The Express

March 7, 2011 Monday   
U.K. 1st Edition

17 gene finds could slash heart attacks  
  
**BYLINE:** By Jo Willey  
  
**SECTION:** NEWS; 18  
  
**LENGTH:** 301 words

SCIENTISTS have made a series of landmark discoveries that could revolutionise the treatment of **heart disease**.

Medical experts have identified 17 previously unknown genetic causes of conditions that can lead to heart attacks or strokes.

Previous studies have shown that up to 40 per cent of **heart disease** cases can be prevented by lifestyle changes such as taking exercise, improving diet and giving up smoking.

But around half of those at risk are thought to be people who are born with genetic defects.

Coronary **heart disease** claims more than 90,000 lives each year in the UK. Although the numbers have been falling since the late 1970s, Britain still has one of the highest **heart disease** death rates in western Europe.

The latest findings come from three studies on the genetic links to coronary artery disease, CARDIoGRAM, C4D and one in China, and are published in the journal Nature Genetics.

Scientists around the world collected data on thousands of DNA samples to find **genetic** **variants** associated with heart conditions.

Professor Nilesh Samani, of Leicester University, who jointly led CARDIoGRAM, said: "Understanding how these genes work will vastly improve our knowledge of how the disease develops, and could ultimately help to develop new treatments."

Professor Hugh Watkins, of Oxford University, a member of the C4D team, said: "Our research strengthens the argument that lots of genes have a small effect on your **heart disease** risk, rather than a few genes having a large effect. Knowing about them will be important for directing research to find new treatments."

Professor Peter Weissberg, of the British Heart Foundation, said: "Each new gene identified brings us a small step closer to understanding the biological mechanisms of cardiovascular disease development and potential new treatments."

The Scotsman

March 7, 2011, Monday   
1 Edition

Breakthrough finds 17 new genetic links that raise risk of **heart disease**  
  
**BYLINE:** Lyndsay Moss Health Correspondent  
  
**SECTION:** Pg. 14  
  
**LENGTH:** 744 words

LANDMARK discoveries into genetic links to **heart disease** could lead to a new era of research and treatment for the condition, scientists believe.

At least 17 previously unknown **genetic** **variants** have been identified that increase the risk of narrowed arteries and blood clots - the main cause of heart attacks and strokes.

The findings from three new studies, published in the journal Nature Genetics, double the known genetic causes of **heart disease**.

Researchers hope they will lead to better ways of identifying those most at risk and to new approaches to treating **heart disease** by targeting specific genes and molecules.

Previous studies have shown that up to 40 per cent of **heart disease** cases can be prevented by lifestyle measures such as taking exercise, improving diet and giving up smoking. But about 50 per cent of the risk of **heart disease** is thought to be due to genetic factors people are born with.

Heart and artery disease is the world's biggest killer, causing about 12 per cent of all deaths worldwide. Coronary **heart disease** claims more than 90,000 lives each year in the UK. Although the numbers have fallen rapidly since the late 1970s, Britain still has one of the highest death rates in western Europe.

In Scotland, 3.3 per cent of the population is thought to have **heart disease**, and in 2009-10 there were almost 11,500 heart attacks recorded.

For the latest study, scientists around the world collected data on many thousands of DNA samples to find **genetic** **variants** associated with disease in arteries supplying blood to the heart.

For the largest of the new studies, known as CardioGram, scientists pooled information on more than 140,000 people and identified 13 new genetic "loci" - regions of DNA containing genes - linked to the disease.

Only three of the gene regions appeared to involve traditional risk factors such as high cholesterol and blood pressure, diabetes, smoking and obesity.

Five genetic risk factors were pinpointed by a similar study called C4D conducted by the Coronary Artery Disease Genetics Consortium which looked at data from more than 70,000 DNA samples.

The third study, led by researchers in China, focused on more than 7,000 individuals of Han Chinese ancestry and identified one gene variant.

Professor Nilesh Samani, from the University of Leicester, who co-led CardioGram, said: "Understanding how these genes work, which is the next step, will vastly improve our knowledge of how the disease develops, and could ultimately help to develop new treatments."

British colleague Professor Hugh Watkins, from Oxford University, a leading member of the C4D research team, said: "Our research strengthens the argument that lots of genes have a small effect on your **heart disease** risk, rather than a few genes having a large effect. Knowing about them will be important for directing research to find new treatments."

Professor Peter Weissberg, medical director of the British Heart Foundation, said: "As more and more large scale genetic studies are carried out, we are beginning to identify **genetic** **variants** that may play a significant, though small, role in the development of **heart disease**.

"Each new gene identified brings us a small step closer to understanding the biological mechanisms of cardiovascular disease development and potential new treatments."

