CAPTIVATE BIO

Maximizing Cell Survival

with Captivate Bio CET Cocktail Kits

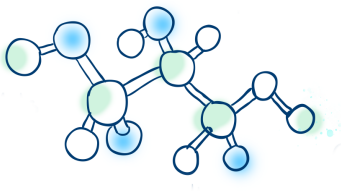
Small molecule kits designed for various levels of cell culture performance.

Human pluripotent stem cells (hPSCs) have extensive self-renewal capacity in culture, yet are highly sensitive to their in vitro environment, posing a challenge to their long-term culture and downstream differentiation. A targeted high-throughput analysis has found that the combination of three small molecules: Chroman 1, Emricasan, and Trans-ISRIB (CET), used together with or without a polyamine solution, can improve the viability and expansion of cells in culture, as well as improve the functionality of derived cell types[1].

Whether you're validating a new workflow, supporting cell recovery strategies, or managing high-volume cell production, Captivate Bio's CET Cocktail Kits give researchers a smarter way to improve cell survival, recovery, and consistency. Built around the proven CEPT protocol, Captivate Bio's CET Cocktail Kits are sized to match how you work—by media volume, throughput, and growth stage, all while giving you flexibility along the way.

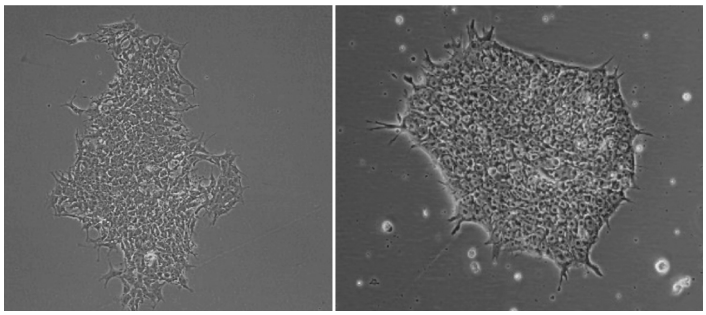
Kits include:

- **CET Spark™** for validation and pilot studies
- **CET Ignite™** for routine research and daily culture
- **CET Titan™** for Core Labs and high-volume work



Features:

- **Maximum cell survival:** Kits provide comprehensive cytoprotection to overcome cellular stressors inherent in stem cell workflows.
- **Translation ready:** Individual small molecules can be customized and made available in GMP-grade or different pack sizes.
- **Scalable:** Kits enable high-volume cell recovery with minimal sourcing challenges.



ROCK Inhibitor Comparison: Representative images of an iPSC line 24 hours post-passage. Colonies were passaged with and without the CET cocktail kit supplemented in the culture medium for the first 24 hours of each of 7 consecutive passages. Left: iPSC colony passaged with CET Cocktail, showing excellent cell attachment and very minimal cellular debris 24 hours after passaging. Right: iPSC colony passaged with Y27632, showing cellular debris in culture 24 hours post-passage. Images, when compared, show that the CET molecules promote cell attachment and survival.

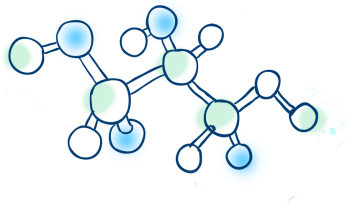
CAPTIVATE BIO™

Reliable solution for improved stem cell workflows

The CET Cocktail Kits directly and efficiently enhance pluripotent stem cell survival and promote clonal growth and expansion of genetically stable hPSCs[1]. A study by the NIH shows that the CEPT combination allows for safe, controlled, and efficient strategies for the generation, expansion, differentiation, and banking of stem cell-based therapeutic products. These small molecule cocktail are also key for optimized embryoid body (EB) and organoid formation, as well as superior cryopreservation of cell lines, by protecting cells from multiple cellular stress mechanisms in a synergistic fashion[1].

