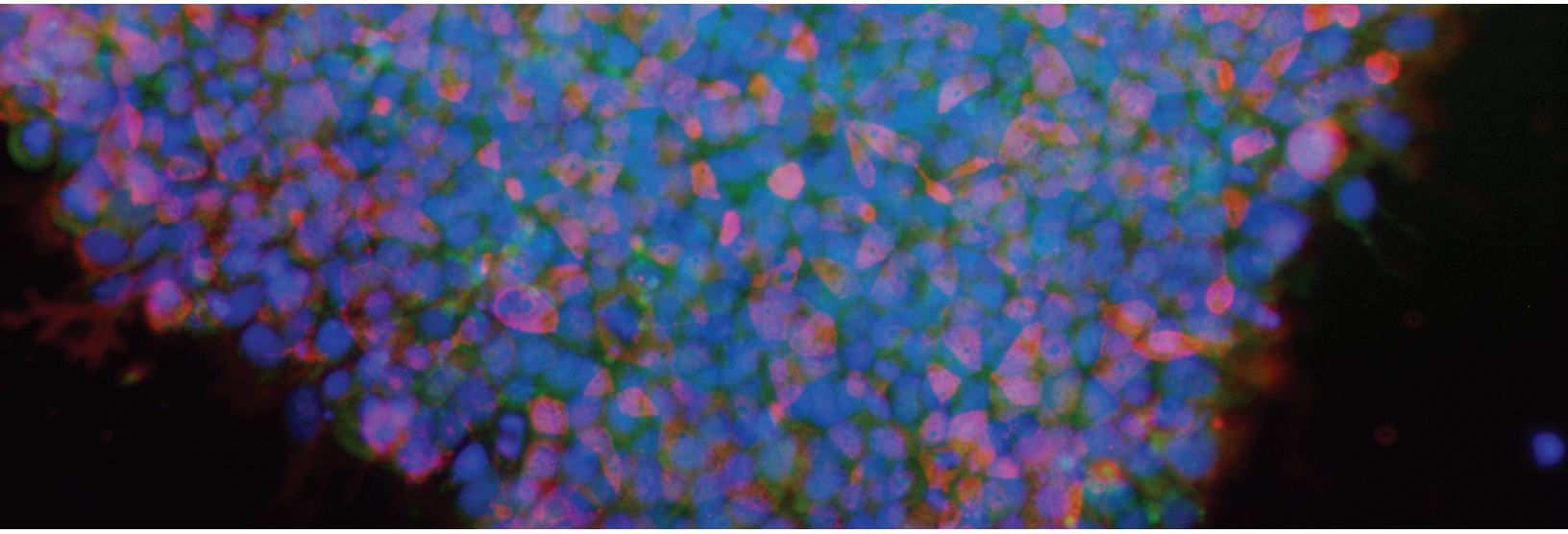
BI
Biological Industries
Culture of Excellence

NutriStem® hPSC XF Medium

A superior xeno-free, serum-free culture medium for hES and hiPS cells



- **Defined, serum-free, xeno-free medium**
- **Manufactured under cGMP**
- **FDA drug master file**
- **Flexible and compatible with multiple matrices**
- **Optimizable formulation**
- **Custom scale-up services**
- **Easily translate to the clinic**

Clinically-relevant medium designed for research and cell therapy applications

NutriStem® hPSC XF Medium is a defined, xeno-free, serum-free medium designed to support the growth and expansion of human induced pluripotent stem (hiPS) and human embryonic stem (hES) cells. NutriStem® hPSC XF Medium offers the ability to culture human pluripotent cells without the need for high levels of bFGF and other stimulatory growth factors or cytokines. The low-protein formulation contains only the most essential components required for maintenance of hES and hiPS cells, providing a simplified medium while maintaining the cells' full differentiation potential.

The defined, xeno-free formulation of NutriStem® hPSC XF Medium provides consistent media performance and predictable cellular behavior, as well as increased reproducibility in long-term culture (over 50 passages). In addition, cells cultured in NutriStem® hPSC XF Medium show superior attachment and proliferation rates, making this medium optimal for high-throughput screening applications.

NutriStem® hPSC XF Medium has a Drug Master File and is manufactured under cGMP, making it an ideal medium for researchers working with both research and cell therapy applications.

Normal cell morphology and functional assesment of pluripotency

The formation of compact colonies of cells with a high nucleus-to-cytoplasm ratio, prominent nucleoli, and distinct colony borders are characteristic morphology traits of healthy undifferentiated hES and hiPS cells, and can be observed through a phase-contrast microscope (Figure 2). Human pluripotent stem cells hold the potential to differentiate into cell types of all three germ layers (endoderm, mesoderm, and ectoderm). This differentiation potential is assessed by the spontaneous differentiation within embryoid bodies cultured in vitro (Figure 3) and teratomas formed in vivo (Figure 4).