Risk factors

Genetics: While lifestyle factors can help reduce the risk of **heart disease**, genes are also important. Around 50 per cent of the risk of **heart disease** is thought to be due to the genes people are born with.

Smoking: Carbon monoxide in smoke and nicotine put a strain on the heart by making it work faster. Other chemicals in cigarette smoke damage the lining of the coronary arteries.

High blood pressure: Puts a strain on the heart and can lead to **heart disease** if not properly controlled.

Cholesterol: Essential for healthy cells, but if there is too much in the blood it can lead to **heart disease**. Low-density lipoproteins take cholesterol from the liver and deliver it to cells. It tends to build up on the walls of the coronary arteries.

Diabetes: High glucose levels in the blood affect the walls of the arteries, making them more likely to develop fatty deposits. Diabetes increases the damage done by someof the major risk factors for coronary **heart disease** such as smoking, high blood pressureand high cholesterol.

Lack of exercise/poor diet/ obesity: The lifestyle issues that can contribute to factors such as high blood pressure and high cholesterol.

The Sun (England)

March 7, 2011 Monday   
Edition 2;   
Scotland

Heart aid DNA find  
  
**SECTION:** NEWS; Pg. 8  
  
**LENGTH:** 95 words

IMPORTANT DNA discoveries announced yesterday could usher in a new era of **heart disease** treatment, scientists say.

Three studies, involving 220,000 patients, have identified 17 **genetic variants** that increase the risk of narrowed arteries and blood clots, the main cause of heart attacks.

It is a breakthrough in the fight against the world's biggest killer that claims 90,000 lives in the UK every year.

Prof Peter Weissberg, of the British Heart Foundation, said each gene find is "a step closer" to understanding the disease and developing treatments.

**The Telegraph**

**Gene that predicts risk of heart attack identified by scientists**

**Being able to identify people at risk from a future heart attack has taken a step closer to reality after the biggest ever study of its kind discovered over a dozen genes associated with the condition.**

[Richard Alleyne](http://www.telegraph.co.uk/journalists/)

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

7:00PM GMT 06 Mar 2011

Comments[3 Comments](http://www.telegraph.co.uk/health/healthnews/8362656/Gene-that-predicts-risk-of-heart-attack-identified-by-scientists.html#disqus_thread)

Scientists from all over the world, including Britain, studied the genetic make up of more than 140,000 people to find DNA faults in those susceptible to coronary heart disease.

They discovered 13 new genes associated with the risk – doubling the number already known.

The findings could lead to new treatments for the disease and open the possibility of diagnosing those at risk from the condition in the future.

Professor Nilesh Samani, of the British Heart Foundation and the University of Leicester, who co-led the international research programme, said most of genes identified were not previously known to be involved in the development of coronary heart disease,

Professor Samani said: "The most exciting thing about our study is that we have discovered several new genes not previously known to be involved in the development of coronary heart disease, which is the main cause of heart attacks.

"Understanding how these genes work, which is the next step, will vastly improve our knowledge of how the disease develops, and could ultimately help to develop new treatments."

The study involved over 167 clinicians and scientists from UK, Europe, Iceland, USA and Canada and more than 140,000 participants.

The researchers assessed the genetic codes of people to search for variations in DNA that are more likely to be found in people with coronary heart disease.

Professor Peter Weissberg, Medical Director at the BHF, added: "As more and more large scale genetic studies are carried out we are beginning to identify genes that may play a significant, though small, role in the development of heart disease.

"Each new gene identified brings us a small step closer to understanding the biological mechanisms of cardiovascular disease development and potential new treatments."

Interestingly, only three of the 13 new gene regions appear to be linked to coronary disease through traditional risk factors such as high cholesterol and blood pressure, diabetes, smoking and obesity.

Heart and circulatory disease is the biggest killer in Britain and heart disease alone causes 91,000 deaths a year.

It is thought around six million people are taking statins to reduce levels of LDL-cholesterol in their blood which is a major risk for heart disease and 2.6 million people have been diagnosed with heart disease.

Meanwhile scientists have identified a single mutated gene that causes Hajdu-Cheney syndrome, a disorder of the bones causing progressive bone loss and osteoporosis or fragile bones.

The study gives vital insight into possible causes of osteoporosis and highlights the gene as a potential target for treating the condition.

There are only 50 reported cases of Hajdu-Cheney syndrome (HCS), of which severe osteoporosis is a main feature.

Osteoporosis is a condition leading to reduction in bone strength and susceptibility to fractures.

It is the most common bone disease, with one in two women and one in five men over 50 in the UK fracturing a bone because of the condition.

The team of scientists, led by King's College London and Guy's and St Thomas', identified NOTCH2 as the gene.

Both studies are published in the journal Nature Genetics.