

Promising Alzheimer's treatment moves toward clinical trials

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Muraleedharan Nair, Michigan State University natural products

chemist, has patented a botanical compound, withanamides. His spinoff company, Natural Therapeutics, will begin the trials as soon as funding is in place.

To date, none of the major [pharmaceutical companies](#) - Merck, Eli Lilly, Bristol-Myers Squibb - have been able to produce an effective treatment that passed human clinical trials, Nair said.

"This particular research has focused on Ashwagandha, an herbal remedy that's been used in Eastern medicines for centuries," he said. "Our compound withanamides may work to prevent Alzheimer's disease at the onset, and it also could prevent its progression."

While plants cannot be patented, [compounds](#) from it can. MSU holds the patent for withanamides, and earlier research revealed that the compound, found in the plants' seeds, proved to be a powerful anti-oxidant - double the strength of what's on today's market. The potent compound has shown that it can protect cells against damaging attacks by a rogue protein → the earliest stage of Alzheimer's.

Alzheimer's begins when a specific protein starts breaking, or cleaving, at the wrong place to produce an unwanted fragment. This bad fragment, called BAP, stresses cells' membranes, sparks plaque formation and eventually kills the cells. This attack begins in the frontal lobe, erasing memories and continuing its unrelenting assault deeper into the brain.

A complicating factor is that the majority of protein cleaving is a natural, healthy process. Pharmaceutical companies, however, have focused their efforts on blocking the tiny fraction of bad cleaving of the protein producing BAP.

"Rather than trying to stop only the malevolent cleaving, our compound keeps the bad protein from entering the cell where it does its damage,"

he said. "Our studies have shown that withanamides effectively protect the brain cells by neutralizing the effect of BAP."

Nair, who holds nearly 90 U.S. and international patents, is using withanamides to interrupt the action of BAP, hence preventing Alzheimer's at an early stage.

Nair and his collaborators published in *Phytotherapy Research* that withanamides protected mouse brain cells from BAP damage. A recent study, also published in *Phytotherapy Research* and using mouse models, showed that withanamides passed the [blood brain barrier](#), the filter that controls what chemicals reach the brain. The results showed that the compound reached its intended target, passing the last test before advancing to human testing.

After the [clinical trials](#), which could be conducted as quick as six to twelve months, Nair and Natural Therapeutics will pursue FDA approval.

"Dr. Nair discovered his molecule in a food-safe plant," said Jim Richter, Natural Therapeutics President. "It's also classified as GRAS - generally regarded as safe - by the FDA. This means that we can bypass many of the hurdles that slow synthetic molecules that need testing. By compressing the timeline dramatically, we'll be able to save tens of millions of dollars, and if successful, bring an [effective treatment](#) to Alzheimer's patients."

Provided by Michigan State University

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