

Cancer research

5 steps: Tumoroid models

Explore another dimension of cancer research

Tumoroids are patient-derived cancer cells grown in 3D that self-organize into multicellular structures. Compared to traditional 2D cancer cell lines, tumoroids have been shown to better reflect patient response to therapeutics. The tumoroid model workflow involves sourcing tumoroid lines, expanding and banking the tumoroids, characterizing your tumoroid cultures, engineering the models as desired, and then leveraging the models for your downstream application of interest. Take a look at the five key steps, highlighting how to build tumoroid models in order to unlock their full potential.

1. Source	2. Culture	3. Characterize	4. Engineer	5. Assay
Derive tumoroid lines from patient tumor resections or patient-derived xenograft (PDX) tissues. Alternatively, tumoroid lines can be purchased.	Propagate tumoroids in suspension or embedded culture methods with the Gibco™ OncoPro™ Tumoroid Culture Medium Kit. Expand tumoroid cultures and cryopreserve banks.	Monitor tumoroid morphology and size, examine growth rates, and assess cell viability. Observe assay profiles for mutation, gene expression, and protein expression.	If desired, engineer your model of interest via lentiviral transduction or electroporation. Check the delivery efficiency and recharacterize your model to confirm successful pool generation.	Leverage tumoroid models for your unique research aim. For example, evaluate the response of wild-type and engineered tumoroids to immune cell or drug therapies.
Key reagents and tools: - Gibco™ Hibernate™ media - Gibco™ Collagenase Type I-IV - Gibco™ Hanks' Balanced Salt Solution - Gibco™ TrypLE™ Express Enzyme	Key reagents and tools: - OncoPro Tumoroid Culture Medium Kit - Thermo Scientific™ Nunc™ Non-treated Flasks - Gibco™ StemPro™ Accutase™ Cell Dissociation Reagent - Gibco™ Recovery™ Cell Culture Freezing Medium	Key reagents and tools: - Invitrogen™ EVOS™ M7000 Imaging System - Ion Torrent™ Oncomine™ Comprehensive Assay v3 - Ion AmpliSeq™ Transcriptome Human Gene Expression Panel - Invitrogen™ Attune™ flow cytometers	Key reagents and tools: - Invitrogen™ Neon™ transfection systems - Invitrogen™ iBlot™ Western Blot Transfer & Invitrogen™ iBright™ Imaging Systems - Attune flow cytometers - Gibco™ CTS™ LV-MAX™ Lentiviral Production System	Key reagents and tools: - Invitrogen™ PrestoBlue™ HS Cell Viability Reagent - Thermo Scientific™ Varioskan™ LUX Multimode Microplate Reader - Invitrogen™ CellEvent™ Caspase-3/7 reagents - Thermo Scientific™ CellInsight™ CX7 High-Content Analysis Platform

At your service

The Thermo Fisher Scientific team can help support your research with a variety of service offerings that leverage tumoroid models and OncoPro medium. Let our team be a part of your team. Some of our available service offerings include:

- Tumoroid line engineering
- Genomic analysis
- Custom assay development
- Tumoroid line characterization
- Screening services

Learn more at thermofisher.com/tumoroid

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