**α7 nAChR Agonists for the Treatment of Cognitive Deficits in Schizophrenia**

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Current drug treatment options for schizophrenia include the typical and atypical antipsychotics which are effective for the treatment of positive symptoms alone or both positive and negative symptoms of schizophrenia respectively. However, these drugs are unable to treat the cognitive symptoms of the disease which include the inability to focus attention and deficiencies in processing repetitive sensory information.\(^1\) Experimental evidence has shown that administration of nicotine as a positive effect on cognition in schizophrenics and non-schizophrenics alike.\(^2\) These observations lead to the discovery of neuronal nicotinic acetylcholine receptors (nAChR’s) which have been subsequently linked to the cognitive properties of nicotine.\(^3\) Many receptor subtypes of the nAChR’s have been identified and expressed and the α7 nAChR has become the target of interest for the ability of selective agonists to improve cognitive deficits associated with schizophrenia.\(^4\) Several research groups have undertaken medicinal chemistry efforts to find a selective α7 nAChR agonist for the treatment of the cognitive deficits associated with schizophrenia and their efforts are highlighted. Several lead compounds have been identified with each containing a quinuclidine core which is an essential pharmacophore for these selective agonists. The first selective α7 nAChR full agonist identified is AR-R17779, which contains a spirocyclic oxazolidonone.\(^4\) Another series that will be highlighted are quinuclidine amides that have been identified by researchers at Pfizer which resulted in the identification of a highly potent partial agonist at the α7 nAChR. Despite the considerable research efforts into developing a selective α7 agonist certain key questions still remain to produce a drug that can be used for the treatment of schizophrenia. Some of these questions left to consider are regarding the use of a full versus a partial agonist, what possible interactions with other CNS drugs are there, and do these selective α7 agonists affect the positive and negative symptoms of schizophrenia as well.


