

The sonic screwdriver can turn cells tartan

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It's the sort of thing you would expect Dr Who to do – join up someone's damaged nerves by using a sonic screwdriver. But the scientists at the University of Glasgow are no time-travellers and their work is based in a lab – not a Tardis.

Their research, published by the Royal Society of Chemistry's journal *Lab on Chip*, shows that cell patterning using a specific kind of <u>sonic</u> <u>screwdriver</u> – a Heptagon Acoustic Tweezer – may soon be in a position to deliver important results.



In the field of tissue engineering, it is important to have accurate control over the positioning of <u>cells</u>, but previous methodologies for cell patterning have been found to be either inflexible, limited, or cost- and time-intensive.

Now, however, a team of researchers from a range of disciplines in the University – from engineering to biology – have discovered a novel, electronically-controlled method of generating dynamic cell patterns using a portable device based on acoustic force for spatial manipulation of cells and particles.

Dr Anne Bernassau, a Lord Kelvin Adam Smith Fellow in Sensor Systems, explained that using this sonic device, they were able to manipulate cells into complex assemblies – a "cell tartan". In addition, the team were able to demonstrate that this cell tartan could aid neurone alignment, which is a preliminary step towards <u>nerve repair</u>. Dr Frank Gesellchen, a research associate in <u>biomedical engineering</u>, played a key role in the laboratory research.

Dr Mathis Riehle, a reader in the Institute of Molecular Cell and Systems Biology, said the researchers' ambition was to turn what is currently a two-dimensional application into one that is three-dimensional. At that point, he believes it would be possible to create an artificial device containing a person's own cells that could be used to repair <u>nerve damage</u> more effectively than the current methods of nerve repair tubes or nerve grafts which do not have a high success rate.

More information: "Cell patterning with a heptagon acoustic tweezer – application in neurite guidance." F. Gesellchen, et al. *Lab Chip*, 2014, Advance Article. <u>DOI: 10.1039/C4LC00436A</u>



Provided by University of Glasgow

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