# Scientists create immortal pig fat cells to revolutionise cultivated pork and boost space food sustainability



Scientists at the University of Edinburgh’s Roslin Institute have unveiled a groundbreaking advancement in cultivated meat production with the creation of a unique pig fat cell line, dubbed FaTTy. This innovative cell line exhibits an unprecedented ability to reproduce indefinitely without genetic modification, which may pave the way for cost-effective, scalable manufacturing of cultivated pork that could even support human consumption in space.

The promise of cultivated meat has attracted significant attention in recent years, particularly as societal shifts towards sustainable and ethically produced food continue to gain momentum. The FaTTy cell line, capable of consistently and efficiently producing fat tissue, has been positioned as a potential game-changing element in this industry. According to the researchers’ publication in the NPJ Science of Food journal, these cells have remarkably maintained a high adipogenic efficiency—nearly 100%—over an extensive culture period, enabling the production of fat that closely resembles natural pig fat, but with healthier fat profiles.

Eitan Fischer, CEO of cultivated pork startup Mission Barns, emphasises the critical role of fat in culinary experience. In his view, “Consumers won’t eat food that isn’t absolutely delicious… fat is the main driver of flavour and juiciness.” The significant bottleneck in cultivated meat production thus lies in the efficient scaling of cultivated fat; a challenge that FaTTy appears poised to address.

The implications extend beyond terrestrial kitchens to outer space—a burgeoning area of research. Prof. F Xavier Donadeu, principal investigator at the Roslin Institute, noted that cultivated meat might not only revolutionise food production on Earth but could also enable astronauts to enjoy traditional meals like bacon during long space missions. This aligns with the growing interest in sustainable food sourcing for space travel, as evidenced by recent partnerships involving universities and space agencies focusing on producing bio-derived products in microgravity.

In the context of technological advancements, Roslin Technologies has collaborated with the University of Edinburgh and secured support from the Industrial Biotechnology Innovation Centre (IBioIC) to enhance the scalability of pig cell lines for cultivated meat. This collaboration has successfully reduced batch-to-batch variations and slashed the costs of cell culture media by an impressive 61%. Such developments are vital in mitigating key challenges in the UK cultivated meat sector and moving closer to viable, large-scale meat alternatives that do not necessitate traditional animal farming.

In a climate increasingly defined by environmental and ethical considerations, the growing availability of cultivated meat could represent a significant shift in how society approaches food production. Susan Bodie, head of business development for the College of Medicine and Veterinary Medicine at Edinburgh Innovation, shared that there is considerable industry interest in the FaTTy technology. This suggests a promising future where lab-grown meat could not only be delicious but also environmentally sustainable, combining scientific ingenuity with culinary tradition to reshape our diets.

The Roslin Institute's innovations hold the potential to redefine the landscape of cultivated meat, providing both a delectable alternative and a step towards a more sustainable food future—possibly even in the final frontier of space.

**Reference Map:**1. Paragraph 1: Sources [[1]](https://www.greenqueen.com.hk/lab-grown-pig-fat-cells-cultivated-meat-pork-space/), [[2]](https://edinburgh-innovations.ed.ac.uk/technology/fatty)2. Paragraph 2: Sources [[1]](https://www.greenqueen.com.hk/lab-grown-pig-fat-cells-cultivated-meat-pork-space/), [[3]](https://www.roslintech.com/news/bringing-home-the-bacon/)3. Paragraph 3: Sources [[1]](https://www.greenqueen.com.hk/lab-grown-pig-fat-cells-cultivated-meat-pork-space/), [[6]](https://www.foodanddrinktechnology.com/news/44639/researchers-make-meaty-breakthrough-to-support-cultivated-pork-production/)4. Paragraph 4: Sources [[1]](https://www.greenqueen.com.hk/lab-grown-pig-fat-cells-cultivated-meat-pork-space/), [[4]](https://www.heraldscotland.com/business_hq/23047107.scottish-researchers-advance-tech-growing-meat-laboratory/)5. Paragraph 5: Sources [[3]](https://www.roslintech.com/news/bringing-home-the-bacon/), [[5]](https://www.ibioic.com/news-database/from-petri-dish-to-dinner-plate-the-challenges-of-scaling-up-cultivated-meat-production)6. Paragraph 6: Sources [[4]](https://www.heraldscotland.com/business_hq/23047107.scottish-researchers-advance-tech-growing-meat-laboratory/), [[7]](https://www.scotsman.com/news/environment/sustainable-scotland-scots-biotech-firm-is-bringing-home-the-bacon-with-lab-grown-meat-breakthroughs-3877420)7. Paragraph 7: Sources [[1]](https://www.greenqueen.com.hk/lab-grown-pig-fat-cells-cultivated-meat-pork-space/), [[3]](https://www.roslintech.com/news/bringing-home-the-bacon/)

