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ABSTRACTS OF SHORT PAPERS

Growth Hormone and Pituitary Tumors

LH — RH

15. *W. Voelter, K. Zech* and *D. Gupta:* Synthesis of a peptide sequence Pyr-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH_2 with biological activity of LH/FSH-RH.
16. *H. Kuhl, C. Rosniatowski* and *H.-D. Taubert:* The role of hypothalamic L-cystine arylamidase activity in the feed-back mechanisms of gonadotrophin release.
17. *H.-D. Taubert, J. S. E. Dericks-Tan* and *H. Kuhl:* Stimulation of hypothalamic L-cystine arylamidase activity by prostaglandins E_2 and $F_{2\alpha}$ in the rat.
18. *G. Leyendecker, L. Wildt* and *W. Nocke:* Radioimmunoassay of LH-releasing hormone.
19. *E. Keller, H. G. Dahlen, G. Schubring, W. Klemt, R. Richter, E. Friedrich, E. W. Joel, H. I. Wyss, A. E. Schindler, H. J. Staemmler* and *H. P. G. Schneider:* Human pituitary gonadotropin index (HPGI): statistical analysis of 413 LRH tests.
20. *J. Happ, J. Beyer, F. Szamak, M. Neubauer, K. Demisch* and *K. Schöffling:* LH, FSH, testosterone and estrogens in serum of healthy men after prolonged infusion of synthetic LH-RH.
21. *A. Römmler* and *J. Hammerstein:* Time-dependent alterations in pituitary responsiveness caused by LH-RH stimulations in man.
22. *J. Girard, J. J. Staub, J. B. Baumann, M. Stahl* and *P. W. Nars:* Assessment of hypothalamo-anterior pituitary secreting capacity with one single test.
23. *D. Lüdecke, P.-C. Czygan, R. Hehrmann* and *D. Schrader:* Combined function tests with LRF and TRF in correlation to pituitary processes confirmed by operation findings.
24. *H. K. Kley, W. Wiegelmann, H. G. Solbach* and *H. L. Krüskemper:* A combined test for evaluating the somatotrophic, gonadotrophic and adrenocorticotrophic function of the anterior pituitary gland.
25. *D. Schönberg, E. W. Joel, E. Jetter* and *J. Bierich:* Graded dose response of plasma HLH and HFSH to synthetic gonadotrophin releasing factor in boys and girls before and after puberty onset.
26. *R. Illig, M. Tolksdorf, G. Mürset* and *A. Prader:* Evaluation of the hypothalamic-pituitary-gonadal axis by LH-RH in children and adolescents with Klinefelter's and Turner's syndrome.
27. *S. Heller* and *H. Weber:* Influence on LH release by prostaglandin $F_{2\alpha}$ in the rat.
28. *J. Sandow* and *W. Heptner:* Positive feedback effect of small doses of LH-RH after chronic treatment.
29. *F. Elsaesser, F. Ellendorff, N. Parvizi* and *A. König:* Response of the pituitary and testes to LH-RH in the neonatal miniature pig.

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30. *D. Beckmann* and *H. Breuer:* Metabolism of estrogens in liver and kidney of minipigs of different age and sex.
31. *J. H. H. Thijssen, J. Lourens* and *G. H. Donker:* Biogenesis of production of oestrogens in males with cirrhosis of the liver.
32. *P. Ball* and *E. Knuppen:* Metabolism of ethynyloestradiol and mestranol in man and interaction between 2-hydroxy-ethynyloestradiol and epinephrine.

