Mon-S3-16

DIVERSITY OF GLYCOPROTEIN LECTINS IN THE CELLS OF PHASEOLUS VULGARIS CULTIVARS
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The seeds of most varieties of Phaseolus vulgaris contain two families of tetrameric glycoprotein isolectins of 120 000 molecular weight (PHA). In addition to a number of soluble glycoproteins, these lectins reacted with erythrocytes, other blood cells and intestinal enterocytes. The extent of this reactivity was strongly dependent on their subunit composition and total molecular charge. It was however not affected by mild oxidation with periodate. The seeds of about 7% of the Phaseolus vulgaris varieties examined contained no PHA. Instead, these contained an immunohistochemically distinct dimeric glycoprotein lectin of 60 000 molecular weight. The properties of one such lectin purified by immunoaffinity chromatography from 'Pinto III' seeds (PHA) were compared with those of PHA and lectins purified from bean root cells and Ehrlich-infected root nodules.

Mon-S3-18


A major plasma membrane glycoprotein (molecular weight 110000) contains asparagine-linked oligosaccharides of mannose (9) and glucose (3) residues and N-acetylglucosamine 1,4 N-acetylglucosamines. Synthesis is tunicamycin sensitive and involves a dolicholiprophospho-oligosaccharide intermediate common to most species but processing and further modification seems more limited.

Mon-S3-20

DETECTION OF MAMMALIAN MANNOSE BINDING-PROTEINS J.A. Wild, D. Robinson and B.G. Winchester. Department of Biochemistry, Queen Elizabeth College, University of London, Campden Hill Road, London W8 7AH, U.K.

A binding assay for mammalian mannose-binding proteins has been developed using the polymannose carbohydrate moiety of 121-iodinated bovine pancreatic ribonuclease B as a ligand. The assay was validated with the plant lectin Concanavalin A in polyacrylamide gels has been investigated.

Mon-S3-17

BIOSYNTHESIS OF GLYCOCONEUTRIGUES BY FIBROBLASTS TREATED WITH LYSOSOMOTROPIC AMINE CLOROQUINE. M. Maczor, CHR GR N° 40 Fac de Méd. Créteil, France.

Control and chloroquine treated fibroblast cultures were incubated with C-glucosamine. The cells were separated from the medium and the pericellular matrix. The N-acetylated glycoproteins were hydrolysed with trypsin and pronase. The peptidoglycans were treated with hyaluronidase, chondroitin AB, and chondroitin ABC lyase. The macromolecular 14C GlcN label per cell in the medium was higher in the chloroquine treated cultures than in the controls. The increased 14C label accounted for the incorporation of radioactivity into peptidoglycans. The incorporation of C GlcN into glycopeptides per cell was not modified by chloroquine, A defect of processing of endogenous hydrolytic enzymes induced by chloroquine resulted in an increase of the incorporation of C hexosamines into chondroitin 4 and 6 sulfate, dermatan sulfate and hyaluronic acid excreted into the medium.

Mon-S3-19


By using synchronized rabbit reticulocyte lysate system programmed with rat thyroid mRNA, we assayed translocation activity of microsomal membranes from dog pancreas. In presence of adequate amounts of membranes there is synthesis of a glycosylated protein which has an apparent molecular weight identical to native thyroglobulin subunit (MW= 330 000). Moreover, the de novo synthesized thyroglobulin is shown to contain an amino-terminal signal sequence and the carbohydrate 'units' almost entirely distributed along the first half portion of this subunit. Peptide mapping comparison of native and in vitro synthesized thyroglobulin by limited proteolysis did show extensive homology. However, asymmetry in the glycosylation pattern may represent a very peculiar feature of this molecule.

Mon-S3-21

COMPARATIVE STUDIES OF NATURAL AND CARBOHYDRATE-DEPLETED YEAST ACID PHOSPHATASE. V. Mrsa, S. Barbaric, B. Ries and F. Mildner, Laboratory of Biochemistry. Faculty of Food and Biotechnology, 41000 Zagreb, Yugoslavia.

Acid phosphatase from yeast Saccharomyces cerevisiae is a glycoprotein and about 90% of the carbohydrate was removed by endo-β-N-acetylglucosaminidase H (endo-H). Carbohydrates were removed stepwise at pH 5.0 and 37°C. In the first step the enzyme was treated with endo-H for 22 hrs and about 70% of carbohydrates was removed. Prolonged treatment for additional 14 hrs with a fresh portion of endo-H lead to removal of 90% of initially present carbohydrates. During the latter step a considerable loss of activity was observed which could be ascribed to carbohydrate-depleted /CHO(−)/ enzyme instability under incubation conditions, since K and Vmax did not change significantly. CHO(−)-enzyme was more susceptible to guanidine. BC1, heat and pH denaturation. Structural studies of CHO(−) and CHO(+) enzyme were performed by CD and fluorescence techniques.