

Table 2. Chronic hypotensive action of SC-5233 in metacorticoid rats; SC-5233 was administered on days 8 to 27, inclusive.

Day	Blood pressure (mm)	
	SC-5233	Controls
1-7	184-208	182-210
9	176*	189
11	169†	190
15	162†	191
17	158†	181
21	153†	179
23	157*	177
25	155†	180
28	160*	177
32	174	183

* $P < 0.05$ that change of pressure equals that of controls (5).

† $P < 0.01$ that change of pressure equals that of controls (5).

tive is considerably more potent than SC-5233 in blocking the renal excretory effects of DCA (2). Apparently the renal mineralocorticoid-blocking and the anti-hypertensive properties of SC-5233 are not directly related. Instead, the latter property might be mediated by the reversal of some internal electrolyte disturbance that had been instituted by the temporary treatment with DCA, such as an increase in the intracellular sodium compartment (11-13).

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12. A detailed report by C. M. Kagawa *et al.*, on the pharmacology of SC-5233 is in preparation.
13. The technical assistance of Esther Lacunza and Gladys Powers is gratefully acknowledged.

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Lack of Competitive Inhibition between Beef and Monkey Growth Hormones in Rhesus Monkeys

The demonstration that growth hormone obtained from monkey pituitary glands is physiologically effective in the rhesus monkey while that from beef glands is not (1, 2) led to the finding of distinct physicochemical differences be-

tween the molecules of the two growth hormones (3). These results suggested the possibility that beef growth hormone, which is inactive in the monkey, might mask the effects of monkey growth hormone on nitrogen retention by competing for "effector sites" when the two molecules are administered concurrently to hypophysectomized rhesus monkeys.

Two immature male monkeys (*Macaca mulatta*) which had been hypophysectomized approximately 1 year before were placed on a nitrogen balance regimen, as previously described (2). Following a control period, each animal received daily intramuscular injections of monkey pituitary growth hormone (prepared by A. E. Wilhelmi) at a dosage of 1 mg/kg; one animal was treated for 7 days, the other for 9 days. This was followed by a 10-day control period. On the following day each monkey received an intramuscular injection of 10 mg of beef growth hormone (4) per kilogram. In the succeeding week each animal was given daily intramuscular injections of beef growth hormone (10 mg/kg) and monkey growth hormone (1 mg/kg). Daily nitrogen balance determinations were made throughout the control and experimental periods. The mean daily nitrogen retention and its standard error were calculated for each period.

The results obtained for each of the hypophysectomized monkeys were essentially the same and are illustrated in Fig. 1 with data from one of them. The anabolic effect of the monkey growth hormone preparation was not significantly reduced by the concurrent administration of beef growth hormone in a ratio of 10:1 by weight.

In both experiments a slight tend-

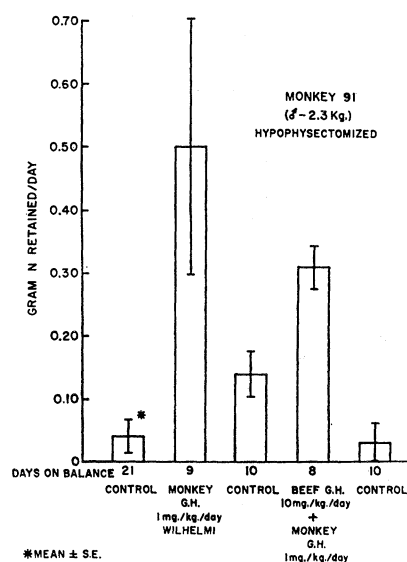


Fig. 1. Effect of concurrent administration of beef and monkey growth hormones on nitrogen retention in a hypophysectomized rhesus monkey.

ency toward a reduction in nitrogen retention when both hormones were administered was noted. This reduction, however, was not statistically significant. It would seem from the foregoing data that the specificity of the "effector sites" for growth hormone action in the monkey is such that beef growth hormone in relatively large quantities, although physiologically inert in this species, does not mask the action of the monkey growth hormone molecule. These "effector sites" in the rat do not exhibit such specificity, since in this animal monkey and beef growth hormones are equally effective (2, 5).

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5. We wish to express our gratitude to Dr. D. A. McGinty of Parke, Davis & Co., Dr. Mary A. Root of Eli Lilly & Co., Dr. Joseph Seifter of Wyeth, Inc., Dr. R. H. Barnes of the Sharp & Dohme Division of Merck & Co., Inc., and Dr. C. A. Bunde of Pittman-Moore & Co. for generous gifts of monkey pituitary glands. The beef growth hormone (Somar-A) was a gift of the Endocrinology Study Section of the National Institutes of Health. The technical assistance of John Cimerol is gratefully acknowledged. This study was supported by a grant from the American Cancer Society (EDC-18) and a grant from the National Institute of Arthritis and Metabolic Diseases (A-292), National Institutes of Health, U.S. Public Health Service.

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Microbiological Fractionation of the Hydrogen Isotopes

Mass spectrometric analyses of bacterially generated gas made in early 1956 as an adjunct to U.S. Geological Survey studies of Bahama Banks sediments unexpectedly revealed a high concentration of light hydrogen (protium), presumably with segregation elsewhere of the heavy isotope deuterium. Further investigation is intended, but meanwhile it seems advisable to record our findings to date in sufficient detail to provide a point of departure for others who may be interested (1).

As a part of a comprehensive plan of study of Bahamas sediments collected by