33. *H. M. Bolt:* Kinetics of mestranol in humans in relation to its estrogenic activity.
34. *W. Wortmann, J. Schenker* and *J. C. Touchstone:* Aromatization of ^{3}H-androstenedione in the rhesus monkey liver in vivo.
35. *P. Barlas, K. Adelung, R. Röhner, A. Weimer, E. Keller* and *A. E. Schindler:* The effect of drugs on the steroid metabolism of the normal placenta.
36. *W. D. Lehmann:* The influence of prostaglandins and beta-mimetic substances on the aromatization rate in human placentas.
37. *L. Raith, A. Wirtz* and *H. J. Karl:* 5α-reduction of testosterone in mammary tumors.
38. *E. R. Lax* and *H. Schriefers:* Δ^{4}-3β-hydroxysteroid dehydrogenase activity in rat liver: intracellular distribution and sex dependency.
39. *H.-G. Hoff, R. Ghraf, E. R. Lax* and *H. Schriefers:* Regulation of the activities of the enzymes involved in the metabolism of steroid hormones in rat liver: the effect of 19-nortestosterone and the influence of cyproterone acetate on the action of testosterone and 5α-dihydrotestosterone.
40. *R. Ghraf, U. Vetter* and *H. Schriefers:* Organ specific sex differences in 17β-hydroxysteroid dehydrogenase activities in the rat.
41. *M. Krieg, R. Szalay* and *K. D. Voigt:* Binding and metabolism of testosterone and 5α-dihydrotestosterone in bulbocavernosus/levator ani muscle of male rats: in vivo and in vitro studies.
42. *H.-J. Horst, M. Dennis, J. Kaufmann* and *K. D. Voigt:* In vivo uptake and metabolism of ^{3}H-5α-androstane-3α, 17β-diol (3α-diol) and of ^{3}H-5α-androstane-3β, 17β-diol (3β-diol) by human benign prostatic hypertrophy.

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43. *K. Rager, D. Schönberg* and *D. Gupta:* Hormonal biotransformation in the testicular feminization syndrome.
44. *A. E. Schindler, A. Horvath* and *I. Sellin:* Steroid metabolism in the testes of a patient with testicular feminization.
45. *A. E. Schindler, E. Keller, E. Friedrich, E. R. Jaeger-Whitegiver, E. W. Joel, H. Pösl* and *E. Stolz:* Endocrine studies in patients with testicular feminization.
46. *H. Stolecke, R. A. Pfeiffer, H. A. Hienz* and *P. Strohmenger:* "Sex reversal" in a case of mixed gonadal dysgenesis with dicentric Y-chromosome (45, X/46, X, dic (Yq).
47. *H. Cramer, R. Buchholz, E. Daume, H. Kalbfleisch* and *G. Sturm:* Mixed gonadal dysgenesis: male hermaphroditism with 46, XY/45, XO/46, X dic Y mosaicism.
48. *F. Majewski, J. R. Bierich, M. Barz, W. F. Haberlandt* and *M. Stoeckenius:* On the frequency of malformations in the different forms of Turner's syndrome.
49. *G. Mürset, A. Prader* and *W. Schmid:* Correlation between phenotype and karyotype in Turner's syndrome.
50. *U. Hirche:* Genitography: diagnostic procedure in intersex problems.
51. *A. Attanasio, K. Jendricke, J. R. Bierich, D. Gupta, G. Bulle, A. Flach, I. Reisert* and *E. Tonutti:* Cryptorchidism: clinical, hormonal and histological studies.

Renin-Angiotensin-Aldosterone System, Adiuretic Hormone, Catecholamines

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53. *G. Benker, H. Kaulhausen, W. Oehm* and *H. Breuer:* Renin activity and concentration of aldosterone in plasma during the menstrual cycle.
54. *H. Kaulhausen, W. Mühlbauer, K. J. Beck* and *H. Breuer:* The effect of 17α-ethynyloestradiol-17β on plasma renin activity in ovariectomized women.
55. *W. Oelkers, M. Schöneshöfer, A. Blümel, H. Kutschke, H. Kreiser* and *R. Sterzel:* Effects of progesterone and of four synthetic gestagens on the renin-angiotensin-aldosterone system in man.
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57. *H. Thomas, D. Müller-Enoch* and *E. R. Lax:* 3-hydroxy-4-methoxymandelic acid, a new metabolite of adrenaline and noradrenaline.

