

S22-5 Development of Anti-Alzheimer's Disease Drugs Based on beta-Amyloid hypothesis

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Over the past years, there has been an intense competition to develop anti-Alzheimer's drugs (AD). Beta-amyloid is produced when the amyloid protein precursor (APP) is cut, first at the beta-site by the beta-secretase enzyme and then at the gamma-site by the gamma-secretase enzyme, producing beta-amyloid. Based on this hypothesis, several drug development strategies were developed. These are beta-secretase inhibitors, gamma-secretase inhibitors and anti-aggregation of beta-amyloid. This presentation described some recent developments in the research of anti-AD drugs. Also discussed in this presentation are the results of our own AD drug research which similarly focus on the beta-amyloid theory. In this research, my team emphasizes drug development from natural products. We have found a very strong beta-amyloid anti-aggregation property in mulberry leaf extracts. In recent years, many researchers have developed strong interest in curcumin, a major component in turmeric. Curcumin, a kind of ayurveda (Indian traditional medicine), has been shown to have various medicinal properties, including anti-Alzheimer's. We have synthesized several curcumin derivatives and found several very strong beta-secretase inhibitors and potent beta-amyloid anti-aggregation compounds. Many of these compounds have the potential to become clinical candidate compounds.