StemBeads® FGF2
Product Information Sheet

StemCultures

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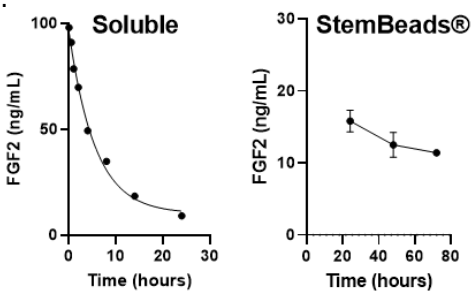
Product Description

StemBeads® FGF2 is a patented growth factor supplement that offers a novel way to culture cells with native Fibroblast Growth Factor 2 more efficiently. FGF2 is key for growth of human induced pluripotent stem cells (iPSCs), fibroblast cells, wound healing cells such as macrophages, cancer cells, and neural progenitor cells (NPCs). StemBeads® FGF2 are microbeads composed of an FDA approved, biodegradable PLGA polymer that is loaded with native recombinant human FGF2. Controlled delivery and stable levels overcome the 4.5 hour half-life (Figure 1) of FGF2 and improve cell cultures while saving researchers valuable time and resources.

StemBeads® FGF2 have been tested in medium such as mTeSR, mTeSR plus, Stemflex, Flex 8, Nutristem, 10% FBS, and neuronal medium including neural progenitor expansion medium (NPEM) with enhanced cellular profiles. StemBeads® FGF2 can be combined with other StemBeads® varieties.

Figure 1



Product Information

Catalog #	Product Name	Storage	Expiration	Average Particle Size	Reconstitution
SB500, SB501	StemBeads® FGF2	4°C	1 year, as specified on label	15 ± 5 µm diameter	Ready-to-use solution in DMEM/F12

Suggested Protocol: Feeder-Free Maintenance & Expansion of hiPSCs/hESCs

Preparation of Media with StemBeads® FGF2

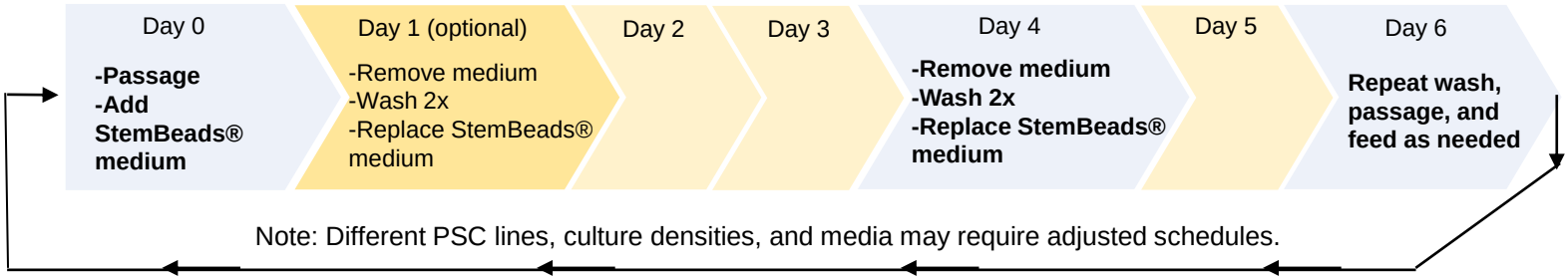
1. Mix vial of StemBeads® FGF2 thoroughly by vortexing or pipetting prior to use.
2. Add 8 µL of StemBeads® FGF2 per 1 mL of medium. This will provide cells with stable 10 ng/mL FGF2. See back for additional release data.

Culturing hPSCs with StemBeads® FGF2

1. Day 0: Split hPSCs using preferred enzymatic method, then plate into pre-coated culture dish in medium supplemented with StemBeads® FGF2.
2. Day 1 (optional): If a large number of unattached cells are observed, wash cells 2x with medium (ex. DMEM/F12) and replace with StemBeads® FGF2 supplemented medium.
3. Day 4: Remove culture medium, *wash 2x with medium (ex. DMEM/F12) and replace with StemBeads® FGF2 supplemented medium.
4. Day 6: Repeat the washing step, then split and feed as described above, Day 0 – Day 4.

*Note: Washing is highly recommended prior to each feed to remove cell debris and remaining beads.

Recommended PSC Culture Schedule



Note: Different PSC lines, culture densities, and media may require adjusted schedules.

Please reach out to support@stemcultures.com for ordering and technical support.

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Release Data

StemBeads® FGF2 release in media can be adjusted slightly based on the amount of StemBeads® added or the amount of medium used. We recommend a release of 10 ng/mL when culturing iPSCs. However, to fit other needs, the release can be adjusted slightly. See the chart below for reference.

Volume of StemBeads® FGF2	Volume of Medium Added	FGF2 Release in Volume of Medium Added
4 µL	1 mL	5 ng/mL
8 µL	1 mL	10 ng/mL
16 µL	1 mL	20 ng/mL
8 µL	0.5 mL	20 ng/mL
8 µL	1 mL	10 ng/mL
8 µL	2 mL	5 ng/mL

General References

Lotz S., et al. Sustained Levels of FGF2 Maintain Undifferentiated Stem Cell Cultures with Biweekly Feeding. PloS ONE 2013, 8(2).

Van de Leemput J., et al. CORTECON: a temporal transcriptome analysis of in vitro human cerebral cortex development from human embryonic stem cells. Neuron. 2014, 83(1):51-68.

Boles, N.C., et al. NPTX1 regulates neural lineage specification from human pluripotent stem cells. Cell Rep. 2014, 6(4):724-36.