Date: 4 April 2011

Word count: 441

Sentences: 23

**BBC news online**

**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."

**The Express**

Date: April 4, 2011

Word count: 310

Sentences: 13

Found: **5 genes** that hold key to **Alzheimer's**  
  
**BYLINE:** By Michael Pickard

**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 **Alzheimer's** in the same way as we take statins now to prevent heart disease."

Dr Susanne Sorensen, of the **Alzheimer's** Society, said: "These studies will give scientists clues as to how the disease 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 published 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 part-funded the study, said: "These findings are a step towards defeating dementia."

The UK has 750,000 people who suffer 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**

Date: April 4, 2011

Word count: 231

Sentences: 10

Gene link to **Alzheimer's** casts new light on disease  
  
**BYLINE:** Ian Sample Science correspondent

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)**

Date: April 4, 2011

Word count: 413  
Sentences: 15

A test for **Alzheimer's** disease - but will anyone want to take it?  
  
**BYLINE:** Steve Connor Science Editor

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 Times (London)**

Date: 4/4/11

Word count: 97

Sentence:6

Five more genes linked to **Alzheimer's** discovered  
  
**BYLINE:** Mark Henderson

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.

**Telegraph**

Date: 03 Apr 2011

Word count: 588  
Sentences: 31

By [Richard Alleyne](http://www.telegraph.co.uk/journalists/richard-alleyne/), Science Correspondent

**New genes found in hunt for Alzheimer's disease cure**

**A new set of genes linked to Alzheimer's has been discovered in a breakthrough that could pave the way to preventing 300,000 people developing the disease, claim scientists.**

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

The work, which has been hailed as "exciting", could lead to new treatments and preventions within the next 15 years, it was claimed.

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

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

"If we eradicate the affect of these 10 genes we could eradicate 60 per cent of Alzheimer's disease," said Professor Julie Williams at Cardiff University who led the international study.

Genetics is thought to account for between 60 and 79 per cent of the risk of developing Alzheimer's disease.

The rest is to do with lifestyle and environment.

The first gene connected to Alzheimer's was discovered 17 years ago, followed by four more two years ago.

This latest study, which is the biggest yet, added another five.

"What is most exciting is what these genes tell us," said Prof Williams.

"Five of the recently identified genes all have a role to play in the immune system.

"Four have functions at the cell surface and three are involved in moving fats around inside our cells.

"It’s likely that these processes have a key role to play in causing Alzheimer’s disease."

The results, published in the journal Nature Genetics, come from combining four separate genetic studies into Alzheimer’s involving nearly 60,000 people worldwide.

It involved comparing the DNA of healthy people with the DNA of those with Alzheimer's disease.

The results were then compared with other studies in France and the USA to whittle down the number of genes.

The new common variants are listed as ABCA7, MS4A6A/ EPHA1, CD33 and CD2AP.

While earlier genes are connected to the build up of amyloid "plaques" which are thought to "silt up" the brain, the new variants have altogether different functions.

Several implicate the immune system, telling researchers there's something different about the immune system of people who go on to develop Alzheimer's disease.

Others implicate the processing of cholesterol and lipids in the brain as increasing the risk of developing the disease.

But "most exciting" is a new area of research which refers to a process called – endocytosis - a basic cell function which helps them process large molecules.

Together they offer "a very big clue" to what causes the disease, said the researchers.

Prof Williams said: "This study, plus our previous studies, means that we are beginning to piece together the pieces of the jigsaw and gain new understanding.

"We still have a long way to go – but the jigsaw is beginning to come together."

Rebecca Wood, Chief Executive of Alzheimer’s Research, 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."

There are currently 750,000 people in the UK have a form of dementia, more than half have Alzheimer’s disease.

In just 15 years a million people will be living with dementia.

This will soar to 1.7 million people by 2051, according to the Alzheimer’s Society.

It is estimated it already costs society £23billion a year.