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59. *U. Schwedes, H. Wehner, U. Leuschner, K. Schöffling* and *K. H. Usadel:* Development and function of isologous transplants of cell suspensions of fetal adrenal glands in the rat.
60. *E. Mäusle, H. Scherrer* and *B. Kubatsch:* Ultramorphometric studies regarding the effect of sex hormones on the adrenal cortex of the rat.
61. *R. Mies, D. Heesen* and *W. Winkelmann:* Disorders of Leydig cell function in primary adrenal insufficiency.
62. *E. Nieschlag* and *H. K. Kley:* Androgens in response to HCG in men with normal, suppressed and impaired adrenal function.
63. *W. v. Petrykowski* and *P. Burmeister:* Familial glucocorticoid insufficiency.
64. *J. Braun, O. A. Müller* and *P. C. Scriba:* Automated competitive protein binding analysis and radioimmunoassay of serum cortisol without prior organic solvent extraction.
65. *W. Vielhauer, K.-H. Gless* and *P. Vecsei:* Radioimmunoassay of 11-deoxycortisol in human plasma.
66. *A. T. A. Fazekas, J. Homoki* and *W. M. Teller:* Studies of the effect of ACTH on the cortisol content of different peripheral tissues and the adrenals in guinea pigs.
67. *B. P. Lisboa, M. Strassner, L. Nocke-Finck, H. Breuer* and *J. M. Bayer:* Studies on the metabolism of steroid hormones in a virilising tumour of the adrenal cortex.
68. *D. Engelhardt, L. Raith* and *H. J. Karl:* Female pseudohermaphroditism and hypertension due to 11β-hydroxylase deficiency in two siblings.
69. *F. Elsaesser, P. Stubbe* and *A. König:* Plasma testosterone, androstenedione and progesterone levels in newborn infants, in children and as an index of congenital adrenal hyperplasia.
70. *K. Holzmann, G. Wittenbecher* and *H. Mickan:* Prenatal diagnosis of adrenogenital syndrome.
71. *P. Edelmann* and *D. Gupta:* Hormonal investigations in adolescent idiopathic scoliosis.

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73. *K. Horn, K. R. Blümel, D. Koeppen* and *P. C. Scriba:* Radioimmunoassay for T_3 in serum: necessity of prior extraction.
74. *R. D. Hesch, A. v. z. Mühlen* and *J. Köbberling:* T_3 levels and the TRH test in the early phase of treatment of thyrotoxicosis with antithyroid drugs.
75. *M. Hüfner* and *H. Munzinger:* Functional parameters of the pituitary-thyroid system in thyroidectomized patients under different conditions of substitution.
76. *R. Hehrmann, C. Schneider* and *I. H. Tewfik:* The efficiency of triiodothyronine therapy in athyroid patients.
77. *J. Herrmann, H. J. Rusche, W. Wildmeister, H. A. Horster* and *H. L. Krüskemper:* Triiodotyronine and thyroxine serum levels after administration of T_3/T_4 mixtures.
78. *K. W. Wenzel* and *H. Meinhold:* Serum T_4 levels measured by radioimmunoassay in a single 3 mg L-thyroxine test in comparison to the classical L-triiodothyronine test for thyroid suppressibility: evidence of lower toxicity during thyroxine suppression.
79. *A. Ishihara, U. Loos, G. Rothenbuchner* and *E. F. Pfeiffer:* Thyroxine assay in urine as an index for the diagnosis of thyroid function.
80. *K. Joseph, J. Mahlstedt* and *Th. Kranz:* Correlation of serum TBG concentrations with the results of conventional in-vitro tests.
81. *P. G. Livesey, F. Erhardt, K. Horn* and *P. C. Scriba:* Isolation and radioimmunoassay of thyroxine binding globulin.
82. *G. Rabenhorst, K. Lennert, W. Bindeballe, Hg. Lahrtz, K. Schemmel* and *G. Waschulzik:* Cytology, cytophotometrical measurement of Feulgen DNA and cytochemistry of cold nodules.
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86. *D. Egert, W. Jonat* and *H. Maass:* Dependence of in-vitro progesterone metabolism on protein binding in the rat uterus.
87. *W. Geisthövel* and *K. D. Morgner:* Comparison of the binding capacity of the sexual hormone-binding globulin, free testosterone and stimulation of Leydig cells in patients with hypergonadotrophic and hypogonadotrophic hypogonadism.
88. *E. Nieschlag, H. K. Kley* and *K. H. Usadel:* Biological activity and metabolism of testosterone bound to circulating antibodies.
89. *E. Friedrich, E. R. Jaeger-Whitegiver, M. Bieder, H. Halverscheidt, B. Penke, P. Pallai, E. Keller* and *A. E. Schindler:* Standardization of specific radioimmunoassays for plasma progesterone, estradiol, estrone and androstenedione.

