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**BBC**

**Five more Alzheimer's genes discovered, scientists say**

By James Gallagher Health reporter, BBC News

Five more genes which increase the risk of developing Alzheimer's disease have been identified, scientists say.

It takes the number of identified genes linked to Alzheimer's to 10 - the new genes affect three bodily processes and could become targets for treatment.

If the effects of all 10 could be eliminated the risk of developing the disease would be cut by 60%, research published in [Nature Genetics](http://dx.doi.org/10.1038/ng.803) says.

However, the international team warns new treatments could be 15 years away.

'Clueless'

The disease is thought to be up to 80% genetic.

The first gene linked to the disease, APOE, was discovered more than 17 years ago but no new genes were discovered until 2009.

As Professor Kevin Morgan, from the University of Nottingham, put it: "We were basically clueless."

The newly discovered genes affect three processes in the body: the way it deals with fat and cholesterol; the mechanism by which brain cells process big molecules (endocytosis); and the immune system.

Cardiff University's Professor Julie Williams, who led the international study, said: "What I find exciting is that we have found specific gene processes, we now have precise targets to identify treatments."

She said that if the effect of these genes could be eliminated then the number of cases could be reduced by 60%.

"There are 500,000 people with Alzheimer's [in the UK] so if you could prevent 60% that would be 300,000 people," she said.

Ageing population

Prof Morgan said: "This disease is devastating, people are desperate for any hope or advance. I've no doubt it will come, but the time frame is 10 to 15 years."

The disease is a growing problem because of an ageing population.

The Alzheimer's Society predicts the number of people with dementia will reach one million by 2021.

Health economists already [believe the cost to the UK of dementia is £23bn every year](http://www.dementia2010.org/reports/Dementia2010Full.pdf).

Rebecca Wood, chief executive of Alzheimer's Research UK, which part-funded the study, said: "These findings are a step towards defeating dementia.

"We are yet to find ways of halting this devastating condition, but this work is likely to spark off new ideas, collaborations and more research.

Dr Susanne Sorensen, head of research at the Alzheimer's Society, said: "These two robust studies mark an exciting development for scientists hoping to identify a cause and find a cure for Alzheimer's disease.

"Although these studies will not bring us any closer to being able to predict who might be at greater risk of developing Alzheimer's, they will give scientists clues as to how Alzheimer's might develop, most importantly their identification could also lead to the development of new drug treatments in the longer term."

DAILY MAIL (London)

April 4, 2011 Monday

**THE FIVE GENETIC CLUES THAT COULD HELP PREVENT** **ALZHEIMER'S DISEASE**  
**BYLINE:** DAILY MAIL REPORTER  
  
**LENGTH:** 197 words

FIVE genetic links to Alzheimer's have been discovered, raising the prospect of future treatments to prevent the disease.

The discoveries mean a total of ten genes are now known to play a role in late-onset Alzheimer's, the most common form of dementia.

Eradicating the effects of all of them would remove 60 per cent of the illness in the population, or 300,000 cases.

Lead researcher Professor Julie Williams, of Cardiff University, said the findings mean it may one day be possible to identify those most at risk.

'In 10 to 15 years' time we may be taking drugs to prevent the onset of Alzheimer's in the same way as we take statins to prevent the onset of heart disease,' she said.

Some 750,000 people in the UK are living with dementia. By 2021 this is set to soar to almost a million as the population ages.

Up to 79 per cent of a person's susceptibility is thought to be determined by genes.

The findings, published in the Nature Genetics journal, focused on genes affecting the immune system, cholesterol processing, and a cellular process that removes toxic protein from the brain.

Professor Williams said: 'What's exciting is the genes we now know of are clustering in patterns.'

**REUTERS**

**Scientists find five new Alzheimer's risk genes**

By Kate Kelland

LONDON | Mon Apr 4, 2011 4:14pm BST

Scientists looking for the genetic triggers that lead to Alzheimer's have identified five more, doubling the number linked with the mind-wasting disease.

If drugs or lifestyle changes could be devised to counter these genetic variations, more than 60 percent of Alzheimer's cases could be prevented, according to the researchers, whose work was published in the journal Nature Genetics on Sunday.

But those discoveries could be at least 15 years away, they said.

Alzheimer's is the most common form of dementia, a fatal brain disease that affects memory, thinking, behavior and the ability to handle daily activities.

It is increasingly placing a heavy burden on societies and economies across the world.

"We are beginning to piece together the jigsaw and gain new understanding," said Julie Williams from Cardiff University's Center for Neuropsychiatric Genetics and Genomics in Wales, who led the study.

"If we were able to remove the detrimental effects of these genes through treatments, we hope we can help reduce the proportion of people developing Alzheimer's in the long-term."

The researchers said the genetic variants they found highlight specific differences in people who get Alzheimer's, including variations in the immune system, the ways the brain handles cholesterol and lipids as well as a process called endocytosis which removes toxic protein from the brain.