Advantages of using the CET Cocktail:

- More effective than standard inhibitors
- Improved survival of dissociated cells in culture
- Higher yield of viable hPSC clones
- Validated to be safe for long-term hPSC culture



Applications

- **Routine passaging of hPSCs in culture**
- **Single-cell cloning and gene editing**
- **iPSC reprogramming methods**
- **Embryoid body and organoid formation**
- **Cryopreservation and cell banking**

From validation to core facility demand, choose the variation built for your scale:

Product	Components	Cat. No.	Applications	Size
CET SPARK™	Chroman 1, 1 mg Emricasan, 5 mg Trans-ISRIB, 5 mg Polyamine Solution, 5 mL	CET02B	For early discovery and pilot workflows. Validation studies.	1 Kit with components to support 1L or more of media supplementation.
CET IGNITE™	Chroman 1, 5 mg Emricasan, 10 mg Trans-ISRIB, 10 mg Polyamine Solution, 5 mL	CET01B	For routine research and daily culture.	1 Kit with components to support 5L or more of media supplementation.
CET TITAN™	Chroman 1, 5 mg Emricasan, 50 mg Trans-ISRIB, 25 mg Polyamine Solution, 10 mL	CET03B	For core labs and high-volume workflows.	1 Kit with components to support 20L or more of media supplementation.

Enhanced hPSC survival and viability

The combination of the CET Cocktail small molecules promotes clonal growth and expansion of genetically stable hPSCs. Supplementation provides chemical protection and overcomes inherent survival issues with single-cell dissociation, offering a new approach for safe and efficient hPSC culture. Data below shows a recent study by the NIH (2021) where researchers studied hPSCs and different concentrations of ROCK inhibitors and various combinations of CET molecules.

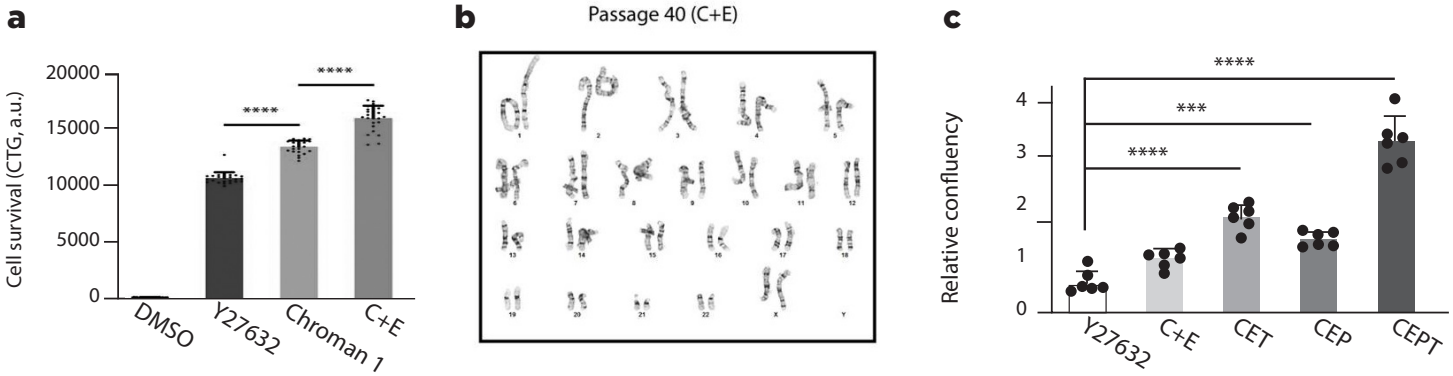


Figure 1. Small molecules enhance cell survival. When the C+E small molecule combination of Chroman 1 (50 nM) and Emricasan (5 µM) was applied to hPSCs for the first 24 hours after single-cell dissociation, a significant increase in the number of viable cells was observed 24 hours post-seeding, as compared to treatment with Y27632 or Chroman 1 alone (a). Cells remained karyotypically normal when dissociated as single cells for 40 passages and treated with Chroman 1 and Emricasan during the first 24 hours of every passage (b).

Figure 2. Cell survival. hPSCs were seeded as single cells at an ultra-low density of just 25 cells/cm² and incubated with Y27632 and various combinations of the CEPT small molecule and polyamine components, demonstrating combinatorial improvements to cell survival (c).