90. *B. Hoffmann* and *R. Hamburger:* Determination of progesterone in milk by radioimmunoassay and its application for the diagnosis of bovine fertility.
91. *P. Kemeter, H. Salzer, G. Breitenecker* and *F. Friedrich:* Progesterone, oestradiol-17β and testosterone levels in the follicular fluid of tertiary follicles and Graafian follicles of human ovaries.
92. *E. R. Jaeger-Whitegiver, M. Bieder, U. Nickel, E. W. Joel, E. Keller, E. Friedrich* and *A. E. Schindler:* Plasma estrogens, progesterone and FSH/LH ratio in normal and abnormal cycles and in cycles under oral contraceptive treatment.

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95. *V. Maier, M. Lambach, H. Laube* and *E. F. Pfeiffer:* On the mechanism of insulin secretion: in-vitro stimulation by butandioles.
96. *U. Krause, J. Beyer, K. H. Usadel* and *F. Stelzner:* Different insulin-producing tumors in a patient with polyadenomatosis of the islet cells.
97. *K. H. Usadel, U. Schwedes, U. Leuschner* and *K. Schöffling:* Development of isologous transplants of cell suspensions of the fetal pancreas in the rat.
98. *H. Bojar, K. Balzer, M. Stannek, W. Reipen* and *W. Staib:* Hormone sensitivity of isolated liver parenchymal cells.
99. *K.-G. Petersen, W. Doll, S. Steinhilber* and *L. Kerp:* Specific binding of insulin in the liver of steroid-diabetic mice.
100. *H. U. Tietze* and *R. D. Schmid:* Impaired regulation of cortisol and of epinephrine relase in children with ketotic hypoglycemia.
101. *L. Tharandt, R. I. Diekers, N. Breuer* and *W. Staib:* Effects of testosterone on glugacon and lactate-induced gluconeogenesis studied with the model of isolated perfused (without hemoglobin) mice livers.
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Prolactin, HCS

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107. *A. v. z. Mühlen, G. Schwinn, J. Köbberling. R. D. Hesch, F. Adlkofer* and H. *Schleusener:* Prolactin response to TRH and chlorpromazine in normal subjects and in patients with pituitary diseases.
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109. *H. G. Bohnet, H. G. Dahlen* and *H. P. G. Schneider:* Hyperprolactinemia and pulsatile LH fluctuation.
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111. *D. Schams, U. Andreae, V. Reinhardt* and *H. Karg:* The influence of TRH on release of prolactin and lactation in the bovine.
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TRH — TSH

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127. *J. Golstein, L. Vanhaelst, M. Bonnyns, G. Rothenbuchner, J. Birk* and *E. F. Pfeiffer:* TSH determination in rat serum by a homologous radioimmunoassay.
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Gonadotropins

