‘Massive step forward’: Lab-grown mini-brain twitches a muscle

Floating inside a petri dish in a lab at Cambridge University, a single disjointed muscle twitched.

Normally that’s not news. But in this case, the surgically-dissected muscle is controlled by a slice of isolated brain tissue grown entirely inside the lab.

As creepy as that sounds, the system doesn’t represent consciousness in a jar. Rather, it’s a massive step forward for a technology called brain organoids—cultured brain tissue that remarkably resembles the real thing in a developing human fetus.

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Their system, dubbed ALI-CO, consists of long-lived slices of cultured, lab-grown brain tissue floating on the surface of a warm, bubbling nutrient bath that helps the slices mature into human mini-brains.

When cultured together with the spinal cord and its supporting muscles isolated from embryonic mice, the mini-brain slices automatically reached out and formed connections called synapses. These human-mice chimeric synapses weren’t just for anatomic show: when stimulated, the highway-like “tracts” of neural connections repeatedly sparked electrical bursts that made the muscles zombie-dance.

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Eventually, they may enlighten how neural circuit wiring and information processing gradually emerge in our developing brains, how the process sometimes goes wrong, and how to fix it—long before we’re born.

Read full, original post: A Lab-Grown Brain Twitched an Isolated Muscle. Here’s Why That’s Amazing