

SCIENCE & MEDICINE by Heidi Kurpiela | Community Editor

Alzheimer's cure: Not 'if,' it's 'when'

Roskamp Institute scientists in Sarasota have a promising drug in trials in Europe. It switches the Alzheimer's factory off.

It starts as a protein, an organic compound of amino acids that is amorphous. Nebulous. Shaped like nothing, floating in the brain, passing through the blood barrier in small amounts. And like a pinch of vodka in soda water, it goes unnoticed.

But over time and for whatever reason — scientists aren't sure why — more and more of these proteins start accumulating in the brain, blanketing synapses in a sticky kind of plaque and like fine, fine hairs gathering in the bristles of a brush, the brain starts to clog with these things called beta-amyloids.

Under a microscope, the fibrous amyloids are no longer shapeless, nebulous things. They look like hairpins, twisty and stackable like Legos.

If this were a game of Tetris, you would work feverishly to clear the screen. This is an oversimplified metaphor for Alzheimer's. But the description is not unlike what the scientists in white lab coats are doing on Whitfield Avenue in Sarasota.

Not if ... when

Dr. Michael Mullan is getting close to a cure. Real close.



Heidi Kurpiela

Roskamp Institute Executive Director **Dr. Michael Mullan** is close to finding a cure. "We're seeing ever-increasing in-roads into the disease," says Mullan. "I think in the next five years, drugs will be added together like a cocktail, like how we treat HIV or cancer. We'll be able to treat the disease properly for the first time."

About a year and a half ago, Mullan, executive director of the Roskamp Institute — named after its founders, Sarasotans Bob and Diane Roskamp — began

administering a drug called Nilvadipine to Alzheimer's patients in Ireland.

Nilvadipine, already approved in Europe for the treatment of hypertension, has been shown to stop the production of amyloid proteins.

Remember the quickly filling Tetris screen? The falling shapes that gain speed as the game goes on? Nilvadipine stops the shapes from ever dropping.

"(It) stops the production of amyloid," says Mullan. "Stops the body from making it. Switches the factory off."

It's only in phase one of European clinical trials, but Mullan predicts the drug will be introduced to clinical trial participants in Miami as early as this summer and throughout the rest of the United States next year.

If and when it hits the market, Nilvadipine will be the Roskamp Institute's first marketable Alzheimer's drug under the institute's for-profit company, Archer Pharmaceuticals. It is one of several Alzheimer's drugs in the Roskamp pipeline.

In the early 1990s, Mullan, along with Roskamp's associate director, Dr. Fiona Crawford, led a team of researchers in discovering the buildup of amyloid proteins that caused Alzheimer's disease.

"People used to talk about amyloid as being a tombstone, something that just showed up as a result of the disease," says Mullan. "No one had actually proved that it caused the disease. It used to be like looking at a plane wreck. You'd have bits of airplane everywhere, and you wouldn't know which part of the wreck was a result of the wreck and which part caused it."

It was a major medical breakthrough. At the time Mullan and Crawford were working out of London University, until Roskamp and his wife endowed the University of South Florida with enough funds to continue the scientists' research in Sarasota. Twelve years later, the USF department expanded, and in 2003 the Roskamp Institute moved into Bausch & Lomb's former laboratories on Whitfield

Avenue near the Sarasota-Bradenton International Airport.

"The increasing awareness of Alzheimer's is primarily due to us living longer," says Mullian. "Right now, the goal for all the clinical trials is to try to slow the disease, take the people who already have it and give them a drug. In the future, it would be great if we knew who was going to get it before they experienced memory loss, but we don't have a way of assessing that yet."

Search for trial participants

Julia Parrish, LPN, the institute's clinical trials project manager, is recruiting volunteers for two clinical trials in Sarasota for two Alzheimer's drugs — an IV-administered medication called Bapineuzumab and an oral one called ELND005.

Both trials are sponsored by Elan Pharmaceuticals, a neuroscience-based biotechnology company headquartered in Dublin, Ireland.

The two drugs have been shown to attack the production of amyloid in different ways. Bapineuzumab works like a passive vaccine, seeping into the bloodstream, soaking up amyloids like a sponge in the brain before they start to clump. ELND005 is an oral medication that has been shown to stop amyloids before they change shape and start stacking in the most advanced stages of Alzheimer's.

Bapineuzumab is in phase three, the final phase of a clinical test before it goes before the U.S. Food and Drug Administration. ELND005 is in phase two. It's still unknown whether



Roskamp researcher **David Beaulieu** screens proteins in the institute's molecular biology lab.

disease altogether.

Parrish already has 50 participants in Sarasota, but she's looking for about 15 more. Candidates must be between the ages of 50 and 88 years old and diagnosed with mild to moderate Alzheimer's disease, however the clinic offers free cognitive screenings for people who have Alzheimer's symptoms but

haven't been formally diagnosed yet.

Hundreds of participants have already been dosed with Bapineuzumab and ELND005 in clinical trials across the country, Parrish said she isn't privy to those results. Project coordinators typically do not communicate.

The two drugs are among

seven amyloid-attacking Alzheimer's medications undergoing clinical testing in the United States, which according to Mullian and Parrish is a significant number when compared to five years ago.

"Frankly, my view is that there aren't enough Alzheimer's drugs in clinical trials," says Mullian. "If we were talking about cancer,

'It used to be like looking at a plane wreck. You'd have bits of airplane everywhere, and you wouldn't know which part of the wreck was a result of the wreck and which part caused it.'

Dr. Michael Mullian, on discovering the amyloid protein causes Alzheimer's disease

VOLUNTEERS NEEDED

The Roskamp Institute is looking for participants for its clinical trials of Bapineuzumab and ELND005. If you're between the ages of 50 and 88 and have a diagnosis of probable Alzheimer's disease and have a caregiver who can drive you to and from the Roskamp Institute at 2040 Whitfield Avenue in Sarasota, call **Julia Parrish** at 256-8018.

The institute also offers free memory screenings for adults 60 or older. To find out about the studies, visit ICARASTUDY.COM or call 1-888-818-MEMORY.

we'd be talking about hundreds of new drugs every year."

He has big hopes for Nilotrapidine.

He hopes the drug will get FDA approval in the next four years, at which point the Roskamp Institute can begin testing it on large groups of healthy participants before they experience memory loss.

"In my mind, it isn't a question of if we can cure Alzheimer's. It's a question of when," says Mullian. "Once we have effective drugs that are effective (that we can give them earlier, we can predict Alzheimer's before there's memory problems. It's an easy idea to say, but in practice I would say we're about five to 10 years away."