



[Watch](#) ONE-MINUTE WORLD NEWS

News Front Page



[Africa](#)

[Americas](#)

[Asia-Pacific](#)

[Europe](#)

[Middle East](#)

[South Asia](#)

[UK](#)

[Business](#)

[Health](#)

[Medical notes](#)

[Science & Environment](#)

[Technology](#)

[Entertainment](#)

[Also in the news](#)

[Video and Audio](#)

[Programmes](#)

[Have Your Say](#)

[In Pictures](#)

[Country Profiles](#)

[Special Reports](#)

[Related BBC sites](#)

[Sport](#)

[Weather](#)

[On This Day](#)

[Editors' Blog](#)

[BBC World Service](#)

Page last updated at 00:24 GMT, Saturday, 9 January 2010

[E-mail this to a friend](#)

[Printable version](#)

Coloured lasers may offer a way to treat epilepsy

Coloured lights could be used to find treatments for brain disorders such as epilepsy, a study has suggested.

A Massachusetts Institute of Technology team discovered a way to shut down brain activity using flashes of yellow and blue lasers.

They hope to adjust this to switch off neurons that generate an electrical impulse abnormally, causing seizures.

This could help experts understand how the brain works and, ultimately, offer treatment targets, Nature reports.

The work relies on two genes found in natural organisms like algae that need light to make energy.

Illuminating

These genes, known as Arch and Mac, contain the genetic code for light-activated proteins.

The MIT team engineered brain neurons to express Arch and Mac.

By doing this, they were able to control the brain cells of mice and monkeys using light.

Light activates proteins which, in turn, lowers the voltage in the neurons and prevents them from generating an electrical signal, known as firing.

Arch responds to blue light, Mac to yellow, and both recover afterwards.

Now the researchers plan to closely examine the neural circuits of the brain in the lab to find targets that, when shut down, could treat epilepsy as well as other conditions including Parkinson's disease and chronic pain.



Laser lights can control cell signalling

SEE ALSO

[Bad memories written with lasers](#)
16 Oct 09 | Science & Environment
[Scientists halt epilepsy in mice](#)
03 Aug 09 | Health

RELATED BBC LINKS

[Epilepsy](#)

RELATED INTERNET LINKS

[Nature](#)
[Massachusetts Institute of Technology](#)
[Epilepsy Action](#)

The BBC is not responsible for the content of external internet sites

TOP HEALTH STORIES

[World first heart op for UK boy](#)
[Coloured lasers may curb epilepsy](#)
['Smoked' flavour food concerns](#)

[News feeds](#)

MOST POPULAR STORIES NOW

[SHARED](#) [READ](#) [WATCHED/LISTENED](#)

[Is Osama Bin Laden dead or alive?](#)
[Man arrested over NY airport kiss](#)
[Snow brings Germany travel chaos](#)
[Man killed chasing bag snatchers](#)
[Neanderthal 'make-up' discovered](#)
['CIA bomber' shown vowing revenge](#)
[Indian man attacked in Australia](#)
[Italy evacuates African migrants](#)
[Week in pictures: 2-8 January](#)
[US warns of attacks on Air Uganda](#)

[Most popular now, in detail](#)

“ These tools will help us understand how to control neural circuits, leading to new treatments for brain disorders ”

Ed Boyden
Lead researcher

Bookmark with: [What are these?](#)

[Delicious](#) [Digg](#) [reddit](#) [Facebook](#) [StumbleUpon](#)

E-mail this to a friend

Printable version

Ads by Google

Do You Have Epilepsy?

Take surveys and compare to other people like you. Join free!
www.patientslikeme.com

Alzheimer's Disease?

A Clinical Trial Aimed At Slowing The Progression of Alzheimer's
www.ICARastudy.com

Epilepsy Breakthrough

New Stem Cell Treatment for Epilepsy. Taking Patients Now.
Medra.com/Epilepsy

FEATURES, VIEWS, ANALYSIS



Conspiracy theory
Why some believe Bin Laden has been dead for years



Selfless faith
India's Jains reach out to the under-privileged



In pictures
Eye-catching images from around the world this week

MOST POPULAR NOW | The most read story in the UK is: [Man killed chasing bag snatchers](#)

[SKIP TO TOP](#)

- [PRODUCTS & SERVICES](#)
- [E-mail news](#)
- [Mobiles](#)
- [Alerts](#)
- [News feeds](#)
- [Podcasts](#)

© MMX

The BBC is not responsible for the content of external internet sites.

[News Sources](#)
[About BBC News](#)

[BBC Help](#)
[Accessibility Help](#)
[Jobs](#)
[Advertise With Us](#)

[About the BBC](#)
[Contact Us](#)
[Terms of Use](#)
[Privacy & Cookies](#)