

FAQs



What is cellular agriculture?

Cellular agriculture uses technology to create animal-derived products through cell cultures, instead of animals. It is currently used to make food products such as meat, eggs, dairy, gelatin, and rennet; insulin for diabetics; collagen for health and beauty treatments; and fabrics like leather and silk. This technology can enable Australia to seize more opportunities within a growing global protein market.

What technology is involved?

Cellular agriculture uses two main methods:

- 1 Cell cultivation: Involves culturing stem cells (taken from an animal) to make products such as meat, fat, seafood, leather and foie gras.
- 2 Precision fermentation: Involves programming microbial cells (yeast, bacteria or fungi) to produce ingredients such as egg, milk fats and proteins. It also makes insulin and the cheese-making enzyme, rennet.

Are cellular agriculture products already on the global market?

Yes. Cellular agriculture technology has been used to make insulin for 40 years. It is also widely used to make rennet – which is used in most cheesemaking today. In 2013, the world's first cultivated meat product, a cell-cultured burger, was produced in the Netherlands. In 2020, Singapore approved the commercial sale of cultivated meat. Israel and the United States are currently establishing regulatory frameworks.

Is the technology safe?

Yes. The Singapore Food Agency, renowned for its stringent safety standards, approved the sale of cultivated meat following an application from an American company Eat Just. According to FSANZ, the authority responsible for food standards in Australia and New Zealand, Australia's existing food safety standards can already incorporate products created through cellular agriculture technologies.

Are cellular agriculture products GMOs?

Not necessarily. To produce cultivated meat and seafood, genetic modification is not required, but is sometimes used to safely boost the taste and nutrition of products. For consumers who don't want their products to be genetically modified, several companies have committed to not using GM methods.

To produce products such as dairy and eggs, companies use precision fermentation. This uses a form of genetic modification to produce specific proteins and fats. However, the end products are separated out and therefore free of any of the modified genetic material (DNA).

How do cellular agriculture products compare on nutrition?

Products produced through cellular agriculture have a similar nutritional profile to conventional products. Cellular agriculture may enable us to control the levels of nutrients in products. It could be used to boost the density of nutrients and curb saturated fats in our food without sacrificing taste or texture.

What jobs will cellular agriculture create?

Cellular agriculture will create a wide range of technical and non-technical roles across science, engineering, commerce and others as the industry develops. People skilled in tissue engineering, biotechnology and commercialisation will be in particular demand. See our career exploration tool [Pathways](#) to learn more.

How will the cellular agriculture industry affect traditional farming and farmers' jobs?

Cellular agriculture is one of a range of solutions needed to help Australia meet a growing global demand for protein, generating income and jobs in our country. It is an opportunity to diversify and strengthen Australia's agricultural system, complementing our traditional iconic agriculture industries.

Other questions? Please contact us at hello@cellagaustralia.org