PHOSPHORYLATION OF HISTONE H1 DURING DNA SYNTHESIS IN RAT HEPATOCYTES

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Phosphorylation of histone H1 occurs at the time of DNA synthesis in primary cultured rat hepatocytes. Effects of the compounds which inhibited DNA synthesis in different ways were examined on phosphorylation of histone H1 in the hepatocytes. Sodium butyrate inhibiting progression of the cell cycle at G1 phase inhibited both DNA synthesis and histone H1 phosphorylation. Hydroxyurea and aphidicolin inhibit DNA synthesis at the S phase in a different way. They inhibited both DNA synthesis and H1 phosphorylation at a similar concentration. But removal of these compounds from the culture medium restored DNA synthesis in a little different way. Removal of hydroxyurea partially restored both DNA synthesis and the phosphorylation, while recovery of DNA synthesis after removal of aphidicolin was slow and phosphorylation of histone H1 was very low. Thus, phosphorylation of histone H1 seemed to proceed as DNA synthesis proceeds. To investigate the protein kinase responsible for histone H1 phosphorylation, histone H1 kinase activity of the cell extract was examined. The kinase activity increased at the start of DNA synthesis, and a part of the activity was bound to $p13^{suc1}$ beads.

COLD ADAPTATION IN *DROSOPHILA* QUALITAIVE CHANGES OF TRIACYLGLYCEROLS

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Triacylglycerols are the major fuel for basal metabolism during the winter in temperate species of the *Drosophila melanogaster* species group. Differential scanning calorimetry analysis revealed that the transition temperatures of triacylglycerol were lower in species or strains adapted to cooler climate than those adapted to warmer climates. This phenomenon was correlated to the fatty acid compositions of the triacylglycerols; the proportion of unsaturated fatty acids in triacylglycerols was higher in the species or strains adapted to cooler climates. Furthermore, in the temperate species of the *montium* species group, the amount of saturated triacylglycerols was smaller than the value expected on the assumption that fatty acids are randomly distributed in the triacylglycerols, suggesting that non-random distribution of unsaturated fatty acids among triacylglycerols. This may facilitate the lowering of the transition temperature of triacylglycerols and hence may be related to the ability of *Drosophila* to cope with temperate climates.

COLD RESISTANCE OF CALCIUM TRANSPORT ACTIVITY IN SARCOPLASMIC RETICULUM OF SCALLOP STRIATED ADDUCTOR MUSCLE ----- --- CALCIUM-TRANSPORTING PROTEIN OR THE MEMBRANE LIPIDS ?

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Different from the sarcoplasmic reticulum (SR) of rabbit skeletal muscle, calcium-transporting ATPase of scallop (*Patinopecten yessoensis*) SR has been found to be able to operate at low temperature (0-20 °C) and to be irreversibly inactivated at high temperature (37 °C). Here , we, preliminarily studied the role of lipid of scallop SR in the cold resistant property. Temperature profile of the scallop ATPase activity was compared with that of the rabbit ATPase activity in the presence and absence of excess amount of nonionic detergent ($C_{12}E_8$). Thier temperature profiles were not significantly affected by the detergent. The cold resistance of scallop SR may be based on the ATPase protein itself.

ATP ENHANCES CALCIUM-DEPENDENT CALCIUM OCCLUSION IN CALCIUM-TRANSPORTING ATPase OF SARCOPLASMIC RETICULUM FROM RABBIT SKELETAL MUSCLE

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In the previous meeting, we reported that $^{45}Ca^{2+}$-$^{40}Ca^{2+}$ exchangeability of ^{45}Ca bound to the calcium transport sites of Ca^{2+}-ATPase of the sarcoplasmic reticulum is heterogeneous in the absence of ATP: Half of the bound calcium is $[Ca^{2+}]$-dependent in a slowly exchageable (k <0.3 s^{-1}), "occluded" state in the Ca^{2+}-ATPase, and the other calcium is $[Ca^{2+}]$-independent in a rapidly exchageable (k≈0.3 s^{-1}), "unoccluded" state. Here, the excangeability of the bound calcium was studied in the presence of ATP at 0°C. By the addition of ATP,the degree of the occlusion became higher (k<0.003 s^{-1}). The unoccluded calcium was, however, not significantly affected. These results suggest that ATP more highly occludes calcium, already occluded in the absence of ATP.