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# Magnetic Nanoparticles Can Remotely Control Worms

By [Jess McNally](#) [✉](#) July 7, 2010 | 5:19 pm | Categories: [Biotech](#), [Brains and Behavior](#)

Using magnetic nanoparticles, scientists have found a way to remotely control neurons and affect animal behavior.

The nanoparticles, which are targeted to attach to cell membranes, heat up when exposed to a magnetic field. Researchers have demonstrated that the heat can open calcium ion channels in cells, activate neurons and even cause *C. elegans* worms to recoil, according to a paper released in *Nature Nanotechnology* June 27.

“This research will help us unravel the signaling networks that control animal behavior,” physicist Arnd Pralle of the University of Buffalo, co-author of the study, said in a press release July 6.

The work could also have applications in cancer treatments and diabetes therapies. If the nanoparticles can be targeted to specific proteins or cells, it may be possible to kill cancer cells by overheating the cell wall, or to stimulate the pancreatic cells to release insulin. The method only affects cell walls, so patients wouldn’t actually feel the heat.

“It would take forever to heat up [a] whole cell since it is cooled so well by all the water around it,” Pralle said.

One of the major questions for using the technique in human applications is where the heat-sensitive ion channels are in the body. In the *C. elegans* worms, the researchers were able to target known ion channels that opened up at 93 degrees Fahrenheit, which caused the recoil response.

In humans, similar ion channels in fingers open up at 122 degrees Fahrenheit, which is what causes our fingers to jump back when we touch something too hot, but little is known about other places where this happens in the body.

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Posted by: yiggidypow | 07/8/10 | 11:34 am |

Wow, these Nono dudes are something else. Is there anything they cant do?

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Posted by: medchem90 | 07/8/10 | 1:18 pm |

nanoparticles are amazingg..being used in every field..electronics to medicine. It has also been reported to have an anti-HIV activity

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Posted by: luckyray | 07/8/10 | 5:56 pm |

Are there aliens amongs us helping us understand things we wont normally and feeding it to humans slowly.

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Posted by: ahmet0011 | 07/10/10 | 7:45 pm |

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Posted by: dreamasiamm | 07/11/10 | 3:38 am |

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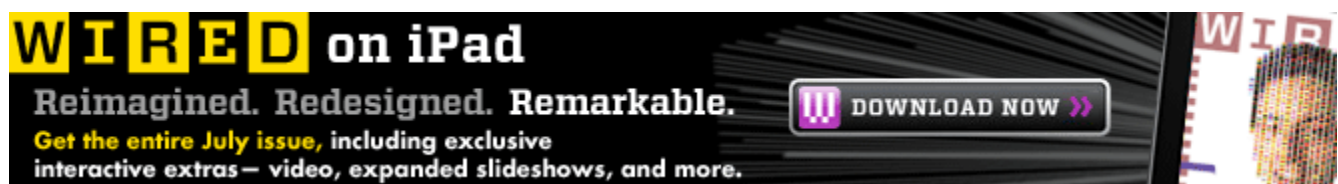
Posted by: tkjtkj | 07/11/10 | 11:23 pm |

Hey, guys! Let's go torture some worms!!

'heat' ?? 'recoil'??

was this work vetted thru the ethics committee?

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