



How do Spinpods Compare to Other Options?

Why use rotating suspension technology?

It supports 3D architectures with laminar fluid shear stress.

Hanging drops, low-adherence plates, neutral buoyancy media, and magnetic levitation can support 3D suspension cultures. They require that cells be transferred to other set-ups for refeeding, addition of reagents, or analytical assays. Even more importantly, none of these approaches have a facile scalable method to expose cells to physiologic levels of shear stress, which is a critical stimulus for maintaining the differentiation of many cell types. Fluid shear stress can be introduced by swirling or stirring in bioreactors, but the shear delivered is not uniform and stirrers can damage the cells or 3D cellular architecture. Parallel plate or microfluidic set-ups can generate physiologic fluid shear stress, but limit the size of the 3D cellular targets, and the equipment required is relatively complex and expensive, which limits the number(s) of replicates that can be studied simultaneously.

Technology	3D cultures	Laminar shear stress	Economical	Ease of Use	Avoids cell damage
Hanging drop	Yes	No	No	No	Yes
Low adherence plastic	Yes	No	Yes	Yes	Yes
Neutral buoyancy	Yes	No	Yes	Yes	Yes
Magnetic levitation	Yes	No	No	No	Yes
Stirred bioreactors	Yes	No	No	Yes	No
Swirled bioreactors	Yes	No	Yes	Yes	Variable
Parallel plate; Microfluidics	No	Yes	No	No	Yes
Rotating suspension (e.g., Spinpods)	Yes	Yes	Yes	Yes	Yes

Why use Spinpods?

Most of the commercial options for rotation suspension culture are relatively expensive and require specialized rotors. The larger vessels are suitable for production needs, but not for exploration research or production optimization, where there is a need for multiple replicate cultures using small volumes that economize on reagents and cells.

- **Economical, require small volumes (3.5 mL) saving on expensive cells and reagents, and do not need specialized equipment for rotation.**
- **The only 3D suspension technology with self-sealing ports for easy loading, refeeding, and addition of reagents to cells already growing in suspension.**
- **The only 3D suspension culture with optically clear membranes for *in situ* microscopy.**