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143. *K. Klinga, C. Hassenbach, J. Hohneck, H. Heep* and *B. Runnebaum:* Relationship between estradiol-17β receptor and free estradiol and between corticosteroid binding globulin and progesterone in human myometrium during the menstrual cycle.
144. *H. J. Kyrein* and *B. Hoffmann:* Effects of in-vivo pretreatment with anabolic preparations with estrogenic activity on uterine estrogen receptors of calves.
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ACTH

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163. *A. Espinoza, I. Andresen* and *M. Kroll:* Biological ACTH determination in human plasma in the pg-range.
164. *O. A. Müller, X. Baur, I. Marschner, P. Schwandt, P. C. Scriba* and *P. Weisweiler:* ACTH bioassay with isolated rat adrenal cells: ACTH activity of the porcine lipotropic peptide B.
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166. *A. Espinoza* and *M. Neuss:* Secretion dynamics and hormone synthesis of isolated human adenohypophyseal cells and hormonally active adenohypophyseal tumour cells.
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Calcium Metabolism

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171. *P. O. Schwille, N. M. Samberger* and *D. Scholz:* Pentagastrin-induced changes in plasma calcium fractions and pancreatic glucagon in humans.
172. *P. O. Schwille, U. Koch* and *N. M. Samberger:* Serum calcium fractions in subtotally thyroidectomized patients.
173. *M. A. Dambacher, Th. Lauffenburger, J. Guncaga* and *H. G. Haas:* Calcitonin in Paget's disease of bone: a study of the dose response to the human and salmon synthetic peptide.
174. *H. Schmidt-Gayk, H. Seitz, E. Ritz* and *E. Böhme:* Primary hyperparathyroidism: influence of renal function on urinary cyclic AMP.
175. *A. Schulz* and *G. Delling:* Long-term effect of calcitonin on delayed bone mineralization and bone remodelling in experimental hypoparathyroidism.

ABSTRACTS OF MAIN PAPERS

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II. Medizinische Klinik der Universität München

RADIOIMMUNOASSAY FOR T_3 IN SERUM: NECESSITY OF PRIOR EXTRACTION*

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Problem: The high association constant of TBG represents the main obstacle for the direct radioimmunoassay of T_3 in unextracted sera. The addition of salicylate, ANS or merthiolate displaces T_3 only incompletely from TBG, and leads to partial inhibition of T_3 binding to the antibody. Therefore all direct radioimmunoassays have been subject to criticism with respect to accuracy.

Method: T_3 was extracted from serum and then separated from T_4 on the same small Sephadex G-25 s. f. columns (1.8 ml), using simultaneous chromatography of 25 samples within 100 min (recovery: 96.1 ± 0.4%, mean ± SD). Subsequently, total T_3 was determined by radioimmunoassay. The lower limit of detection was 15 pg T_3/100 µl, the between assay precision being satisfactory (variation coefficient $< 10\%$). The normal range was 113.6 ± 17.6 (SD) pg/100 µl serum.

Results: Since T_3 levels were measured without interference of TBG or T_4, some of the clinical results obtained with the other methods had to be reevaluated. A residual T_3-level was detected in most cases of primary or secondary hypothyroidism, even when T_4 was very low. The levels of TSH and hPR fell in exact parallelism and correlated to the raise of T_3 levels when T_3 was acutely given to hypothyroid patients. In nontoxic goiter patients with normal or low-normal T_4 (normal TSH response to TRH) the T_3 levels were confirmed to be significantly higher than in euthyroid controls (1). This compensatory increase in T_3 is presumably due to iodine deficiency, since iodine administration (200 µg KJ/d) could raise T_4 with concomitant normalization of T_3. Further the effect of oestrogen administration on T_3 levels in relation to the increases of TBG will be discussed.

1. *Horn, K., Ruhl, T.* and *Scriba, P. C.:* Z. klin. Chemie. *10*, (1972) 99.

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