‘Regenerative medicine’ could help produce synthetic meat that mimics the texture and mouthfeel of steak

Tissue engineering of cultured meat is under development at several centers worldwide. However, most biosynthetic meat products are amorphous or granular-like minced meat, lacking the grain and texture of real animal flesh. Mai Furuhashi, lead author, explains their novel process. The work was published in the journal Nature.

“Using techniques developed for regenerative medicine, we succeeded in culturing millimeter-sized chunks of meat wherein alignment of the myotubes help mimic the texture and mouthfeel of steak,” Furuhashi said.

“For this, myoblasts drawn from commercial beef were cultured in hydrogel modules that could be stacked allowing fusion into larger chunks. We determined the optimal scaffolding and electrical stimulation to promote contractility and anatomical alignment of the muscle tissue to best simulate steak meat.”

“Our method paves the way for further development of larger portions of realistic cultured meat that can supplement or replace animal sources,” claims Shoji Takeuchi, senior and corresponding author.

“However, there is a long way to go before lab-grown meat is indistinguishable from the real thing and hurdles concerning consumer acceptance and cultural sensibilities are overcome. Nevertheless, this innovation promises to be a green and ethical alternative to animal slaughter in meeting our need for dietary meat.”

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