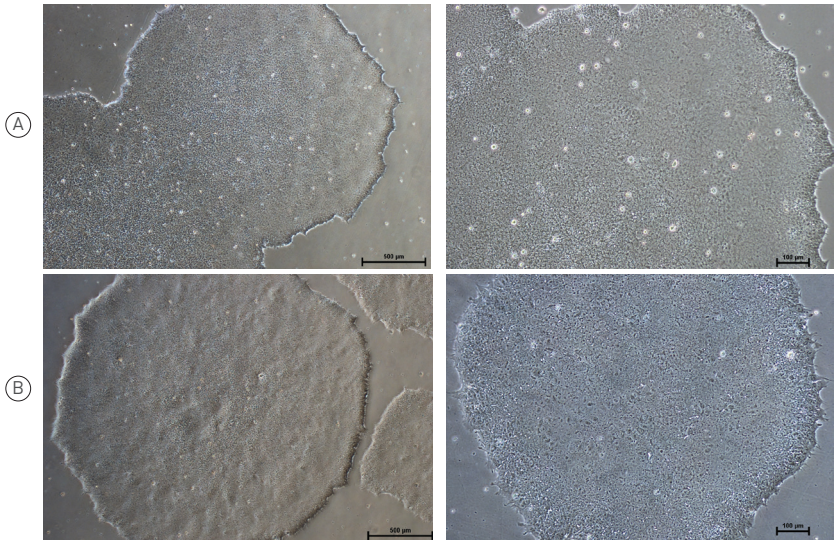


Figure 2: Normal Colony Morphology. H1 hES cells (panel A) and ACS-1014 hiPS cells (panel B) cultured in NutriStem hPSC XF Medium on Matrigel-coated plates display colony morphologies typical of normal feeder-free hES and hiPS cell cultures, including a uniform colony of tightly compacted cells and distinct colony edges.

Product	Cat. #	Size
NutriStem® hPSC XF Medium	05-100-1A	500 mL
	05-100-1B	100 mL
NutriStem® hPSC XF Medium (Growth Factor-Free)	06-5100-01-1A	500 mL
NutriStem® V9 XF Medium	05-105-1A-US	500 mL
CryoStem™ hPSC Freezing Medium	05-710-1D	10 mL
	05-710-1E	50 mL
LaminStem™ 521	05-753-1F	1 mL
Vitronectin ACF (Human Recombinant)	05-754-0002	200 ug
Bio-Pure™ Human Serum Albumin, 10% solution	05-720-1B	100 mL
Accutase Solution	03-073-1B	100 mL
EDTA Solution 0.5M	01-862-1B	100 mL
Recombinant Trypsin-EDTA Solution	03-079-1B	100 mL

Bulk orders, custom sizes, packaging, and scale-up support is available upon request.

How to Order

Biological Industries USA | T. 860.316.2702 F. 860.269.0596 | orders@bioindusa.com

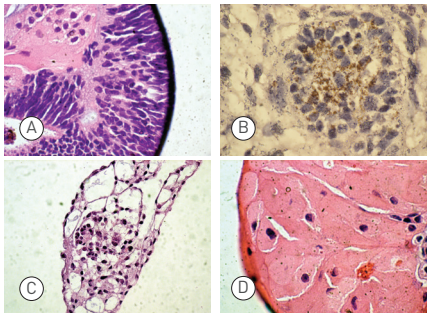


Figure 3: Embryoid Body Formation. Embryoid bodies (EBs) were generated from H9.2 hES cells cultured for 16 passages in NutriStem hPSC XF Medium on Matrigel matrix as an evaluation of pluripotency. The pluripotent H9.2 cells were suspended in serum-supplemented medium, where they spontaneously formed EBs containing cells of embryonic germ layers. Examples of cell types that were identified by examination of the histological sections of 14-day-old EBs stained with H&E: (A) neural rosette (ectoderm), (B) neural rosette stained with Tubulin, (C) primitive blood vessels (mesoderm), and (D) megakaryocytes (mesoderm).

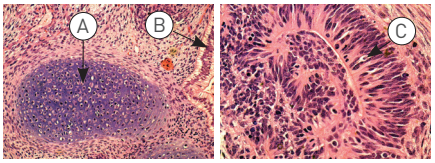


Figure 4: Taratoma Formation. H9.2 hES cells were cultured for 11 passages in NutriStem hPSC XF Medium using a human foreskin fibroblast (HFF) feeder layer. The hES cells were subsequently injected into the hind leg muscle of SCID-beige mice for in vitro evaluation of pluripotency. The following tissues from all three germ layers were identified in H&E-stained histological sections of the teratoma 12 weeks post-injection: (A) cartilage (mesoderm), (B) epithelium (endoderm), and (C) neural rosette (ectoderm).