BIG BURDEN

Alzheimer's Disease International predicts that as populations age, dementia cases will almost double every 20 years to around 66 million in 2030 and 115 million in 2050, with much of that rise happening in poorer nations.

"What's exciting is the genes we now know of -- the five new ones, plus those previously identified -- are clustering in patterns," Williams said at a briefing in London.

Scientists suspect genes can explain 60 to 80 percent of the risk of late onset Alzheimer's, the kind that occurs with age.

To find these new gene variants, Williams and an international consortium of fellow researchers looked at data from 25,000 people with Alzheimer's disease and 45,000 healthy people who were used as "controls."

They found that common gene variants called ABCA7, EPHA1, CD33 and CD2AP and MS42A were linked with an increased risk of developing the disease.

"These five genes now show compelling evidence of association with Alzheimer's disease," she said.

Previous studies over the past few decades have established that gene variants known as CLU, PICALM, CRI, BIN1 and APOE are also linked to Alzheimer's risk.

SOURCE: [bit.ly/efY73M](http://bit.ly/efY73M) Nature Genetics, online April 3, 2011.

The Daily Telegraph (London)

April 4, 2011 Monday   
Edition 1;   
National Edition

**Genetic breakthrough could help prevent Alzheimer's onset**  
**SECTION:** NEWS; Pg. 14  
  
**LENGTH:** 182 words

A new set of genes linked to Alzheimer's has been discovered in a breakthrough that could pave the way to preventing many people developing the disease, scientists have claimed.

Five new genetic variants have been discovered, doubling the number already known, and together they account for 60 per cent of all cases of the disease.

The discovery could lead to preventive treatments within the next 15 years, it was claimed.

Some of the genes are linked to inflammation and cholesterol in the brain, which means that existing drugs could already exist to treat them.

Others suggest whole new mechanisms not previously linked to the disease.

"If we eradicate the effect of these genes, we could eradicate 60 per cent of Alzheimer's," said Prof Julie Williams of Cardiff University, who led the study.

Genetics is thought to account for between 60 and 79 per cent of the risk of developing Alzheimer's. The rest is to do with lifestyle and environment.

The first gene linked to the disease was discovered 17 years ago, followed by four more two years ago.

The latest study has now identified another five.

The Express

April 4, 2011 Monday   
Edition 1;   
National Edition

**Found: 5 genes that hold key to Alzheimer's**  
**BYLINE:** Michael Pickard  
  
**SECTION:** NEWS; Pg. 19  
  
**LENGTH:** 302 words

FIVE genes found to increase the risk of Alzheimer's could hold a key to its treatment, experts revealed last night.

The breakthrough - described as a "step towards defeating dementia" - means a total of 10 genes are now known to be linked with the illness.

Removing the effects of these genes could reduce by 60 per cent, or almost 300,000, the number of cases in the UK.

Professor Julie Williams, who led the researchers at the University of Cardiff, said it may soon be possible to identify patients most at risk from the disease and offer them drugs to prevent it.

She said: "I can envisage in 10 to 15 years' time we may be taking a number of drugs to prevent the onset of Alzhei­ mer's in the same way as we take statins now to prevent heart disease."

Dr Susanne Sorensen, of the Alzhe­ imer's Society, said: "These studies will give scientists clues as to how the dis­ ease might develop.

Most importantly their identification could also lead to the development of drug treatments in the longer term."

The research, by teams in Britain and America, involved analysing the DNA of nearly 60,000 people with and without the disease.

Prof Williams, whose research is pub­ lished in Nature Genetics, said that eventually a simple blood test could be used to identify signs of the disease.

She said: "What is exciting about our findings is that the genetic variations we've found all fit together.

Modern technology has allowed us to complete this work and we're really getting to the crux of what causes Alzheimer's."

Rebecca Wood, of Alzheimer's Research UK which part­funded the study, said: "These findings are a step towards defeating dementia."

The UK has 750,000 people who suf­ fer from dementia, 62 per cent of whom have Alzheimer's.

This number is set to climb to almost one million in 10 years.

The Guardian (London) - Final Edition

April 4, 2011 Monday

**Gene link to Alzheimer's casts new light on disease**  
**BYLINE:** Ian Sample Science correspondent  
  
**SECTION:** GUARDIAN HOME PAGES; Pg. 12  
  
**LENGTH:** 243 words

Scientists have discovered five gene variants that raise the risk of Alzheimer's disease in work that casts fresh light on the devastating condition.

The research brings the known number of genes associated with Alzheimer's to 10, which together account for about 300,000 cases of the disease in Britain.

The findings raise the prospect of earlier testing and better treatments for a condition that costs the UK £23bn a year in long-term care and lost productivity, according to a dementia report commissioned last year by the Alzheimer's Research Trust.

Scientists discovered the five genes by comparing the genetic makeup of tens of thousands of patients with those of healthy volunteers.

Genes account for 60%-80% of our chance of developing late-onset Alzheimer's, the rest coming from lifestyle and environmental factors.

