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# Enzymes as Therapeutic Agents in Alzheimer's Disease

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Enzymes are specific biological catalysts and make the most desirable therapeutic agents for the treatment of metabolic diseases [1]. They are efficient, repeatedly producing the desired product or effect and they can be easily formulated because of their solubility in preparations that are compatible with blood [1]. The advent of recombinant DNA technology and polyethylene gylation technology has raised many hopes to minimize the problems enzyme based therapy and there is an accelerated efforts world wise to develop novel therapeutics.

Major potential therapeutic applications of enzymes are in the treatment of cancer and also in neurological disorders [2-4]. Genetic engineering and insilico approaches are used for the synthesis and modifications of the enzymes as therapeutic agents for Alzheimer's disease (AD) [5]. AD is epitomize by the presence of amyloid plaques and a loss of both synaptic processes and presynaptic markers of the cholinergic system in brain [6]. Up to now, acetyl cholinesterase inhibitors (AChE-Is) represent the principal strategy to treat mild to moderate AD [7]. However, recent research indicates that selective inhibition of butyrylcholinesterase (BuChE), a closely related enzyme that is markedly elevated in AD brain, increases acetylcholine (ACh) and augments cognition in rodents free of the characteristic undesirable actions of AChE-Is. BuChE inhibition hence represents an innovative treatment approach for AD, and agents are currently being synthesized to optimally achieve this [5,8-10].

Development of medical applications for enzymes has been at least as extensive as those for industrial applications, reflecting the magnitude of the potential rewards: for example, pancreatic enzymes have been in use since the nineteenth century for the treatment of digestive disorders. The variety of enzymes and their potential therapeutic applications are considerable. Advancements in biotechnology over the past ten years have allowed pharmaceutical companies to produce safer, cheaper enzymes with enhanced potency and specificity. Along with these advances, changes in orphan drug laws and new initiatives by the FDA have been effective in facilitating efforts to develop enzyme drugs. This synergy has had a beneficial effect on the development of treatments for both rare and common diseases.

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