

**Brief Description:** Researchers have found that blocked activity of learning and memory genes is an early and potentially treatable event in Alzheimer's disease.

**Akinso:** Reduced gene activity in the brain appears to be an early event affecting people with Alzheimer's disease.

**Corriveau:** The gene is called HDAC2.

**Akinso:** Dr. Roderick Corriveau is an expert on Alzheimer's disease here at the NIH. He says HDAC2 is known to tighten up spools of DNA, effectively locking down the genes within and reducing their activity, or expression.

**Corriveau:** Think of this string of holiday lights that has been put in a box and the end of a holiday season and it's all bundled up in that box. In fact it's a ball and it's all tightly wound together. This tangled ball represents the genetic tools for making new memories and the unusable state that we find them in, in Alzheimer's disease.

**Akinso:** In a NIH study, researchers found that HDAC2 accumulates in the brain early in the course of Alzheimer's disease in mouse models and in people with the disease.

**Corriveau:** This gene is involved in turning off genes that are involved in Alzheimer's disease by making them like the string of holiday lights that are in a ball. And it's kind of like the gene is the box itself. Our ability to make new memories is put into this box and it becomes all tangled up. And this study showed that when you take away the gene all of a sudden the lights can come out and they can go into a long string again and they can be turned on and we can start to make new memories.

**Akinso:** Alzheimer's disease is the most common cause of dementia in older adults, and affects as many as 5.1 million Americans. In the most common type of Alzheimer's disease, symptoms usually appear after age 65. Dr. Corriveau says these findings could set the tone for new treatment for Alzheimer's disease.

**Corriveau:** Well right now there's no drug or therapy that can cure, stop, or prevent Alzheimer's disease. The study is an important step in developing a new therapy or strategy for a new therapy. And this is a new therapy that would go directly to the genes that are important for making new memories.

**Akinso:** Dr. Corriveau adds that their goal is to prevent the disease from occurring at all. For information on this study, visit [www.ninds.nih.gov](http://www.ninds.nih.gov). For NIH Radio, this is Wally Akinso—NIH.... *Turning Discovery into Health*.