

Michael J Fox: This is Michael J. Fox thanks for listening to this podcast. Learn more about The Michael J. Fox Foundation's work and how you can help speed a cure at MichealJFox.org.

Dave Iverson: This is Dave Iverson, most of us living with Parkinson's disease remember the day we were diagnosed. What we may not have realized at the time though is that the disease had taken hold in our bodies long before that official diagnosis date. [00:00:30] Indeed, there is strong evidence to suggest, fundamental changes in the brain and body are taking place, many years before an unsteady hand or shuffling step leads us to the neurologist's office. But as of now, we still don't have a test that would make a definitive diagnosis any sooner.

Samantha Hutton: There currently aren't really objective conclusive ways to diagnosis Parkinson's disease from the sampling of a test or a really definitive way to give a yes or no answer. I think it's really important from the perspective of a patient to have that certainty because it really does relate back to avoiding frustration of misdiagnosis and really getting on the right treatment regimen. [00:01:00]

Dave Iverson: Dr. Samantha Hutton is a senior associate director of Research Programs at The Michael J. Fox Foundation. And while progress is being made on techniques that might detect the telltale presence of the sticky protein alpha-synuclein by way if a skin biopsy or measurements of the cerebral spinal fluid, what about the prospects for less invasive early diagnostic procedures? [00:01:30]

Samantha Hutton: Obviously, not everybody likes to be stuck with a needle and if we could measure some of these potential biomarkers for Parkinson's disease without being so invasive that would definitely be appealing.

Dave Iverson: At first some of those non-invasive possibilities seem almost fanciful, like the story out of Scotland last year about a woman who seemed able to identify Parkinson's patients because they emitted a particular odor. But what seems fanciful may have some science behind it after all. [00:02:00]

Samantha Hutton: I think what we're doing now to follow up on that is to really try and identify whether there's a particular secretion in the skin of Parkinson's patients, which might have a particular odor that could be detected and we're trying to detect it with different animals, like mice and dogs to see if they can pick up on this particular secretion, which I think is triple fold, one is to try and figure out what this secretion might be, what it smells like and then how can we detect it. [00:02:30]

Dave Iverson: And that's not all.

Samantha Hutton: I think this relates to something else we have in our portfolio, which is really interesting, which is actually being able to detect a Parkinson's breath signature. Measuring compounds and molecules, that a Parkinson's person breathes out as they exhale, looking for this Parkinson's disease breath signature and this is something that has been employed in the cancer field and other fields but has not [00:03:00]

really been extensively examined for neurodegenerative diseases.

Dave Iverson: But one of the most intriguing candidates for a non-invasive means of early diagnosis, focuses on a different part of the body, the eye.

Mark Baron: We were very interested in looking at eye movement in movement disorders and in particular at the beginning, Parkinson's disease.

Dave Iverson: [00:03:30] Dr. Mark Baron is a movement disorders specialist at the Veteran's Hospital in Richmond, Virginia. And a professor of neurology at Virginia Commonwealth University. As Baron and his colleagues studied the eyes of more and more individuals with Parkinson's, something striking began to unfold.

Mark Baron: [00:04:00] It became very clear as we did more and more people that how powerful a tool this is, and that it can really see differences between different people. We just kept on doing it for now over 15 years, as we did it more and more, we just kept recognizing of wow, this is hard to believe how accurate it is.

Dave Iverson: What Baron's team was able to detect using sophisticated eye measurement techniques was an eye tremor that he believes is unique to Parkinson's.

Mark Baron: [00:04:30] If you look at a target, assuming we aren't going to have Parkinson's disease and we stare at a dot on a screen, our eye is not moving, so it stays very, very still and the reason for that is it needs to stay on that fovea, which is where you have your perfect vision when you're focusing. People with Parkinson's disease will actually slide towards the edge of the fovea and it's moving in all directions, so it's not staying perfectly still. Again, these are micro, micro movements but they're just not staying perfectly still. It oscillates, so a tremor, is an oscillation right? It's a rhythmical movement, and that's what you actually see is that the eye is rhythmically moving in various planes. It's to staying perfectly still.

[00:05:00]

Dave Iverson: So far, Baron has studied the eyes of about 4,000 people with Parkinson's and nearly all of them have this unique eye tremor.

Mark Baron: I would conjecture in the 98th percentile range.

Dave Iverson: What's more, Baron believes that this distinctive feature would be detectable at least a decade before the more obvious signs of Parkinson's become apparent. The next phase of his research is designed to establish just that.

Mark Baron: [00:05:30] As part of our grant proposal that we're being funded to Michael J. Fox, part of the study is to actually test that, which is that you could actually use this and screen the whole population. If you could actually do that and start screening people that way you can walk into an office it takes five minutes and be screened non-invasive in five minutes and be told you're going to get it or that you have a high likelihood and again these are all in the works. I'm very enthused, I strongly believe this but we still have to put the proof to the pudding.

[00:06:00]

Dave Iverson: In our next third Thursday webinar on October 19, we'll take up the prospects for early diagnosis of Parkinson's disease through non-invasive means. Dr. Mark Baron will join us along with Dr. Samantha Hutton. To register visit MichealJFox.org/webinars. I'm Dave Iverson.

Michael J Fox: This is Michael J. Fox, thanks for listening to this podcast. Learn more about The Michael J. Fox Foundation's work and how you can help speed a cure at MichealJFox.org.