A recently completed study by a team of University of Alberta researchers has brought them one step closer to what they say could be an effective treatment for Alzheimer’s disease.

The new research builds on previous work that isolated individual fragments of a string of amino acids called AC253 that has been found to have a significant beneficial impact when injected in lab mice genetically modified to have Alzheimer’s disease.

“We found it could restore what we call the memory trace,” said U of A neurologist and research team lead Jack Jhamandas. “When you gave it for five weeks to a mouse, it improved the memory and learning to levels comparable to normal mice, even after those mice had developed disease.”

Now, Jhamandas' team has found two new, shorter strings of amino acids called peptides that have the same beneficial effect as the fragments of AC253 when tested in mice. The benefit of these newly discovered peptides is that they are far less complex than AC253 and thus easier to turn into an oral drug.

Previously, doses with AC253 would have to be injected, where they would largely metabolize in bloodstreams before reaching a patient’s brain, hindering their treatment power.

A next step for U of A researchers is testing the newly found peptides for toxicity. If they pass muster, the peptides will move on to clinical testing, where human volunteers will begin testing the drugs.

Alzheimer’s is a notoriously difficult condition for medical researchers to tackle. There is no known treatment that can stop or reverse the memory-affecting degenerative disease - only approaches that attempt to mitigate symptoms.

The widespread nature of the disease only adds to the urgency scientists face in developing an effective treatment.

“It’s one of the most serious public health concerns of our time, because we have an aging population and it’s an age-dependent condition,” he said. “There’s at least half a million Canadians who have this condition and maybe 50,000 Albertans.”

Jhamandas says the development of a drug that can combat Alzheimer’s would be transformative for the lives of those patients, as well as their relatives, friends and caregivers.

“I’m confident that we could be on to something here that may be of fundamental importance to Alzheimer’s patients and their families,” Jhamandas said.

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Illustration: Photo By David Bloom /University of Alberta neurologist Jack Jhamandas poses for a photo in his laboratory, in Edmonton Tuesday Sept. 17, 2019. Jhamandas has published a new study that has found that mice injected with two specific strings of amino acids have significantly improved memory. He hopes it is another piece of the puzzle for developing a new, effective Alzheimer's treatment.