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

* <https://www.greenqueen.com.hk/lab-grown-pig-fat-cells-cultivated-meat-pork-space/> - Please view link - unable to able to access data
* <https://edinburgh-innovations.ed.ac.uk/technology/fatty> - The University of Edinburgh's Roslin Institute has developed FaTTy, an immortalized, non-genetically engineered pig cell line capable of consistently differentiating into fat cells with high efficiency. This advancement offers significant potential for large-scale fat production in cellular agriculture, providing a non-GMO solution that could streamline the manufacturing of cultivated meat products. The FaTTy cell line maintains its adipogenic efficiency over extended culture periods, making it a valuable resource for the food manufacturing industry. The technology is available for licensing or co-development opportunities.
* <https://www.roslintech.com/news/bringing-home-the-bacon/> - Roslin Technologies, in collaboration with the University of Edinburgh and supported by the Industrial Biotechnology Innovation Centre (IBioIC), has achieved a breakthrough in the cost-effective scale-up of pig cell lines for cultivated meat production. Their innovative approach reduces batch-to-batch variations and cuts the cost of cell culture media by 61%. This advancement addresses key challenges in the UK cultivated meat industry, moving closer to large-scale, sustainable meat production without the need for animal slaughter.
* <https://www.heraldscotland.com/business_hq/23047107.scottish-researchers-advance-tech-growing-meat-laboratory/> - Scottish researchers have advanced laboratory-grown meat technology, with proof of concept completed in Scotland. The new approach to generating pig cell lines for cultivated meat has been developed by Roslin Technologies and the University of Edinburgh, supported by the Industrial Biotechnology Innovation Centre (IBioIC). This development addresses a critical bottleneck in the commercial production of lab-grown meat, focusing on cost-effective and scalable cell growth methods.
* <https://www.ibioic.com/news-database/from-petri-dish-to-dinner-plate-the-challenges-of-scaling-up-cultivated-meat-production> - Edinburgh-based Roslin Technologies, a spin-out from the University of Edinburgh, is making progress in the field of cultivated meat. With support from the Industrial Biotechnology Innovation Centre (IBioIC), Roslin Technologies has developed a new approach to cell generation that minimizes variations between different batches of cells. This method has also reduced the cost of cell culture media by 61%, addressing key challenges in scaling up cultivated meat production.
* <https://www.foodanddrinktechnology.com/news/44639/researchers-make-meaty-breakthrough-to-support-cultivated-pork-production/> - Researchers in Scotland have made a significant advancement in demonstrating the cost-effective scale-up of pig cell lines for lab-grown meat production. Roslin Technologies and the University of Edinburgh, with support from the Industrial Biotechnology Innovation Centre (IBioIC), have developed a new approach to cell generation that eliminates variations between different batches of cells. This method has also reduced the cost of cell culture media by 61% and could be scaled for use in industry-sized bioreactors.
* <https://www.scotsman.com/news/environment/sustainable-scotland-scots-biotech-firm-is-bringing-home-the-bacon-with-lab-grown-meat-breakthroughs-3877420> - Roslin Technologies, a spin-out from the University of Edinburgh, is a leader in the field of cultivated meat. The company has developed unique technology that uses small samples of animal tissue to create induced pluripotent stem cells, which can self-renew and be used to grow different types of tissue, such as muscle and fat. This technology is the only commercial provider of these cells and supplies its pig cells and specially concocted growing medium to producers of cultivated meat across the world.