

Plant stem cells could be fruitful source of low-cost cancer drug

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A popular cancer drug could be produced cheaply and sustainably using stem cells derived from trees, a study suggests.

Researchers have isolated and grown stem cells from a yew tree whose bark is a natural source of the anticancer compound [paclitaxel](#). The development could enable the compound to be produced on a commercial scale at low cost, with no harmful by-products.

Scientists and engineers behind the development say the drug treatment – currently used on lung, ovarian, breast, head and neck cancer – could become cheaper and more widely available. The study was carried out by the University of Edinburgh and the Unhwa Biotech company in Korea.

Currently, an extract from yew tree bark is used to industrially manufacture the compound paclitaxel. However, this process is expensive, requires supplies of mature trees, and creates environmentally damaging by-products.

Researchers claim that using stem cells – self-renewing tree cells which can be manipulated to produce large amounts of the active compound – would effectively create an abundant supply of the drug. The process would cost far less than conventional methods.

Scientists behind the project have also cultured [stem cells](#) from other [plants](#) with medical applications, indicating that the technique could be used to manufacture other important pharmaceuticals besides paclitaxel.

The study was published in *Nature Biotechnology* and supported by the Biotechnology and Biological Sciences Research Council and the Engineering and Physical Sciences Research Council.

Professor Gary Loake, of the University of Edinburgh's School of Biological Sciences, who led/took part in the study, said: "Plants are a rich source of medicine – around one in four drugs in use today is derived from plants. Our findings could deliver a low-cost, clean and safe way to harness the healing power of plants, potentially helping to treat [cancer](#), and other conditions."

Provided by University of Edinburgh

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