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the adenyl cyclase from plasma membranes
converts AMP-PNP to cyclic AMP and PNP.²
Thus membrane bound ATP utilizing enzymes
could possibly be distinguished using this
inhibitor.³
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5 ALFRED STREET, OXFORD, OX1 4HB, ENGLAND
The study of catecholamines, perhaps more than any other pharmacological area, yields results which rapidly find application in therapy. The treatment of neurologic disorders with L-dopa is such a case. A very short time elapsed between the establishment of a role for dopa in central metabolism¹ and its use in the treatment of Parkinsonism.² These advances have largely been the result of biochemical studies concerning the conversion of dopa to dopamine and the role of dopamine as a neurotransmitter. Thus, dopa decarboxylase inhibitors have been designed to enhance the anti-Parkinsonism action of L-dopa and D-methyl-
dopa has recently been shown to be a synergist.³ Such studies have led to the discovery that dopamine plays the role of a mediator in the discharge of several pituitary hormone releasing factors, increasing growth hormone and decreasing prolactin secretion. The latter observation has resulted in the successful combination of dopa and estrogens in the treatment of breast cancer.⁴ Transient effects of dopamine can be prolonged by appropriate derivatization, e.g., amino acid amides of dopamine (we offer the intermediate dibenzylxoydopamine, 16,189-6) are orally effective in greatly increasing renal blood flow.⁵ Structural modification of dopamine has led to 6-hydroxydopamine, a remarkable pharmacological tool for understanding the role and mechanism of neurotransmitters in the sympathetic nervous system.⁶ Depletion of catecholamines with this agent is both reversible and irreversible (dose-dependent) and the importance of 6-hydroxydopa-
mine should rival that of reserpine. 5-Hydroxydopamine also replaces norepinephrine in storage vesicles and its osmiophilic properties enable the replacement to be observed with an electron microscope.⁷ The judicial use of enzyme inhibitors and transmitter precursors, e.g., O-methyl tyrosine to deplete and threo-dihydroxyphenylethylamine to selectively increase the concentration of norepinephrine in the brain, will continue to advance the field.

Below is a partial list of catecholamines and amino acid analogs. A complete list of over 50 enzyme substrates, inhibitors and metabolic products related to the above will be sent on request.

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