

Human trials suggest 'rescued' drug could be safer treatment for bipolar disorder

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Bipolar disorder is characterized by transitions between depression and mania. Credit: Wikipedia

A drug destined for the scrap heap has been rescued by Oxford scientists, who may have found it a new role in treating bipolar disorder.

A team from Oxford University, led by Dr Grant Churchill and Dr Sridhar Vasudevan of the Department of Pharmacology, in collaboration with Professor Phil Cowen of the Department of Psychiatry, used a database of 'failed' drugs, found to be safe but ineffective for their proposed use, to identify ebselen as a possible alternative to lithium, the main [treatment](#) for people who are bipolar.

Ebselen was under development as a treatment for stroke, but was abandoned by its manufacturer in the final phase of clinical trials. However, those trials proved that the [drug](#) was safe for use in humans. Initial tests of ebselen as a treatment for [bipolar disorder](#) were carried out in mice. That

research, reported in early 2014, found that results were promising, so the researchers were able to use the existing safety information to fast track an initial trial of ebselen in people.

Dr Grant Churchill explained: 'Lithium has been used for over 60 years and remains the most effective treatment for bipolar disorder, but suffers from toxicity and has many side effects. It is toxic at only twice the right dose and can cause weight gain and thirst. Long-term lithium use can lead to kidney damage. The side effects also encourage people to stop taking it, which means they can relapse.

'An alternative treatment that has fewer side effects would be safer and would likely have a lower rate of people stopping taking their prescribed drug. Lower toxicity also means fewer medical appointments to get the dose right and fewer visits to monitor for [side effects](#).'

In a small trial, healthy adult volunteers were given a course of ebselen. They carried out a number of tests of brain function, provided blood samples and also went through an MRI scan .

The results showed that ebselen had similar effects on the brain to lithium. The next stage will be a full clinical trial to test the effectiveness of ebselen as a treatment. The researchers have obtained funding from the Stanley Medical Research Institute in the United States to conduct a 'proof of concept' study for ebselen in patients with bipolar disorder. It is hoped that the study will start in later in 2016

Should these successes continue, ebselen will be one of only a few examples of a 'rescued drug', where a new use has been found for a failed drug compound.

Dr Sridhar Vasudevan said: 'By rescuing a drug, we benefit from the earlier research and the work of the earlier researchers has a new value. Rather than remaining unused on the shelf of a

pharmaceutical company or academic laboratory, drug compounds become available for other uses.

'Recently, there has been more focus on encouraging researchers to share these compounds so that others can find new uses for them. Even so, this is one of the first handful of examples of drug repurposing.'

More information: Nisha Singh et al. Effect of the Putative Lithium Mimetic Ebselen on Brain myo-Inositol, Sleep and Emotional Processing in Humans, *Neuropsychopharmacology* (2015). [DOI: 10.1038/npp.2015.343](https://doi.org/10.1038/npp.2015.343)

Provided by Oxford University

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