The Localization and Sugar Induction of Ornithine Decarboxylase  
in Tomato (*Lycopersicon esculentum* Mill)

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We isolated a cDNA clone encoding tomato ornithine decarboxylase (*LEODC*, AF029349) to study the regulation of its expression and its role in plant development. *LEODC* transcript was mainly detected in young growing tissues and sink tissues such as young leaves, roots and flowers. With Whole-mount In Situ Hybridization (WISH), we found that *LEODC* was expressed in root apical meristem. It suggests its role related with mitotic activities. As a factor regulating the expression of *LEODC* in these tissues, we tested the effect of sugars on its transcript level. Among metabolizable sugars, sucrose increased *LEODC* transcript level most significantly in roots, but non-metabolizable sugars showed no effect. Paraquat which inhibits photosynthesis decreased *LEODC* transcript level in roots. And sucrose increased *LEODC* transcript level in root meristem region. Thus it is suggested that the expression of *LEODC* is linked with sugar metabolism in meristem and mitotic activities in plants.

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A Study on Anthocyanin Synthesis Mediated by Phytochrome  
Signal Transduction

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This report was investigated how the signal transduction of phytochrome regulate the anthocyanin biosynthesis in cell suspension culture system of grape (*Vitis vinifera* L.). We tried to examine into the signal transduction analysis of grape cells through the expression of PAL and CHS, anthocyanin synthesis enzymes. In result, we found that PAL and CHS appeared as a remarkable signal under red light and blue light irradiation. However, PAL and CHS didn't appear in dark and far-red light irradiation. The induction effect of red light and blue light was suppressed by far-red irradiation. It is supposed from these results that anthocyanin synthesis pathway of grape cells is mediated by signal transduction of phytochrome.