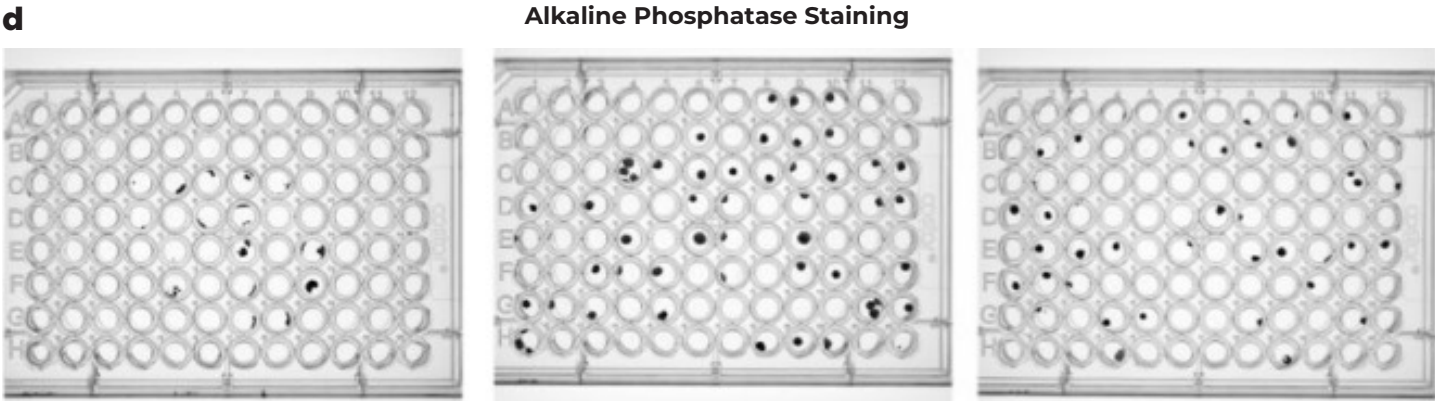


Figure 3. Improved clonal growth and expansion of hPSCs. An alkaline phosphatase staining assay of hPSCs cultured with Y27632, the complete CEPT combination, and commercially available CloneR™ supplement, clearly showed more alkaline phosphatase-positive clones in cultures exposed to CEPT (d).

References

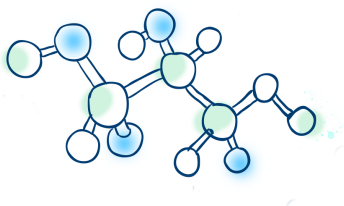
1. Chen, Y., et al. (2021) A Versatile Polypharmacology Platform Promotes Cytoprotection and Viability of Human Pluripotent and Differentiated Cells. Nature Methods.
2. Tristan, C., et al. (2021) Robotic high-throughput biomanufacturing and functional differentiation of human pluripotent stem cells. Stem Cell Reports.
3. Vertel, L. (2023) Building novel cell models through genetic engineering. Interview Case Study.
4. Bertaccini GA, et al. (2025) Visualizing PIEZO1 Localization and Activity in hiPSC-Derived Single Cells and Organoids with HaloTag Technology. Nature Methods.

Ordering information

PRODUCT	COMPONENTS	SIZE	APPLICATION	CAT. NO.
CET SPARK™	Chroman 1, 1 mg Emricasan, 5 mg Trans-ISRIB, 5 mg Polyamine, 5 mL	1 Kit	For 1L of media, validation, pilot studies, or testing.	CET02B
CET IGNITE™	Chroman 1, 5 mg Emricasan, 10 mg Trans-ISRIB, 10 mg Polyamine, 5 mL	1 Kit	For 5L of media, routine research and daily cultures.	CET01B
CET TITAN™	Chroman 1, 5 mg Emricasan, 50 mg Trans-ISRIB, 20 mg Polyamine, 2 x 5 mL	1 Kit	For 20L of media, core labs and high-volume cultures.	CET03B

RELATED PRODUCTS	SIZE	APPLICATION	CAT. NO.
Y27632 (2HCl)	10 mg	ROCK inhibitor, cell recovery	SML13B
ACY Cocktail Kit	1 Kit	MSC cultures, organoids	ACY001
Neuro Cocktail Kit	1 Kit	Neuronal differentiation	NSC001
CRYOVATE™ SF Freezing Medium	50 mL	Cryopreservation	CRY014
RESiVATE™ MSC Medium	500 mL	MSC growth & expansion	CBMS01
RESiVATE™ HEP Medium	500 mL	Hepatocytes, cell growth	CBHP01

For bulk requests, custom small molecule sourcing, or a complete list of small molecules currently available from Captivate Bio, please visit our website at www.captivatebio.com, email orders@captivatebio.com, or contact our customer service team at (617) 607-4017. Other sizes and individual components of each kit are also availble.



Together, we make breakthroughs happen.

CAPTIVATE BIO 465 Waverley Oaks Road, STE 105, Waltham, MA, 02452 USA
(617) 607-4017 | orders@captivatebio.com | www.captivatebio.com