Home » Articles

InventorSpot

Home Inventor Home Invention Info Invention Gallery Services Forum Products Misc Contact Us

Ads by Google

- **Cell Imaging**
- Solar Water Heat
- **Heated Glove**
- **Heat and Air**



Heated Nanoparticles Offer Resonating Explanations For Why "They Made Me Do It"

by Doug Bonderud

Particle Sciences Inc.

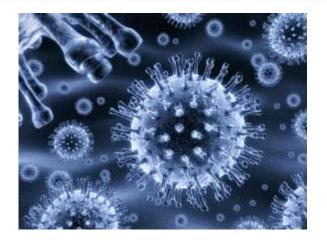
Micro/Nano Particle Technology Fabrication and Preparation www.particlesciences.com

Share
2 retweet
Stumble Itl

Ads by Google

Heatedly roaming the halls of the University of Buffalo, two scientists have been working on a way to remotely control cells and tiny microscopic worms. Thanks to the use of nanoparticles, magnetic resonance fields and a whole lot of awesome, they've found it.

Ufnivertsity of <u>Buffalo</u> doctoral student Heng Huang and UB physics professor Arnd Pralle have been slaving away over a hot nanoparticle for months now, perfecting a method by which these



tiniest of <u>particles</u> could be used to not only trigger specific behaviors within cells, but also cause directed responses in <u>animals</u>, most notably the C. elegans nematode, which looks like a <u>microscopic</u> worm but should totally put "the third" behind its name.

Classy.

After injecting magnetically sensitive nanoparticles near the "mouths" of the worms, known as the "amhpid", the team introduced a magnetic resonance which caused the nanoparticles and the surrounding <u>cell membrane</u> to heat up. The cell itself remained unchanged in temperature, and thanks to delicate handling by the Buffalo brainiacs, the sensitive nanoparticles did not simply

Мс

•

•

•

.

.

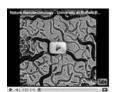
•

•

slouch into their pyjama pants and consume gallons of nanoicrecream, but instead did exactly what they were supposed to do - diffuse and get hot.

Since the nanoparticles are only six nanometers in width, they are easily able to mingle in and around the cell membrane without affecting the function of the cell, and their tiny nature means that the heat they generate after exposure to a <u>magnetic field</u> is not enough to penetrate the cell membrane itself.

It is enough, however, to get worms to turn the hell around. As the video below shows, little C. elegans the thirds are just crawling along, happy to be wormy, when all of a sudden they change direction. What happened? The temperate surrounding their amphids ramped up to 34 degrees celcius, which provoked a natural "get away get away right now!" response.



By using a fluorescent <u>probe</u> developed in conjunction with this work, Huang and Pralle were able to precisely measure the temperate of their nanoparticles, so as to not overwhelm the worms.

The hope is that calibrated magnetic resonance will be used to target nanoparticles injected in or around certain cancer cells in order to trigger specific reactions to speed recovery or limit growth, and also to target insulin producers in diabetics and make them get back on the creative bandwagon.

Turns out that a great deal of behaviour, micro and macroscopic, is determined by heat.

Some like it hot. Magnetically so.

Source: University of Buffalo

Douglas Bonderud Technology and Gadgets Blogger InventorSpot.com •

•

•

•

Fo

•

•

•

•

•

•

•

•

.









0

S

Art

lr N





Filed under:

Innovation International

Invention

Inventor Science



Get the battery life, sleek designs and processing performance you've been craving.



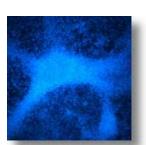
privacy



ShareThis Mail to a friend

Subscribe to our feed Follow us on Twitter

Stanley LED Torch Watch Provides Time And Light



Bone Density May Help Determine Risk of Breast Cancer



The Li'l Squirt Baby **Pool Eases Your Baby Into Water Play**



EOps i24R3: The Odd, Little One-Speaker **Surround Sound System**



12 Bizarre Hello Kitty Products That Sign The Coming Apocalypse



China's 'Internet Of Things' To Become Semantic Web Superpower?



Subway Sandwich Japan Says 'Eat Fresher' With Lettuce Grown In The Store



Mommy Greenest, Today's Environmentally-Friendly Travel

Comments

Post new comment

Subject:						
Comment: *						

- Allowed HTML tags: <a> <cite> <code> <dl> <dt> <dt> <dd> <sup> <br <>sup> <br <> <strike> <i>
- Lines and paragraphs break automatically.
- Web page addresses and e-mail addresses turn into links automatically.

More information about formatting options

Preview comment Post comment

lην

•

•

•

Re

Stuff for Inventors

- Inventor Home Page
- Inventor Forum
- Invention Gallery
- Inventor Information
- Service Provider Directory
- Inventor Calendar
- Myra's Invention Blog
- · Helpful Books
- Invention Store
- Submit Your Invention

Friends of InventorSpot

- BoredomButton
- Burbia
- Coolest Gadgets
- · Dark Roasted Blend
- Ecoble
- Holy Taco
- Mental Floss
- Presurfer
- Rue the Day
- UniqueDaily.com

Archive

- July, 2010 (76)
- June, 2010 (282)
- May, 2010 (298)
- April, 2010 (259)
- March, 2010 (205)
- February, 2010 (235)
- January, 2010 (229)
- December, 2009 (165)
- November, 2009 (193)
- October, 2009 (201)
- September, 2009 (212)
- August, 2009 (253)

ΑII

• Submit Your Inventor Resource

WebEcoist

more

more

Home Inventor Home Invention Gallery Invention Information Forum

Copyright © 2006-2010. Aha Cafe LLC. All Rights Reserved. About Your use of this site is deemed to be your agreement to be bound by our Terms of Use a

