

## What Came First: the Chicken, the Egg, or the Cell

Neriah Licata

Lab-grown meat, also known as cultured meat or cultivated meat, could be coming to people's plates as early as this year.<sup>1</sup> So far only Singapore has approved cultivated meat for retail sale. However, in November 2022, the U.S. FDA approved a lab-grown chicken breast by UPSIDE Foods for human consumption. UPSIDE Foods still needs to be inspected by the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS). However, the FDA approval is a hopeful first step for the cultivated meat industry.<sup>2</sup>

The product is created by taking cells from living animals and growing them in a controlled environment to create edible food.<sup>3</sup> It is essentially a "slaughterless (slaughter) house."<sup>4</sup> The FSIS has broken down the complex process into four steps: (1) cells are selected from the tissues of an animal or fish that are screened and grown to make a bank of cells for later use, then (2) a small number of cells are taken from the cell bank and placed in a tightly controlled and monitored environment, (3) after the cells have multiplied many times over into billions of cells, additional factors are added in order to assume characteristics of muscle, fat, or connective tissues cells, and finally (4) once the cells have differentiated, they are harvested and prepared using conventional food processing methods.<sup>5</sup> Cultivating meat allows for the same biological process that happens inside an animal which leads to the building of muscles, and fat.<sup>6</sup>

The benefits of utilizing cultivated meat are numerous. The biopsy used to cultivate these cells mostly does not harm the animal.<sup>7</sup> Therefore, these products will be a great alternative for those who choose not to eat meat due to ethical reasons. Additionally, cultivated meat will help address the growing demand for meat products, some estimations stating that by 2050 meat consumption will increase by another 73%.<sup>8</sup> Expanding conventional animal agriculture has many negative repercussions and it does not seem that people will stop over-consuming meat products anytime soon. Further, lab-grown meat will dramatically reduce the amount of greenhouse gas emissions that are generated by the current structure of animal agriculture.<sup>9</sup>

---

<sup>1</sup> Leah Douglas, *Lab-Grown Meat Moves Closer to American Dinner Plates*, REUTERS (January 23, 2023), <https://www.reuters.com/business/retail-consumer/lab-grown-meat-moves-closer-american-dinner-plates-2023-01-23/>.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> Food Safety and Inspection Service, *Human Food Made with Cultured Animal Cells*, FOOD SAFETY AND INSPECTION SERVICE (2022), <https://www.fsis.usda.gov/inspection/compliance-guidance/labeling/labeling-policies/human-food-made-cultured-animal-cells> (last visited Apr 3, 2023).

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

<sup>8</sup> Ali Francis, *Will I See Lab-Grown Meat in Supermarkets Any Time Soon?*, BON APPÉTIT (2023), <https://www.bonappetit.com/story/lab-grown-meat>.

<sup>9</sup> *Id.*

The FDA and FSIS have established a joint regulatory framework for the oversight of cultivated meat.<sup>10</sup> The FDA will oversee the collection, growth, and the differentiation of living cells while FSIS will oversee the product's further processing, labeling, and packaging of the products. UPSIDE Foods worked with the FDA for four years before their lab-grown meat was approved.<sup>11</sup> Lab-grown meat must undergo a rigorous pre-market safety review, with UPSIDE Foods currently being the only lab-grown product approved in the U.S.

As many benefits as there are, there are just as many concerns. Since this process is still so new, there are concerns about the safety of the consumption of lab-grown meat. The product could potentially be superior to conventional meat but since there is no fully functioning immune system on lab-grown meat it is hard to determine.<sup>12</sup> Lack of a fully functioning immune system means it might have a higher risk of contamination.<sup>13</sup> However, this could also be beneficial due to not needing antibiotics and antifungal agents during the production process and therefore not contributing to antibiotic resistance.<sup>14</sup>

Cultivated meat has skeptics and believers alike, eagerly anticipating what the next move will be. The FDA approval of UPSIDE Foods product was a large stride for the industry, but they must next sway the USDA and their naysayers. In addition, more studies and reports need to be created in laypeople's terms to help educate the public. Right now, people may be dissuaded from eating lab-grown food because they're unaware of the regulatory and scientific process behind it. Hopefully, as the process is perfected and more and more people are educated on the matter, lab-grown meat will become a positive addition to the food industry.

---

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> Sarah Garone, *FDA Says Lab-Grown Meat is Safe to Eat – But What Is It, Exactly?*, HEALTH (2022), <https://www.health.com/lab-grown-meat-fda-6835173#:~:text=The%20US%20Food%20and%20Drug,grown%20meat%20for%20human%20consumption.>

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*