# Ready-to-use hiPSC-Derived Dorsal Forebrain Organoids (Mature)

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## Cat. No. CIPO-BWL02

### Product Description

Human iPSC-Derived Dorsal Forebrain Organoids (Cat. No. CIPO-BWL02) are three-dimensional in vitro models that recapitulate key developmental and cellular features of the human dorsal forebrain. These organoids are generated from the human iPSC line ATCC-HYR0103 under ultra-low attachment (ULA) culture conditions using a self-assembly differentiation workflow. Human iPSC-Derived Dorsal Forebrain Organoids exhibit characteristic mature dorsal forebrain and cortical features, including MAP2-positive neurons, GFAP-positive astrocytes, OLIG2-positive oligodendroglial lineage cells, and spontaneous electrical activity. The organoids are shipped at ambient temperature in a ready-to-use format and can be maintained using the Human iPSC-Derived Dorsal Forebrain Maintenance Kit (Cat. No. RIPO-BWM01). This model is suitable for a range of applications, including studies of human brain development, neurological disease modeling, neurotoxicity assessment, neuronal excitability and network activity studies, and other neuroscience research.

### Product Specification

| | |
|---|---|
| **Product Name** | Ready-to-use hiPSC-Derived Dorsal Forebrain Organoids (Mature) |
| **Cat. No.** | CIPO-BWL02 |
| **Source Cell Line** | ATCC-HYR0103 human iPSC line |
| **Product size** | 5 / 20 / 100 organoids |
| **Packaging format** | Individually packaged; 1 dorsal forebrain organoid per 2 mL cryovial |
| **Shipping condition** | Shipped under temperature-controlled conditions with blue ice, 4-25°C |
| **Applications** | Neurotoxicity assessment, neuronal excitability and network activity, drug discovery |
| **Passaging** | Not suitable for passaging |
| **Intended Use** | For research use only. Not intended for human or animal diagnostic or therapeutic use. |
| **Shipping window** | DIV 90+. In-transit period is excluded from the DIV count. |
| **COA** | Available at https://www.acrobiosystems.cn/resources/download-certificate-of-analysis |

Materials (Not include in our kit)

| Product Name | Cat. No. | Manufacturer |
|---|---|---|
| 6-well ULA plate | CP-21 | ACROBiosystems |
| 24-well ULA plate | WP24-5CCUSH | ALPHA PLUS |
| 48-well ULA plate | WP48-5CCUSH | ALPHA PLUS |
| 96-well ULA plate | CP-22 | ACROBiosystems |
| 3mL disposable Pasteur pipette, extended type, sterilized | PP102030 | Jet Biofil |
| hiPSC-Derived Dorsal Forebrain Organoid Maintenance Kit | RIPO-BWM01 | ACROBiosystems |

Equipment

| Equipment | Specification / Notes |
|---|---|
| $CO_2$ Incubator | 37°C, 5% $CO_2$ |
| Orbital Shaker | 20 mm shaking diameter |
| Water Bath | 37°C |
| Biosafety Cabinet | Aseptic handling |

## Experimental Procedure

### 1. Preparation

1.1 Use sterile technique to prepare complete hiPSC-Derived Dorsal Forebrain Organoid Maintenance Medium following the product datasheet (Cat. No. RIPO-BWM01).

### 2. Package Inspection

2.1 Upon receipt, recover Ready-to-use Human iPSC-Derived Dorsal Forebrain Organoids as soon as possible. Before opening, inspect the outer package, cryovial, transport medium, and organoid integrity.

2.2 Proceed only if the cryovial is intact, the medium is clear with no signs of freezing or precipitation, and the organoid remains visible, spherical, and intact (Figure 1). If damage, leakage, turbidity, freezing, precipitation, or organoid disintegration is observed, do not open the cryovial. Document the issue with photos and contact sales support immediately.



*Figure 1. Example of Dorsal Forebrain Organoid Packaging. * The dorsal forebrain organoid is expected to appear intact upon receipt.*

### 3. Organoid Recovery

3.1 Pre-warm only the required volume of complete Dorsal Forebrain Organoid Maintenance Medium at 37°C for 15 min before use. Calculate the volume based on the number of wells to be used. Avoid repeated warming of the medium bottle, as frequent temperature changes may affect medium stability. Keep the remaining complete medium at 4°C. For example, when preparing medium for one well of a 6-well plate, transfer 5 mL of medium into a sterile 15 mL centrifuge tube and pre-warm the aliquot at 37°C for 15 min before medium change.

| Culture Format | Maintenance Medium Volume | Organoids per Well | Medium Change Frequency | Orbital Shaker |
|---|---|---|---|---|
| 6-well ULA plate | 5 mL | 16 | **Option 1:** Three medium changes per week: perform two half-medium changes on Day 1 and Day 3, followed by one full-medium change on Day 5. **Option 2:** Perform a full-medium change every 3 days. | Yes, 100 rpm |
| 24-well ULA plate | 1 mL | 1 | | Optional, static or 60 rpm orbital shaker |
| 48-well ULA plate | 500 µL | 1 | | Optional, static or 60 rpm orbital shaker |
| 96-well ULA plate | 200 µL | 1 | Daily | No, static culture |

*Table 1. Recommended Medium Volumes and Culture Conditions for Dorsal Forebrain Organoids*

3.2 Open the 2 mL cryovial and gently transfer the organoids into the wells of an ULA plate using a Pasteur pipette.

3.3 Remove the residual transport medium from each well containing the organoids. Add pre-warmed maintenance medium to each well, ensuring that the organoids are fully submerged and not exposed to air. ***Note:*** *Medium change should be performed gently by adding pre-warmed maintenance medium slowly along the well wall to minimize shear stress and avoid mechanical damage.*

3.4 Culture the organoids at 37°C with 5% $CO_2$ under shaking conditions for 3 days to allow recovery. Perform full-medium changes every 2 days without touching or damaging the organoids. A 6-well ULA plate (100 rpm) is recommended for the recovery phase.

**4. Organoid Maintenance**

4.1 After the 3-day recovery phase, the organoids are ready for downstream assays. Before proceeding, confirm the organoid morphology and medium condition. Organoids should maintain a near-spherical morphology with clear, smooth edges and no obvious surrounding cell debris.

4.2 For continued culture, maintain the organoids at 37°C with 5% $CO_2$ under either static or orbital shaking conditions, following the culture conditions and medium-change schedule described in Table 1. Monitor organoid morphology and culture status regularly.

4.3. Protocols for $Ca^{2+}$ imaging, immunostaining, qPCR and MEA recording are available online.



*Figure 2. Orbital shaker culture of dorsal forebrain organoids at 37°C with 5% $CO_2$.*

## Related Product

| Product | Cat. No. |
|---|---|
| hiPSC-Derived Dorsal Forebrain Organoid Maintenance Kit | RIPO-BWM01 |
| 6-well ULA plate | CP-21 |
| 96-well ULA plate | CP-22 |