Thu-S29-22

CHANGES IN PHOSPHOLIPID AND FATTY ACID COMPOSITION IN DIFFERENTIATED FRIEND LEUKEMIC CELLS


Friend leukemic cells (FLC) were induced to differentiate with various inducers and phospholipid composition was analyzed. The phospholipid composition of differentiated cells differed from that of non-differentiated cells and also varied according to inducer. Furthermore the fatty acid composition of PC and PE obtained from differentiated cells varied according to inducer. Although the changes appeared to be related to the inducers, it was not excluded that the differentiated state also contributed to these changes. Therefore, phospholipid composition of a non-inducible cell variant (RFLC) was analyzed. It is shown that treated or not with inducers the phospholipid and fatty acid composition of PC and PE did not change.

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Thu-S29-23

NO REARRANGEMENTS OF CHICKEN GLOBIN GENES AT EARLY AND LATE STAGES OF EMBRYONIC DEVELOPMENT by Walter Knöchel and Ulrich Grundmann, Institut für Molukularbiologie und Biochemie, Freie Universität Berlin, Arnimallee 22, 1000 Berlin 33, Germany.

Chicken globin mRNA was transcribed into cDNA and investigated since that Rat clearance site of pBR 322. After cloning in E. coli HB 101 individual clones were characterized by genomic DNA hybridization and hybrid arrested cell free translation. Thus we could isolate clones containing the αA or the β globin nucleotide sequence.

DNA was isolated from chicken embryos incubated for 20 h and for comparison from 11 d embryos. At the former stage the formation of blood islands has not yet started. Restriction mapping of the DNA from the two stages with labelled plasmids and labelled cDNA did not indicate any rearrangements during the activation of chicken globin genes.

Thu-S29-24

TRANSLATION IN VITRO OF RAT BRAIN POLY(A)RNA; PROCESSING OF PRODUCTS.

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Developmental changes in brain transcription were studied by translating poly(A)RNA in reticulocyte lysates. RNA from free and membrane bound polysomes coded for common as well as specific products. Two proteins (21K and 33K) apparently specific to the membrane bound fraction are present 10 days but not 3 days after birth. In brain development, glycolysis and neuron-glial interactions occur which involve membrane proteins. Some membrane proteins are synthesized as precursors. Processing of proteins synthesized by both polysomal fractions was studied using dog pancreas microsomal membranes. Both the 21K and 26K proteins were modified. One of the processed products appears to be common to membrane bound and free polysomal fractions. This may correspond to the large myelin basic protein.

Thu-S29-25

INDUCTION OF THREONINE DEHYDRATASE IN PERINATAL RAT LIVER

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Previously we have shown that threonine dehydratase (TD) develops in the postnatal rat liver and that premature delivery of rat foetuses leads to precocious appearance of the enzyme. Evidence has been presented that the development of the enzyme is dependent upon de novo protein synthesis. In this study, hydrocortisone and glucagon were shown to enhance the incorporation of 3H-leucine into TD in the postnatal rat liver. Actinomycin D, when given concomitantly with either of the two hormones resulted in the suppression of induction. Its effect was more pronounced on glucagon. Only glucagon was capable of advancing the development of the enzyme in foetal liver. These results, coupled with the finding that no additive effect could be observed when the two hormones were administered together, suggest that the two hormones act via different mechanisms in the induction of threonine dehydratase.

Thu-S29-26

SYNTHESIS OF PYRUVATE KINASE IN DEVELOPING RAT LIVER

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The immunoologically distinct L- and M-type isozymes of pyruvate kinase (PK) were purified from homogeneity from rat liver and muscle respectively and their specific antibodies were employed to quantitate the isozyme concentration in rat liver during development. Isozyme profile revealed that the M-type PK slightly predominated in early foetal period. Its contribution decreased sharply in late foetal life. This decrease in M-type PK was mapped with a corresponding increase in L-type PK and at birth a L/M ratio of 2.5:1 was attained. By means of incorporation studies with 3H-leucine in L-type PK activity when approaching term was explained by a 2-fold increase in its rate of synthesis and a concomitant cessation of the M-type synthesis. The attenuated L-type activity after birth was due to a drop in enzyme synthesis on the 3rd postnatal day.

Thu-S29-27

DNA METHYLASE DURING DEVELOPMENT OF XENOPUS LAEVIS

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The DNA methylase activity present in embryos and cultured cells of Xenopus laevis resembles the DNA methylase from mammalian tissues. However little or no methylase activity is found in mature germinal vesicles although nuclear activity rises rapidly after fertilisation. On the other hand DNA itself, isolated from Xenopus tissues at the different developmental stages, accepts methyl groups in vitro at similar rates in reactions catalysed by mouse cell DNA methylase.