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التوثيق الالكتروني والميكروفيلم

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قسم

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بالرسالة صفحات لم ترد بالأصل

DEVELOPMENTAL STUDIES ON CHOLINERGIC MUSCARINIC RECEPTORS

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DEDICATION

This dissertation is dedicated to the memory of my parents

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INTRODUCTION

1. Background

In 1914, Sir Henry Dale provided the basis for the classical definition of muscarinic and nicotinic acetylcholine receptors: Muscarinic receptors are selectively activated by muscarine and blocked by atropine; nicotinic receptors are activated by nicotine and blocked by curare. This definition lasted over sixty years, despite isolated reports that the picture might not be so simple. We now know, as a result of molecular biological studies, that there are multiple variants of both muscarinic and nicotinic receptors. These receptors are members of two quite separate gene superfamilies and only share the property of being activated by the same ligand, acetylcholine (Hulme et al., 1990).

2. Muscarinic receptor subtypes

Muscarinic receptors are a family of cell surface receptors which upon the binding of neurotransmitter acetylcholine (ACh), mediate specific biological events within cells. Muscarinic receptors are present in neurons in the central and peripheral nervous systems, cardiac and smooth muscle, a variety of exocrine glands as well as certain lines of cultured cells (Mckinney and Richelson, 1984). In the periphery, muscarinic receptors mediate a number of important physiological responses such as regulation of heart function, secretion from exocrine glands and stomach, and smooth muscle contraction. In the central nervous system,