## E215

### Specific Lipid Breakdown in Starved Carrot Suspesion Cells

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It has been suggested that carbon source-starved plant cells may use membrane lipids as the alternative carbon source. When carbon source was depleted from the growth media, the membrane phospholipids may be cleaved to generate free fatty acids. These fatty acids may be further degraded into acetyl-CoA and used for gluconeogenesis via the glyoxylate cycle. However this pathway has not been understood clearly. In the carrot suspension cells growing in a 3 mM glucose medium, isocitrate lyase, a glyoxylate cycle enzyme, and acyl-CoA synthetase, catalyzing the addition of CoA to fatty acids, were induced as glucose was removed from the medium. Using thin layer and ion exchange chromatography, it was also demonstrated that the phospholipase A activity increased specifically at the starvation. In this study, we show that the degradation pathway of the membrane lipids is actively operating in these glucose-starved cells.

## E216

### Diauxic Growth of Rice Suspesion Cells Grown on Acetate plus Glucose as Mixed Carbon Sources.

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Diauxic growth was observed in rice (*Oryza sativa* L.) suspension cells grown on acetate (10 mM) and glucose (10 mM). Cells used acetate first, exhibiting the first growth phase. During the first growth phase, acetate level in media was rapidly decreased, while glucose level was essentially unchanged. After acetate is depleted from media, cells started to use glucose, forming the second growth phase. It appears that uptake of [$^{14}$C] glucose was very repressed during the first growth phase and became active during the second growth phase. In contrast, uptake of [$^{14}$C] acetate was active throughout the diauxic growth. By further demonstrating the specific inductions of isocitrate lyase (ICL, EC 4.1.3.1.), a glyoxylate cycle enzyme, and hexokinase (EC 2.7.1.1.), a glycolysis enzyme, during the first and second growth phases, respectively, it was clearly shown that rice cells use acetate first, not using both carbon sources simultaneously. This kind of diauxic growth pattern has been observed in bacteria. To our knowledge, this study is the first report demonstrating the presence of a diauxic growth in plant cell.