

by DE ROBERTIS in the adrenal medulla¹². In control cells, various sizes of vesicles which differ in density are seen in the cytoplasm, whereas only dense vesicles of a uniform size are present in axoplasm and axonterminals. Electron micrographs of normal cells show clearly that granular vesicles of variable density are crowded at the Golgi apparatus, suggesting that these granules originate at the Golgi apparatus and later develop into catechol amine-containing granules, forming a storage pool which may then flow into the site of physiological need. The hypothesis that these granules are catechol amine is supported by BARNETT's demonstration of a positive reaction with potassium dichromate oxidizing medium⁷, by the monoamine fluorescence technique⁶, and by the present observations in the Substantia nigra of mouse during reserpine administration. It is not clear how these electron-dense granular vesicles relate to the clear vesicles which probably contain acetylcholine and are found in the same synaptic endings.

In addition, oval osmiophilic bodies which are unusually large and sensitive to reserpine are often encountered in control cells. Our observation that reserpine-treated cells show a remarkably swollen endoplasmic reticulum suggests that this may be due to either compensatory overproduction or a failure of release of monoamine precursors.

The axonterminals in the nigra, which are filled with catechol amine granules, may be short axon collaterals from nigra cells. It has already been shown that long catechol amine-filled processes extend into the hypothalamus and striatum⁷. One can speculate whether such short axon collaterals represent a feed-back system on other nigra cells.

Zusammenfassung. Reserpin bewirkte an den Zellen der Substantia nigra der Maus Verschwinden der Katecholamin-haltigen Granula und Anschwellen des endoplasmatischen Retikulums. Das Hauptmerkmal von normalen Kontrollzellen bildeten elektronenoptisch dichte Körper im Cytoplasma.

I. J. BAK

Neuroanatomische Abteilung, Max-Planck-Institut für Hirnforschung, Frankfurt (Main)-Niederrad (Deutschland), 8. April 1965.

¹² E. DE ROBERTIS, *General Cytology* (1960), p. 488.

In vitro Effects of Different Rat Tissues on Radioiodinated 4-Iodoantipyrine

Radioiodinated 4-iodoantipyrine has been used in the measurement of total body water¹ as well as cerebral² and coronary blood flow³. STRAUB et al.^{4,5} have stated the invalidity of the total body compartment measures because, when it is metabolized, it produces more diffusible forms and a large amount of the plasma activity is found as free radioiodide. The in vitro action of different tissues on radioiodinated 4-iodoantipyrine has been studied in this experimental work.

200 mg of the Wistar rat tissues tested were finely minced and suspended in 4 ml of saline. Then 10 μ C of radioiodinated 4-iodoantipyrine were added to the tissue suspension and incubated at 37°C with occasional stirring, avoiding any evaporation.

After 6 h and 15 h, samples were taken of the supernatant, after centrifugation at 2500 rpm, and analysed by paper electrophoresis on Whatman paper 3 mm, using as a buffer 0.2% sodium bicarbonate solution and a voltage gradient of 15 V/cm. Under these experimental conditions, after 1 h of electrophoresis, the radioiodinated 4-iodoantipyrine remained at the starting line and the free-radioiodide migrated. The electrophoregrams were scanned using a thin-window Geiger-Müller tube with an automatic graphic recorder. The percentage of the total activity corresponding to each peak was determined by integration.

Kidney, lung, stomach, muscle and blood show no action in vitro. Intestine produces a small amount of free radioiodide (3.0%) after 15 h incubation. The deiodinising activity has been observed only with the liver tissues; 32.9% of radioiodide at 6 h and 63.7% at 15 h.

All these findings corroborate CHAIKOFF's⁶ and STRAUB's⁵ observations that rat liver is rich in a 'non-specific deiodinase' capable of splitting the radioiodine tag from labelled thyroid hormone intermediates and from radioiodinated 4-iodoantipyrine. Also, the in vitro specificity showed by the liver tissue confirms the reliability of the radioiodinated 4-iodoantipyrine liver function test⁷.

Résumé. On a étudié l'action de différents tissus du rat sur la 4-iodoantipyrine radioiodée. On a observé une activité déiodante seulement avec le tissu hépatique.

L. J. ANGHILERI⁸

Comisión Nacional de Energía Atómica, Buenos Aires (Argentina), March 30, 1965.

¹ P. J. TALSO, T. N. LAHR, N. SPAFFORD, G. FERENZI, and H. R. O. JACKSON, *J. lab. clin. Med.* 46, 619 (1955).

² L. A. SAPIRSTEIN and G. E. HANUSEK, *Am. J. Physiol.* 193, 272 (1958).

³ N. KRASNOW, H. J. LEVINE, R. J. WAGMAN, and R. GORLIN, *Circ. Res.* 12, 58 (1963).

⁴ W. H. STRAUB, J. M. SULLIVAN, and J. C. ROSE, *Georgetown Med. Bull.* 76, 20 (1962).

⁵ W. H. STRAUB, D. F. FLANAGAN, R. AARON, and J. C. ROSE, *Proc. Soc. exp. Biol. Med.* 116, 1119 (1964).

⁶ I. L. CHAIKOFF, W. TONG, and A. TAUROG, *J. biol. Chem.* 207, 59 (1954).

⁷ J. M. SULLIVAN, W. H. STRAUB, and J. C. ROSE, *Proc. Soc. exp. Biol. Med.* 108, 686 (1961).

⁸ Actual address: Institut du Radium, Laboratoire Curie, Paris (France).