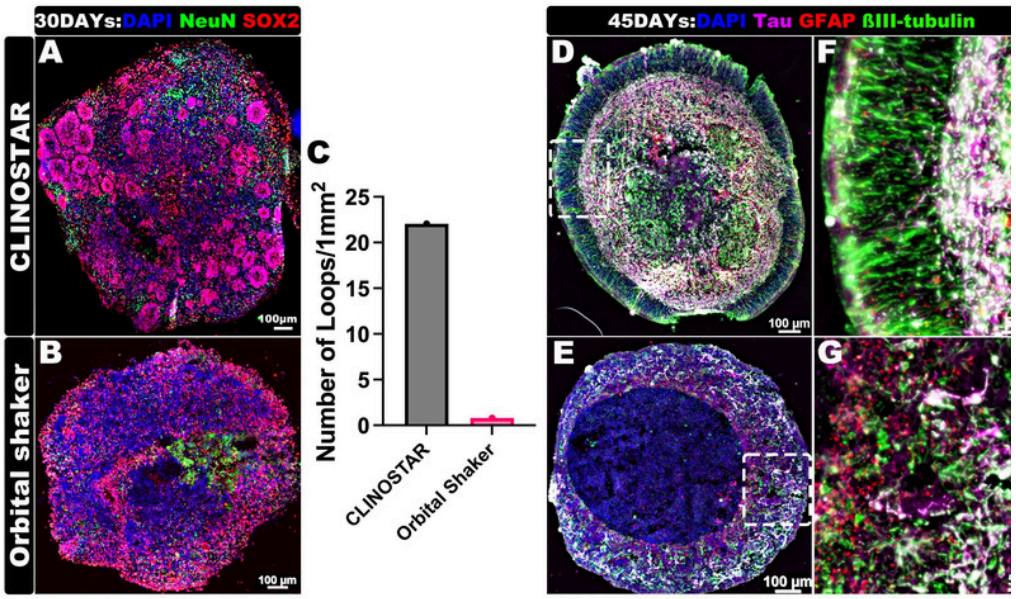
BREAKING BOUNDARIES

Clinostar's Mastery in Neural Organoid Growth Sets New Research Milestones!



CLINOSTAR VS. ORBITAL SHAKERS



No signs of central necrosis:
A lack of oxygen and nutrients diffusing into the center of organoids acts as a barrier to maturation in long-term culture. This eventually causes a necrotic core to form within the organoids, which further limits size increases. The low shear stress conditions, supplemented by active diffusion of nutrients and oxygen, in the ClinoStar, generate healthy organoids in the absence of a central necrotic core. Long-term growth and maintenance of organoids that successfully mimic the physiological state and functionality of the postnatal and adult brain is now possible, thanks to the ClinoStar

Dr. Qiang's team at Drexel University (Philadelphia) have used the ClinoStar to develop dorsally patterned forebrain organoids from human iPSCs. The morphology of these organoids was compared to cultures grown via standard orbital shaker methods. After 30 days of culture in the ClinoStar (image A), dorsal forebrain organoids contain distinct loops, or rosettes, of neuroepithelial cells (as shown by SOX2 staining), separate from the post-mitotic neuron population (NeuN staining). In addition, after 45 days of culture, organoids in the ClinoStar show visible lack of a necrotic core formation, with healthy population of neuronal and non-neuronal support cells present throughout the organoid, from the core to the outer layers (image D). Symmetry akin to cortical plate formation via migratory early neurons (TUBB3 staining) can also be detected in the ClinoStar, unlike the organoids obtained from orbital shaker (images F and G).

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