



# Heterologous expression of functional fungal laccase in animals for bioremediation of environmental pollutants

## BACKGROUND

Laccases are enzymes with a number of industrial applications. These include gentle bleaching of textiles, processing wood pulp, and bioremediation of pollutants such as plasticizer, industrial dyes, and other organic compounds that pose threats to human and environmental health.

High production costs remain a major limiting factor for larger scale use of laccases. Laccases are usually isolated from fungal species which either naturally produce low quantities of enzyme or engineered yeasts that require expensive fermentation conditions and enzyme purification procedures.

## OUR SOLUTION

By producing fungal laccases in transgenic insects we enable the use of low-cost organic waste streams as feedstocks and simplified infrastructure for biomanufacturing with minimal use of water. Lyophilized powder preparations of insects retain substantial enzymatic activity and facilitate enzyme purification or direct application for certain uses.

## APPLICATIONS

- ✓ Textile bleaching
- ✓ Wood pulp delignification
- ✓ Bioremediation
- ✓ Biocatalysis

## INVENTORS

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## INTELLECTUAL PROPERTY POSITION

Australian provisional patent application filed 2020904672

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Source: Suman Bhaumik, <https://www.istockphoto.com/photo/jeans-hanging-gm816081914-132021747>

## ADVANTAGES

Low production costs

Feedstocks as revenue stream

Simplified enzyme purification

## PARTNERING OPPORTUNITY

We are seeking an industry partner for further development and commercialisation of this technology through a research collaboration or technology licence.

## WOULD YOU LIKE TO KNOW MORE?

MQ Commercialisation

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