Scientists finds secret to 'feeling no pain' in life

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Scientists at University College London (UCL) have found the recipe for painlessness in a study that used genetically modified mice to show a channel responsible for allowing pain signals to pass along nerve cell membranes is vital to feel agony.   
  
In 2006, it was shown that sodium channel Nav1.7 is important for signalling in pain pathways and people born with non-functioning Nav1.7 do not feel pain.   
  
UCL researchers found that mice and people who lack Nav1.7 also produce higher than normal levels of natural opioid peptides. To examine if opioids were important for painlessness, the researchers gave naloxone, an opioid blocker, to genetically modified mice lacking Nav1.7 and found that they became able to feel pain.

They then gave naloxone to a 39-year-old woman with the rare mutation and she felt pain for the first time in her [life](http://www.speakingtree.in/topics/life/life).   
  
"After a decade of rather disappointing drug trials, we now have confirmation that Nav1.7 really is a key element in human pain," said senior author professor John Wood (UCL Medicine).   
  
"The [secret](http://www.speakingtree.in/topics/beliefs/secret) ingredient turned out to be good old-fashioned opioid peptides, and we have now filed a patent for combining low dose opioids with Nav1.7 blockers. This should replicate the painlessness experienced by people with rare mutations, and we have already successfully tested this approach in unmodified mice."   
  
Broad-spectrum sodium channel blockers are used as local anaesthetics, but they are not suitable for long-term pain management as they cause complete numbness and can have serious side-effects over time.   
  
By contrast, people born without working Nav1.7 still feel non-painful touch normally and the only known side-effect is the inability to smell.   
  
Opioid painkillers such as morphine are highly effective at reducing pain, but long-term use can lead to dependence and tolerance. As the body becomes used to the drug it becomes less effective so higher doses are needed for the same effect, side effects become more severe, and eventually it stops working altogether.   
  
"Used in combination with Nav1.7 blockers, the dose of opioid needed to prevent pain is very low," Wood said.   
  
"People with non-functioning Nav1.7 produce low levels of opioids throughout their lives without developing tolerance or experiencing unpleasant side-effects."   
  
Scientists hope to see this new approach tested in human trials by 2017.   
  
The study findings were published in a recent issue of journal Nature Communications.