Cell-cultivated products

Information about cell-cultivated products and the Food Standards Agency's role in regulating them.

What is a cell-cultivated product?

Cell-cultivated products are new foods that don’t involve traditional farming such as rearing livestock or growing plants and grains. They are made by taking cells from plants or animals, which are then grown into food.

Some examples of foods made from cell-cultivated products include:

- a chicken fillet made from chicken cells
- a beef burger made from cells taken from a cow
- tuna made from fish cells
- animal fat taken from a cow to enhance the flavour of a burger
- muscle cells from an animal such as a chicken, mixed with plant-based ingredients to create a fillet

You might also hear these products described as “lab-grown meat”.

Our Chief Scientific Officer, Robin May, explains in this video:

How cell-cultivated products are made

The production process can be broken down into four steps:

1. A sample of stem cells is taken from a live animal. Stem cells are cells that can develop into other specialised types of cells found in the body, for example, blood, liver or muscle cells.
2. The stem cells are put in large tanks called bioreactors, containing nutrient-rich liquids or gels that support the growth and recreate a similar environment found in the animal’s body and provides them with the nutrients they need to multiply.
3. The culture media is changed so that stem cells can differentiate into the three main components of meat: muscle, fat, and connective tissue.
4. The last step in the process is harvesting the biomass, which is then used in products like burgers.

The FSA’s role in regulating these new products

The FSA is here to make sure any new food product is safe before it goes on sale. We make regulations that food businesses must follow before this product is allowed to be put on the shelf

and sold.

As cell-cultivated products are a new food, we need to assess them on your behalf to know they are safe. Then, you can make an informed choice about whether to buy and eat them.

This is where our expert scientists and policy makers come in. The FSA, alongside Food Standards Scotland (FSS) have been awarded £1.6 million by the Department for Science, Innovation and Technology to research how cell-cultivated products are made and make an informed assessment of their safety.

This research is part of a bigger programme sometimes referred to as a ‘regulatory sandbox’; a forum for companies and academics to discuss all the details of their production under the supervision of the FSA and FSS.

This is where we will learn everything we need to know about these foods. We will look at the risks and hazards and how to manage them and what tests companies need to do to ensure their safety. This will then help us create clear guidance for companies wishing to sell these new foods in the UK, including how these products should be labelled.

Eight companies developing cell-cultivated products, three academic organisations and two industry bodies have been selected to take part in the sandbox. They are:

Companies

- BlueNalu
- Gourmey
- Hoxton Farms
- Mosa Meat
- Roslin Technologies
- Uncommon Bio
- Vital Meat
- Vow

Academic organisations

- National Alternative Protein Innovation Centre (NAPIC)
- Cellular Agriculture Manufacturing Hub (CARMA)
- Bezos Centre for Sustainable Protein at Imperial

Industry bodies

- Alternative Proteins Association (APA)
- Good Food Institute (GFI)

The programme includes monthly workshops, each one covering a certain area of production. For example, demonstrating how these products are made, how they meet safety and hygiene regulations, and how companies can run taste trials. Read more about the details of these workshops.

Cell-cultivated products in the UK

Cell-cultivated products are not currently available to buy in the UK.

However, this is a fast-growing industry. Many companies are currently developing cell-cultivated products and some products have been approved in a small number of countries, including

Singapore and Australia. Other countries are also in the process of approving these products.

The FSA and FSS are in contact with the regulators in these countries to learn how they assess these products and share knowledge. We are also working across the departments of UK Government to ensure a holistic UK approach to regulation.

Why we are looking into these products

We know that cell-cultivated products are a growing food trend and a potential growth area for the economy. The FSA and FSS have received a small number of applications for cell-cultivated foods and we expect more in the coming years. We therefore need to be ready to assess these applications when we receive them.

It is our job to learn about these foods and whether they are safe, and to give consumers enough information to make an informed choice on whether they want to buy them.

What we will look at in addition to safety

Over the next two years, we will gather evidence about the information consumers will need to know about cell-cultivated products before they buy them. There are still lots of questions we need to be able to answer about how they might be labelled, their nutritional content, any potential allergens they may contain and how production facilities should be inspected.

Coming up

The programme is in early stages. We have run some workshops with companies who are part of the sandbox, and they are sharing valuable information on this technology. We will use information from this programme to develop guidance on how to produce these foods safely.

We have also recently launched support for businesses that want to make a cell-cultivated product. This service will work with companies to help them meet our high safety standards and ensure they get it right the first time around.

Within the next two years, we expect to see approximately 15 applications from businesses that make these products. We have committed to completing the safety assessment on two applications as part of the sandbox programme. During this process we will identify and assess the risks of these products, and how these risks can be mitigated before they are authorised for sale.