

CONTROLLED-RELEASE FGF2 ENHANCES STEM CELL CULTURE

Why Use Controlled-Release Technology?

Do you know how the components of your induced pluripotent stem cell (iPSC) culture media change over time? Or why iPSCs need frequent media replenishment? The reason is because most growth factors have a short half-life in culture medium. The half-life of FGF2 in culture medium is just 4 hours! StemCultures provides revolutionary controlled-release growth factor media additives that provide stable, defined levels for iPSC culture. Our technology improves cell cultures by addressing the short half-life of FGF2 which creates fluctuations in growth factor levels over time (**Figure 1A**).

BENEFITS

- Stable growth factor levels (**Figure 1B**).
- Known growth factor levels (**Figure 1B**).
- Less media and labor cost (**Figure 2**).
- Enhanced pluripotency markers (**Figure 5**).
- Reduced unwanted spontaneous differentiation (**Figure 4**).
- Improved downstream differentiation efficiency (**Figure 3**).
- Improved iPSC derived organoids (**Figure 6**).

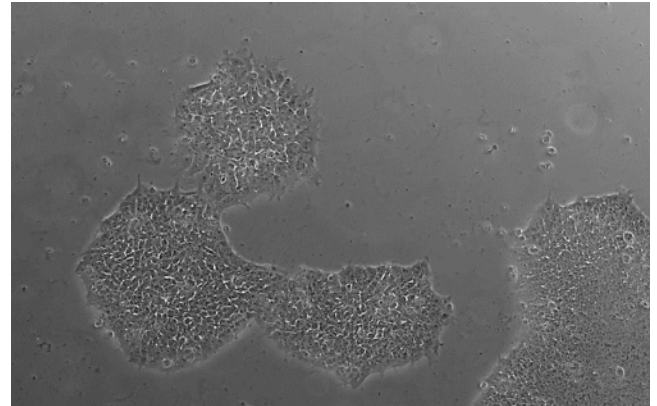
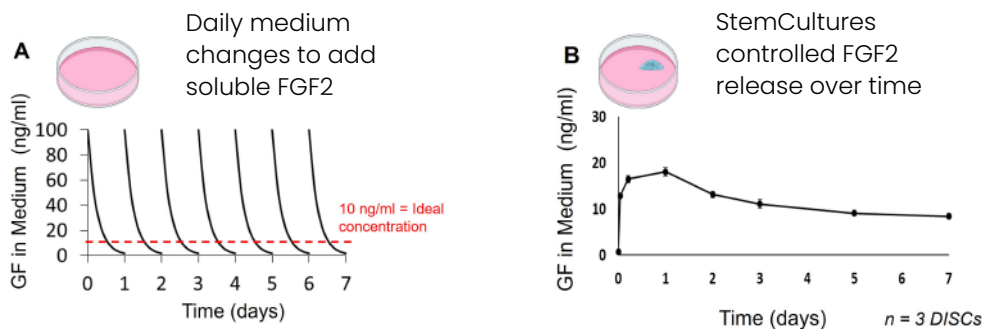
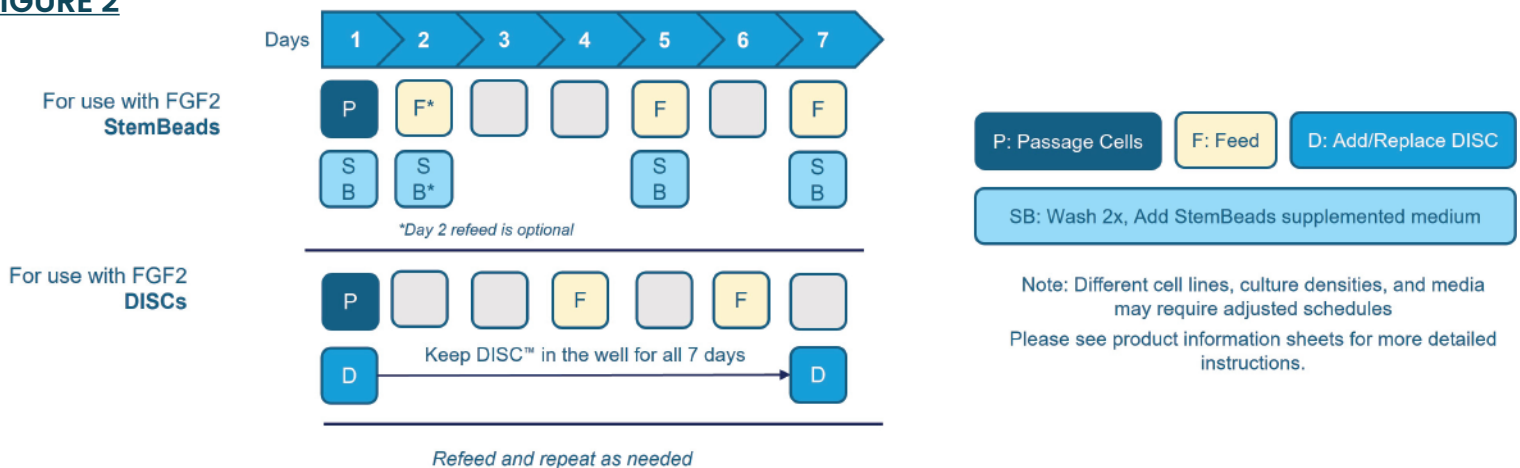


