Having trouble giving up smoking? Blame your genes

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A gene called *ANKK1* regulates the release of dopamine – a chemical involved in the brain's reward centres. Ming Li and colleagues at the Zhejiang University School of Medicine in Hangzhou, China, wondered whether variations of this gene might affect people's ability to give up cigarettes. So his team analysed 23 studies that have linked ANKK1 to smoking, involving more than 11,000 participants in total.

Across the board, there was no significant link between successful quitting and the gene variants. But when they looked at just the studies that analysed white people, the results were striking.

About two-thirds of white smokers carried a variation of the gene called A2/A2. These people were about 22 per cent more likely to be able to quit smoking than those who carried an alternative version of the gene, either A1/A1 or A1/A2.

The A1/A1 and A1/A2 gene variations have previously been linked to obesity and drug addiction, which suggests they may predispose people to addictive behaviours.

People carrying these versions of *ANKK1* may need more aggressive strategies to fight their addiction to cigarettes, says Li. It is not clear whether the gene has the same effect for non-white people, he says. More studies that involve non-white people will be necessary to

investigate this.

Andrew Lawrence at the Florey Institute for Neuroscience and Mental Health, in Victoria, Australia, says these results could one day be useful for helping people quit smoking. He says the real benefit will come when the effects of these genes can be better understood, and particular treatments can be chosen for people, based on their genes. “At the ‘big picture’ level it’s about matching someone’s genetics with a particular treatment option,” he says.