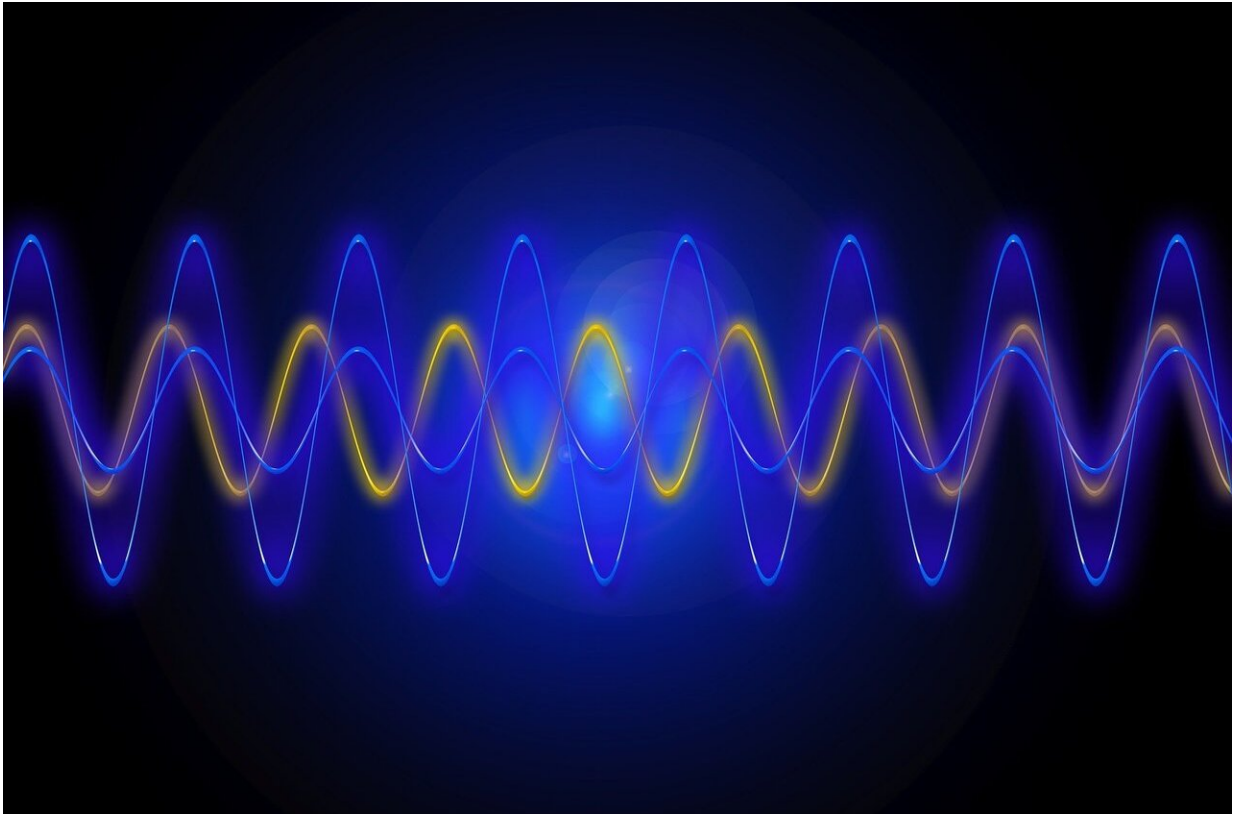


Researchers use sound to deliver drugs

December 4 2019



Credit: CC0 Public Domain

A technique adapted from telecommunications promises more effective cancer treatments.

Drugs can be delivered into [individual cells](#) by using soundwaves, Melbourne researchers have discovered.

Adapting a technique used in the [telecommunications industry](#) for decades, Dr. Shwathy Ramesan from RMIT, and colleagues, used the mechanical force of sound to push against cell walls and deliver drugs more effectively than treatments currently in use.

The new technique aids in silencing genes responsible for some diseases, including cancer, by switching them on or off.

"Recent success in gene therapies has armed the medical society with the exciting possibility of isolating a patient's target [cells](#), re-engineering them in the lab and re-infusing back into the same body," says Shwathy.

"This new technique brings the reality significantly closer."

The main challenge to getting engineered material back into cells is the overcoming the body's innate resistance to foreign bodies. This means cells actively reject most delivered drugs."

Shwathy and her colleagues have developed a microchip that produces precise soundwaves—inaudible to the human ear—that can be used to control precise manipulation of drug uptake at the sub-cellular levels.

This technique not only increases the percentage of drugs inside the cells but also reduces the [death rates](#) substantially thereby making it an attractive delivery technique.

The researchers have successfully demonstrated the technique in preliminary lab-based experiments. The results are published in the journal *Nanoscale*.

More information: Shwathy Ramesan et al. Acoustically-mediated intracellular delivery, *Nanoscale* (2018). [DOI: 10.1039/C8NR02898B](https://doi.org/10.1039/C8NR02898B)

Provided by Science in Public

Citation: Researchers use sound to deliver drugs (2019, December 4) retrieved 24 April 2024 from <https://phys.org/news/2019-12-drugs.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.