Insulin stimulates the rate of protein synthesis and has a marked effect on RNA metabolism. Previous work on diabetic insulins has shown that serum derived juvenile diabetic insulin is abnormally resistant to degradation by insulinase and that pancreatic diabetic insulin has a decreased capacity to stimulate the incorporation of glycogen into rat diaphragms. The purpose of this study was to examine the possibility that diabetic insulin is abnormal in its action on RNA synthesis. A series of cultures are inoculated simultaneously with 5×10^5 log phase diploid mouse fibroblasts of 3T6 strain. Growth is allowed until day four at which time the medium is replaced with fresh medium containing 0.5 mc of uracil-2-C^{14} (S.A. 20 mc/millimole). Pancreatic insulins from normal and adult diabetics were prepared by acid-ethanol extraction and added to the tissue culture in a concentration of 1000 μ units/per ml of nutrient medium. After a 48 hr. incubation period, the cellular monolayer is subdivided by conventional chemical methods and the C^{14} activity of the RNA fraction is estimated.

	Diabetic (5)				
No. plates	2	2	1	2	2
Mean C.P.M./plate	5541	3980	6683	5496	7285
	Normal (2)				
No. plates	2	2			
Mean C.P.M./plate	58941	45469			
	S.D.			P*	
Normal pancreas	52205 $\pm$ 10,050			< 0.001	
Diabetic pancreas	5797 $\pm$ 1,136				

(SPR)

16 *Hormonal Regulation of Bilirubin Excretion by Rat Liver.* LAWRENCE M. GARTNER, JUDITH GLUCK* and IRWIN M. ARIAS*, Albert Einstein College of Medicine, New York, N.Y.

In hypophysectomized (hypox) or thyroidectomized (thyrox) rats, the hepatic capacity to excrete bilirubin decreased progressively, reaching the maximal reduction, 40 % of normal, 7 days post-hypophysectomy and 18 to 25 days post-thyroidectomy. Both the volume of bile secreted and the concentration of bilirubin in bile were reduced. Hepatic uptake of bilirubin *in vivo* was unaffected by hypophysectomy but was reduced to 64 % of normal by thyroidectomy. Neither hypophysectomy nor thyroidectomy affected bilirubin glucuronide formation by liver homogenate *in vitro*. In hypox rats, the excretory defect was corrected after 6 days treatment with porcine growth hormone (2.0 mg/day) or thyroxine (1.25, 2.5 or 10.0 μg/day). In thyrox rats the excretory defect was corrected after 6 days treatment with thyroxine (2.5 or 5.0 μg/day). Treatment of thyrox rats with porcine growth hormone (2.0 mg/day/6 days) restored hepatic excretory capacity to 71 % of normal.

Although neither hypophysectomy nor thyroidectomy altered hepatic glucuronyl transfereas activity *in vitro* when bilirubin served as glucuronide acceptor, when o-aminophenol (OAP) served as glucuronide acceptor hepatic glucuronyl transferase activity declined gradually to 25 % of normal 7 days post-hypophysectomy and 18 days post-thyroidectomy. In hypox rats, the OAP conjugation defect was corrected after 22 days of thyroxine administration (10.0 μg/day), whereas 6 days treatment with either growth hormone or thyroxine failed to correct the OAP conjugation defect.

These studies reveal that growth hormone and thyroxine are important in the regulation of hepatic bilirubin excretion and suggest that the synthesis of ethereal (e.g. OAP) and ester (e.g. bilirubin) glucuronides may be catalyzed by different glucuronyl transferases. (SPR)

17 *Urinary C21 Corticosteroid Sulfates in the Urine of Premature Infants Pre and Post ACTH.* JACQUES R. DUCHARME, GILLES LEBOEUF and THOMAS SANDOR*, Depts. of Ped. and Med., Univ. of Montreal and L'Hôp. Ste. Justine, Montréal, Canada.

We have studied the urinary excretion of cortisol (F), cortisone (E), tetrahydrocortisol (THF), tetrahydrocortisone (THE), 6β-hydroxycortisol (6β-OHF) and corticosterone (B) in premature infants. Each specimen was extracted sequentially for free, β-glucuronidase and solvolysis liberated steroids; each metabolite was identified by constant isotope ratios, and quantitated by a double-isotope derivative assay. In 3 normal prematures studied within the first 48 hours of life, 6β-OHF, THF, F and B were mainly recovered as free or sulfated compounds. THE and E were mainly sulfurylated. In a 4th infant, with respiratory distress syndrome, studied similarly, 6β-OHF was mainly sulfated while THF was mostly as a glucuronoside. THE and B were equally glucuro and sulfo-conjugated while F and E were equally recovered in free or sulfated form. In a pool of 8 premature infants studied from two weeks of age, prior to ACTH, approximately 60 % of F and E were sulfo-conjugated, while a larger proportion of B was in the sulfate form. 6β-OHF and THF were predominantly excreted as sulfates, while THE was mostly unconjugated. Post ACTH, there was a considerable increase of all steroids and glucuro-conjugation seemed generally enhanced except for F. These studies suggest that: 1. in resting state, most C21 steroids are excreted unconjugated or conjugated with sulfuric acid, in accord with limited glucuro-conjugation; 2. some limitation in reduction of Ring A of the steroid molecule exists since more unreduced metabolites are recovered than in older children and adults; 3. glucuro-conjugation can be enhanced under stress or ACTH, suggesting that glucuro-conjugation is not maximal in resting state; 4. these metabolic particularities persist at least up to four weeks of age. (SPR)

18 *A New Form of Congenital Adrenal Hyperplasia.* MARIA I. NEW* and RALPH E. PETERSON*, Cornell Univ. Medical College, New York, N.Y. (introduced by W.W. McCrory).

A new form of adrenal hyperplasia in a 12-year-old boy is being described. The unique features are: 1. classical signs of primary hyperaldosteronism, i.e. mild hypertension, hypokalemic alkalosis, low plasma renin, hypervolemia and fixed hyperaldosteronism unaffected by sodium restriction or excess; 2. low normal plasma levels of cortisol, corticosterone but elevated plasma aldosterone; 3. elevated plasma ACTH; 4. low normal urinary free cortisol, 17OH, 17KS, pregnanetriols which respond poorly to ACTH; 5. normal rise of plasma testosterone to chorionic gonadotrophin; 6. marked decrease of aldosterone production and marked fall in elevated blood pressure following treatment with glucocorticoids; 7. after 6 months of prednisone therapy blood pressure and aldosterone response to restriction and administration of sodium remain normal. Turnover rates of corticosterone (B), desoxycorticosterone (DOC), cortisol (F), and desoxycortisol