Having high blood pressure in middle age is known to raise the risk of developing Alzheimer's later in life.

The work is described in two studies published in Nature Genetics, led by Julie Williams at Cardiff University and Gerard Schellenberg at the University of Pennsylvania.

The emerging picture of Alzheimer's is of a disease driven by subtle genetic factors whose effects build up throughout life and ultimately cause the steady and irreversible destruction of brain cells.

Most Alzheimer's sufferers have the late-onset strain, which develops after the age of 65.

A very rare form that runs in families can affect much younger people.

The Independent (London)

April 4, 2011 Monday   
First Edition

**A test for Alzheimer's disease - but will anyone want to take it?**  
**BYLINE:** Steve Connor Science Editor  
  
**SECTION:** NEWS; Pg. 22  
  
**LENGTH:** 412 words

Important new insights into Alzheimer's disease have emerged from the discovery of a handful of genes that are strongly implicated in raising a person's risk of developing the brain disorder in later life.

The findings could eventually lead to a genetic test to predict the likelihood of suffering from Alzheimer's after a certain age, although the scientists behind the research warn that there will be difficult ethical dilemmas posed by a test for a debilitating and fatal disorder that has no cure or effective treatment.

A series of landmark studies published last night links five additional genes to Alzheimer's disease.

This brings to 10 the total number of genes that are associated with the condition, which typically strikes after 65 and is marked by memory loss and dementia.

British researchers said the 10 genes accounted for about 20 per cent of the overall cause of Alzheimer's disease (about a third of the genetic contribution to the disease).

If faults in all 10 genes could be corrected, it would eliminate about 60 per cent of Alzheimer's cases, scientists said.

Alzheimer's disease affects about 500,000 people in Britain but the number affected by dementia is growing rapidly with an ageing population - it is expected to reach 1 million by 2021.

Sufferers need expensive, long-term care and the total "health burden" cost to society is estimated to be £23bn a year for the UK alone.

Scientists are attempting to understand why the ageing brain develops Alzheimer's by studying the entire genomes of elderly people with and without the condition.

By doing this, the researchers are able to tease out changes to the key genes that exert an influence on a person's risk factor.

The latest studies, in Britain, the US and Europe and published in the journal Nature Genetics, scanned the genomes of about 60,000 people, identifying small genetic variations in the five genes that can now be linked with the disease.

Eventually, this kind of research should lead to genetic tests that can estimate in middle age the probability of a person developing Alzheimer's.

Professor Mike Owen of Cardiff University's School of Medicine said: "At some point, I believe we're going to be able to predict this disease in middle age, because that's when we can intervene [to lower a person's risk].

However, if and when we do develop such tests, society's willingness to take them up and use them will depend largely on how useful they are in terms of treating the disease."

The Mirror

April 4, 2011 Monday   
3 Star Edition

**ALZHEIMER'S 'CURE';   
GENE DISCOVERY MEANS 60% OF CASES COULD BE PREVENTED**  
**BYLINE:** MIKE SWAIN  
  
**SECTION:** NEWS; Pg. 19  
  
**LENGTH:** 224 words

FIVE genetic causes of Alzheimer's disease have been discovered by scientists - raising hopes of a cure.

The genes affect the make-up of the immune system, how brains handle cholesterol and how cells absorb molecules such as proteins.

Examining how sufferers' DNA to Alzheimer's may pave the way for new drugs that prevent 60% of cases.

Cardiff University's Prof Julie Williams, who led one of two breakthrough studies, said: "Over the next few years we will understand a lot more about the genetics of Alzheimer's.

Within 10 years we may know enough to make a pretty good prediction on whether people might go on to develop Alzheimleads er's."

Drugs to prevent the ailment could be available in 15 years.

Her study was one of two that looked at 80,000 people in total in Europe and the US. Five other genes are also known to be linked to the condition.

The first was discovered 19 years ago and the other four in 2009. Alzheimer's accounts for nearly two-in-three of Britain's 800,000 dementia cases.

It claims 60,000 lives and costs the UK pounds 23 billion a year - twice as much as cancer and three times as much as heart disease.

Rebecca Wood of Alzheimer's Research UK, which part-funded Prof Williams' study, said: "These findings are a step towards defeating dementia."

800,000 people in the UK have dementia and 465,000 of those have Alzheimer's

The Times (London)

April 4, 2011 Monday   
Edition 1;   
Scotland

**Five more genes linked to Alzheimer's discovered**  
**BYLINE:** Mark Henderson  
  
**SECTION:** NEWS; Pg. 17  
  
**LENGTH:** 95 words

A set of five genes that affect the risk of developing Alzheimer's disease has been identified (Mark Henderson writes).

The discovery, by two teams led by Britons and Americans, could lead to new therapies.

It doubles to ten the tally of genetic variations known to increase the risk of developing the disease.

Together, those genes are thought to be a significant factor in more than half of all cases of the disorder, which is the most common cause of dementia and affects an estimated 465,000 people in the UK.

The findings are reported in the journal Nature Genetics.