Helicon Study of HT-0712 on Primate Memory Formation Reveals Significant Enhancement

San Diego CA
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Helicon Therapeutics, Inc. today announced results from a study of memory formation in Macaque monkeys, showing that its drug, HT-0712, enhances long-term memory formation. HT-0712 already has shown a statistically significant effect on long-term memory formation in elderly human volunteers with age-associated memory impairment.

Two Phase 1 studies evaluated (i) plasma concentrations from single rising doses in 30 young and 12 elderly volunteers and (ii) 14-day chronic dosing in a second set of 12 young and 12 elderly volunteers. No significant adverse events were registered in single doses from 5 to 405 mg for young subjects, in single doses from 45 to 135 mg for elderly subjects, in chronic (once per day for 14 days) doses from 15 to 135 mg for young subjects, or in chronic doses from 15 to 90 mg for elderly subjects. The first Phase 2a study further evaluated the safety of HT-0712 in a total of 56 elderly patients with age-associated memory impairment exposed to 28 days of chronic doses from 15 to 90 mg. No significant adverse events were noted in this Phase 2a trial, thereby extending the safety profile of HT-0712 from the Phase 1 studies. Initial assessments of (i) anxiety and depression, (ii) drug-related changes in brain wave activities (passive EEG) and (iii) short-term memory effects via the CDR battery revealed no statistically significant effects of HT-0712 on these aspects of cognitive function. In the 28-day study, a novel test of word-list memorization (long-term memory) was included. In contrast to the negative effects mentioned above, subjects given 45 mg of HT-0712 for 28 days showed a statistically significant 15% improvement in long-term memory of word lists.

To corroborate these initial clinical results, the effect of HT-0712 on long-term memory formation more recently was evaluated in macaque monkeys, using a more complex cognitive task – paired-associate learning. Employing two pairs of visual stimuli, monkeys had to memorize which was associated with reward (food) and which was associated with punishment (no food, lights out). Daily training (14 trials per day) continued until each monkey chose the food-paired stimulus correctly 85% of the time. At each of three doses of HT-0712 from 1 to 100 mg/kg, the *days-needed-to-memorize* was cut in half as compared to the same animals' performance without HT-0712 (placebo) – from an average of 26 days of memorization for animals on placebo versus an average of 12 days on HT-0712. These data corroborate the statistically significant effect of HT-0712 at 45 mg in the human study and suggest a more efficacious effect of HT-0712 for cognitive tasks demanding more memorization.

Helicon Therapeutics, headquartered in San Diego, currently has six drug programs at various stages of development. Each drug is designed to modulate different aspects of memory formation from short-term memories, such as working memory and executive function, to the conversion of short-term memory to long-term memory.