GASTROENTEROLOGY & NUTRITION

Isolation and Characterization of a Differentiation-Dependent Gene in the Human Colonic Cell Line HT29-18. M. M. Oliva and W. V. Yang (Eppn, by Jay A. Perman). Departments of Pediatrics and Medicine, The Johns Hopkins Univ School of Medicine, Baltimore, Md.

Due to the extremely complex organization of the intestinal tract, culture systems using a homogenous population of intestinal cells may provide a better means of studying the differentiation. The human colonic epithelial cell line HT29 contains the capacity to differentiate in vitro and was used in this study to isolate a gene whose expression is confined to the differentiated state. A subtracted cDNA library was constructed by screening an HT29-18 cDNA library with a poly(dI)poly(dC) probe. A cDNA, for which expression is differentiation-specific by northern blot analysis, was sequenced to its entirety. It contains 945 base pairs (bp) and has 75 bp of 5' untranslated area, a single open reading frame (ORF) of 456 bp and 414 bp of 3' untranslated area. The amino acid sequence deduced from the ORF reveals a polypeptide of 152 amino acids with a predicted molecular weight of 16,700 daltons, a size subsequently confirmed by coupled in vitro transcription and translation of the full-length cDNA clone. The polyepitide contains a consensus N-linked glycosylation sequence at its amino terminal and four potential transmembrane spanning domains. Comparison of published cDNA sequences reveals a limited homology to a portion of the cDNA encoding the human protein. Nuclear run-on experiments reveal that the induction of A4 during HT29 differentiation is not due to increased transcription. The data indicate that the gene product is a differentiation-dependent enzyme whose expression is regulated by the powerful technique of subtraction cloning. Further characterization of the gene and its expression reveals the molecular mechanisms controlling intestinal differentiation.

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RELIABILITY AND VALIDITY OF AN INFANT GASTROESOPHAGEAL REFLUX QUESTIONNAIRE. Susan Dranitsaris, Jeffrey Doh, Theresa Shalvey, Roopar Kattar, Univ. of Pittsburgh, Dept.s of Pediatrics, Psych. & Children’s Hospital of Pittsburgh, PA.

To increase the simplicity, speed, accuracy, and completeness of history-taking for infants with suspected gastroesophageal reflux, we developed and validated a Gastroesophageal Reflux Questionnaire. The Questionnaire consisted of 119 items identifying demographics; symptoms (e.g., regurgitation, weight, feeding); and possible causes for the symptoms (e.g., overfeeding or allergy). The Questionnaire was independently read and compiled by primary care doctors of 76 infants suspected of having reflux. The infants’ median age was 13 wk (range 1 to 58). Median time to complete the Questionnaire was 20 min (range 4 to 90 min).

RESULTS: The median internal consistency of 36 sets of redundant questions was found to be 0.94 (range 0.82-1.00). The test-retest consistency, evaluated for 96 items in a member subgroup, was 0.87 (range 0.22-1.00). The interobserver consistency, evaluated for 97 items in 35 Questionnaires which had also been independently filled out a secondary caretaker, was 0.83 (range 0.43-1.00). The accuracy of five items which could be externally validated was 1.00 (range 0.60-1.00).

CONCLUSION: The Infant Gastroesophageal Reflux Questionnaire is a useful, reliable, and valid history-taking instrument which can improve the data base upon which pediatricians make decisions regarding diagnostic and therapeutic interventions in this common but complex disorder.

TURK TORSION SYNDROME (TS), A NOVEL EXPLOSIVE EXPANSIVE ENERGIZE IN CHILDREN. F. M. Wolbuck, L. E. O. Cril, C. A. F. M. S. L. F. (Pleasia October et al. Pediatric Department, University of Alberta, Edmonton, Alberta, Canada).

We have characterized a severe form of enuresis by a unique and pathognomonic jejunal histologic picture. It is seen in repeated episodes in children and infants of a Mononucleosis infant, the Torsion Syndrome (TS). The TS is characterized by a marked increase in epithelial cells in the jejunal wall with rare submucosal lymphoid cells present in B children and 2 adults. A new syndrome, the syndrome of TS and TS is normal. The intestinal epithelium is normal histologically.

With fluorescein activated cell sorting B-cells from peripheral blood of patients with TS, individuals were found to have 40 - 60% B-R-N-K cells normal. 0% This indicates a strong shift towards dominant cell construction of circulating B-cells. Immune activation by antigenic access through a defective intestinal barrier appears to be a major component in the pathogenesis of TS.