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Purification of Corporin.*

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The purification of corporin, the hormone of the corpus luteum responsible for progestational modification in the uterine mucosa, has been reported.¹ However, in recent work with this hormone we have purified the active material still further and have obtained a crystalline product which gives the characteristic physiological reaction when injected in female rabbits castrated in heat.

Method. The extraction and purification is carried out as previously described.¹ The 90% methyl alcohol solution containing the active material is evaporated and the solute taken up in 50% methyl alcohol (100 cc. per kg.) and extracted 3 times with an equal volume of low boiling petroleum ether. Only a small amount of activity is left in the 50% methyl alcohol solution, so it is discarded. The petroleum ether solution is evaporated and the solute is taken up in 15 cc. of 66% ethyl alcohol. This is chilled at 0°C. for 8-10 hours and the oily material is centrifuged off, redissolved in 66% alcohol and reprecipitated. After the second precipitation the supernatant fluids are united and evaporated to dryness and taken up in 5 cc. 50% ethyl alcohol. Any oily material which separates out is removed and discarded. Enough water is then added to make a 40% solution of alcohol and the solution is kept between 0°C. and -10°C. Crude crystalline material begins to separate out and is centrifuged off and recrystallized from 35-45% alcohol. After several crystallizations the resulting product consists, as far as can be determined microscopically, of colorless crystalline material.

The crystals are characteristically needlelike in shape if rapid crystallization has taken place. If crystallization has been allowed to proceed slowly they are what might be characterized as dagger-like plates or rods. They are readily soluble in alcohol, ether, acetone or other similar solvents but much less soluble in water. They are readily recrystallized and after several recrystallizations and washings with cold 35% alcohol still retain their activity. The smallest

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¹ Fevold, H. L., Hisaw, F. L., and Leonard, S., *J. Am. Chem. Soc.*, 1932, **54**, 254.

amount of the crystalline fraction required to give the progestational reaction has not yet been determined but the yield in terms of rabbit units is low as compared with the activity of the original extract. However, the activity of the material is very high when calculated on the dry weight of the crystals, much higher than any other preparation we have thus far obtained. At present we do not know that the crystals are the pure hormone but the activity seems, at least, to be closely associated with them.

The uteri of rabbits, which show pronounced progestational modification as a result of treatment with the crystalline preparation, continue to give a strong response to pituitrin. (Details will be reported by M. A. Foster.) This is in direct contrast to the response of the uteri of pregnant and pseudopregnant rabbits or those which have received crude corporin preparations.^{2, 3, 4, 5}

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Effects of Administration of Cortical Adrenal Extract to the Hypophysectomized Anuran.

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Among the results of early hypophysectomy in the anuran larva is marked underdevelopment of the thyroid gland and the adrenal cortex.¹ The resulting condition of the sex-glands has not been adequately studied in amphibia although it is well known for mammals.² In attempting to analyze this fairly complex glandular situation from a functional viewpoint it seems important to determine what effects are due primarily to absence of the hypophysis and what secondarily, through impairment of the thyroid, the adrenal cortex, or possibly the gonads. The relationship of the thyroid has been rather definitely established by the following observations: (1) anterior pituitary substance to hypophysectomized tadpoles stimulates the atrophic thyroid and induces metamorphosis; (2) thyroid substance to hypophysectomized tadpoles produces metamorphosis;

² Knaus, H., *Arch. f. Gynäk.*, 1930, **2**, 141.

³ Knaus, H., *Arch. f. Exp. Path. u. Pharm.*, 1930, **5**, **6**, 151.

⁴ Reynolds, S., *Am. J. Phys.*, 1931, **2**, 98.

⁵ Robson, J. M., and Ellingworth, R. E., *Quart. J. Exp. Phys.*, 21, **1**, 93.

¹ Smith, P. E., *Am. Anat. Mem.*, 1920, **11**.

² Smith, P. E., *Am. J. Anat.*, 1930, **45**, 205.