

Vitronectin XF™



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TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

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Defined, xeno-free matrix that supports the growth and differentiation of human pluripotent stem cells under serum-free, feeder-free conditions

Catalog #07180 2 mL
#100-0763 10 x 2 mL

Product Description

Vitronectin XF™, developed and manufactured by Nucleus Biologics, is an effective alternative to Corning® Matrigel®. Vitronectin XF™ is a defined, xeno-free matrix that supports the growth and differentiation of human pluripotent stem cells. When used with mTeSR™1 (Catalog #85850), mTeSR™ Plus (Catalog #100-0276), or TeSR™-E8™ (Catalog #05990), Vitronectin XF™ provides a completely defined culture system for the maintenance of human embryonic stem (ES) cells and human induced pluripotent stem (iPS) cells under feeder-free conditions (Braam et al; Chen et al.; Li et al.; Prowse et al.; Rowland et al.). This system allows complete control over the culture environment, resulting in more consistent cell populations and reproducible results in downstream applications.

NOTE: CellAdhere™ Dilution Buffer (Catalog #07183) and non-tissue culture-treated cultureware (e.g. Catalog #100-0096/27147) are required for use with Vitronectin XF™.

Product Information

CATALOG #	SIZE	STORAGE	SHELF LIFE
07180	2 mL	Store at -20°C or -80°C.	Stable until expiry date (EXP) on label.
100-0763	10 x 2 mL	Store at -20°C or -80°C.	Stable until expiry date (EXP) on label.

Directions for Use

COATING CULTUREWARE WITH VITRONECTIN XF™

Use sterile technique when coating cultureware with Vitronectin XF™.

1. Thaw Vitronectin XF™ at room temperature (15 - 25°C).

NOTE: If not used immediately, store at 2 - 8°C for up to 2 weeks. Alternatively, aliquot and store at -20°C or -80°C. Do not exceed the expiry date (EXP) as indicated on the label. Avoid additional freeze-thaw cycles.

2. Dilute Vitronectin XF™ in CellAdhere™ Dilution Buffer (Catalog #07183) to reach a final concentration of 10 µg/mL (i.e. add 40 µL of Vitronectin XF™ to 960 µL of CellAdhere™ Dilution Buffer). Use a 50 mL polypropylene conical tube (e.g. Catalog #38010) to dilute Vitronectin XF™.
3. Gently mix the diluted Vitronectin XF™. Do not vortex.
4. Immediately use the diluted Vitronectin XF™ solution to coat non-tissue culture-treated cultureware (e.g. Catalog #100-0096/27147). See Table 1 for recommended coating volumes.

Table 1. Recommended Volumes for Coating Cultureware with Vitronectin XF™

CULTUREWARE	VOLUME OF DILUTED VITRONECTIN XF™
6-well plate	1 mL/well
100 mm dish	6 mL/dish
T-25 cm ² flask	3 mL/flask
T-75 cm ² flask	8 mL/flask

5. Gently rock the cultureware back and forth to spread the Vitronectin XF™ solution evenly across the surface.

NOTE: Non-tissue culture-treated cultureware should be used for coating with Vitronectin XF™. If the cultureware's surface is not fully coated by the Vitronectin XF™ solution, it should not be used for human ES and iPS cell culture.

6. Incubate at room temperature for at least 1 hour before use. Do not let the Vitronectin XF™ solution evaporate.
NOTE: If not used immediately, the cultureware must be sealed to prevent evaporation of the Vitronectin XF™ solution (e.g. with Parafilm®) and can be stored at 2 - 8°C for up to 1 week after coating. Allow stored coated cultureware to come to room temperature for 30 minutes before proceeding to the next step.
7. Gently tilt the cultureware on to one side and allow the excess Vitronectin XF™ solution to collect at the edge. Remove the excess solution using a serological pipette or by aspiration. Ensure that the coated surface is not scratched.
8. Wash the cultureware once using CellAdhere™ Dilution Buffer (e.g. 1 mL/well if using a 6-well plate).
9. Aspirate wash solution and add the appropriate volume of culture medium (e.g. 2 mL/well if using a 6-well plate).

To passage ES and iPSC cells cultured on Vitronectin XF™ in TeSR™ media using Gentle Cell Dissociation Reagent (Catalog #100-0485) or ReLeSR™ (Catalog #100-0484), refer to the Technical Manuals for mTeSR™1, mTeSR™ Plus, or TeSR™-E8™. These documents are available at www.stemcell.com or contact us to request a copy.

References

- Braam SR et al. (2008) Recombinant vitronectin is a functionally defined substrate that supports human embryonic stem cell self-renewal via alphavbeta5 integrin. *Stem Cells* 26(9): 2257–65.
- Chen G et al. (2011) Chemically defined conditions for human iPSC derivation and culture. *Nat Methods* 8(5): 424–9.
- Li J et al. (2010) Impact of vitronectin concentration and surface properties on the stable propagation of human embryonic stem cells. *Biointerphases* 5(3): FA132–42.
- Prowse ABJ et al. (2010) Long term culture of human embryonic stem cells on recombinant vitronectin in ascorbate free media. *Biomaterials* 31(32): 8281–8.
- Rowland TJ et al. (2010) Roles of integrins in human induced pluripotent stem cell growth on Matrigel and vitronectin. *Stem Cells Dev* 19(8): 1231–40.



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