FIGURE 1



Recommended Feeding Schedule

FIGURE 2

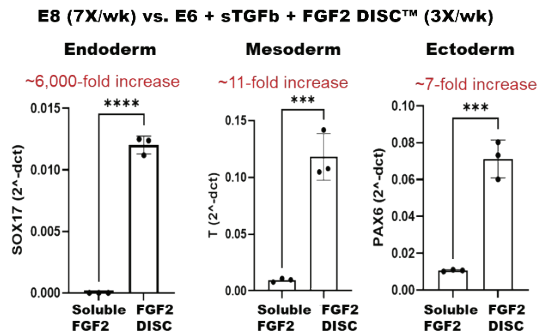


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Improvements to Cell Quality

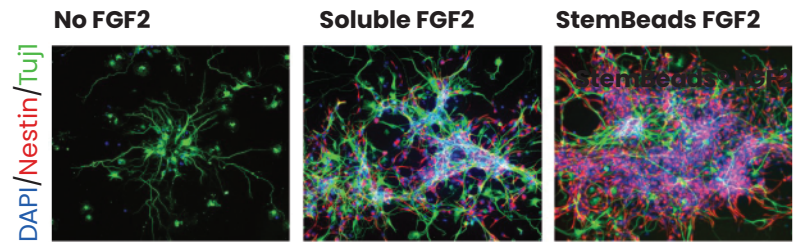
Data shows that StemCultures controlled-release FGF2 DISC™ Devices and StemBeads® FGF2 improve cell quality.

FIGURE 3



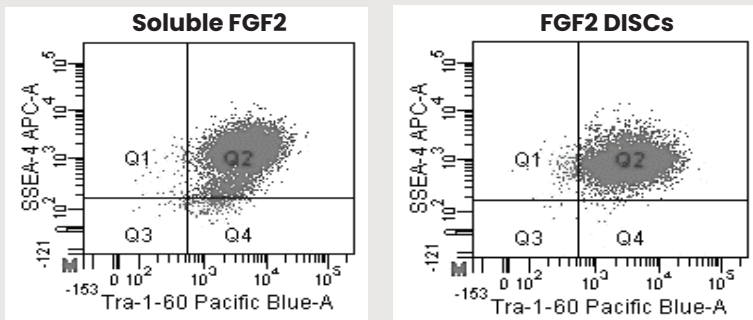
Across different PSC media backgrounds, we observed improved directed differentiation efficiency when hPSCs were cultured with FGF2 DISCs (and reduced feeding) prior to differentiation.

FIGURE 4



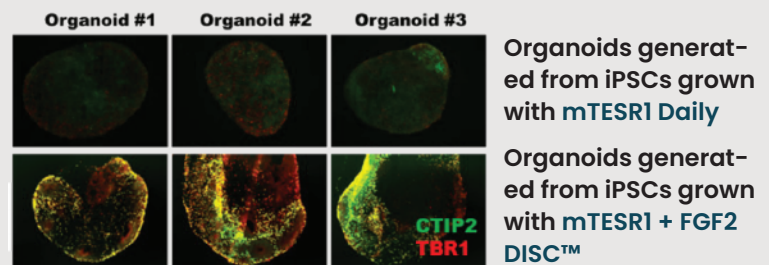
Mouse neural stem cell growth for one week in StemBeads® FGF2 supplemented medium show increased progenitor cells (Nestin+) and decreased neuronal differentiation (TUJ1+) compared to no FGF2 and soluble FGF2.

FIGURE 5



hPSCs grown with FGF2 DISCs show increased pluripotency markers SSEA4 and Tra-1-60 compared to daily media feeds of soluble FGF2 by flow cytometry.

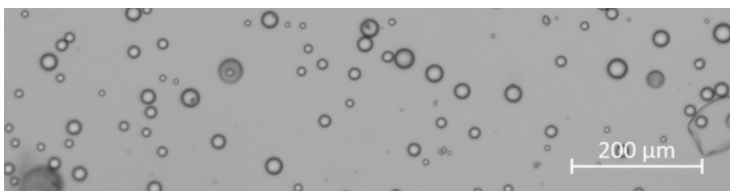
FIGURE 6



hPSC lines that did not generate well-patterned cerebral organoids after growth with daily mTeSR1 were recovered by switching to growth in mTeSR1 with an FGF2 DISC™.

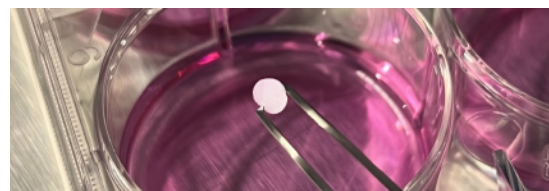
Product Selection Guide

Two Controlled-Release FGF2 Products



StemBeads®

StemBeads® 15 µm biodegradable PLGA microbeads.



DISC™ Devices

Biocompatible DISC™ hydrogel carrier loaded with StemBeads®.



Scan To Order

For ordering and technical support, please contact support@stemcultures.com

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All data and images were collected in collaboration with the Neural Stem Cell Institute: www.neuralsci.org