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Faulty gene linked to Parkinson's disease varieties

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A LINK between a faulty gene and a wide spectrum of Parkinson's disease types has been uncovered.

A team at Duke University in North Carolina has shown that alteration of a gene appears to contribute to the common late-onset form of Parkinson's disease, which killed Terry Thomas, the comedian, and the rarer, early-onset, which affects Michael J Fox, the actor.

Two years ago, a Japanese team reported that mutation of this gene, which it dubbed Parkin, was responsible for juvenile parkinsonism, a disorder similar to, but considered distinct from, Parkinson's disease.

The Duke team looked at 175 affected families and found a small mutation on the Parkin gene, suggesting that there may be a genetic link to various manifestations of the disease. Dr Margaret Pericak-Vance, one of the team, said: "Five years ago, it was thought that Parkinson's disease was caused solely by environment factors.

"In a relatively short period, we have been able to show that genetics plays an important role. The significance of the Parkin discovery is that it appears to be a causative gene, and it shows up fairly frequently across the spectrum of age of onset."

The findings show a common genetic basis for different forms of Parkinson's, and suggest that the Parkin gene might be a useful diagnostic tool, the team told the American Society for Human Genetics, in Philadelphia.

The discovery of the Parkin mutation marks the second gene implicated in the disease. In 1997, European researchers found a connection between the alpha-synuclein gene and a small number of the relatively rare early-onset cases.

Parkinson's disease is a complex disorder, which has a combination of genetic and environmental factors and is probably caused by a mixture of mutations and susceptibility factors. The next step is to determine the function of the protein produced by the Parkin gene.

It is thought to work in combination with another, ubiquitin, to rid the cell of normal metabolic by-products. The disease affects part of the brain known as the substantia nigra, responsible for movement. Pathologists often find plaques in the brain cells. It may be that a build-up of cellular waste leads to their development.

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