PRIMORIGEN BIOSCIENCES®

the stem cell company™

Recombinant Human Vitronectin Stem Cell Matrix

Overview

Primorigen is developing a recombinant human Vitronectin (rhVitronectin) to address the need for cost-effective, defined and xenobiotic-free stem cell expansion and differentiation matrices. Vitronectin supports stem cell adhesion and has been shown to support stem cell expansion and differentiation (Braam et al, 2008, Stem Cells 26:2257; Rowland et al, 2010, Stem Cells Dev. 19:1231) through the cell surface receptor integrin alphaV-beta5. This receptor is expressed in many differentiated cell types including astrocytes (ectoderm), lymphoid blood cells (mesoderm), and hepatocytes (endoderm). Primorigen's rhVitronectin offers several advantages over human-plasma derived vitronectin, including reduced batch-to-batch variability and risk of adventitious agents, at a substantially reduced cost.

Experimental Description and Data

Cryopreserved human induced plutipotent stem cells (hiPSCs) were thawed onto BD Matrigel™ with mTeSR®1, and once recovered they were split onto rhVitronectin plates. After 5 passages the cells were subjected to flow cytometry testing for the pluripotency markers Oct4, SSEA4, and Tra-1-81 (Figure 1). Definitive Endoderm (DE) cells were generated from these hiPSCs using a protocol adapted from Si-Tayeb et al, 2010, Hepatology 51:297. The cells were then analyzed by flow cytometry for the DE markers FoxA2 and CXCR4 (Figure 2).

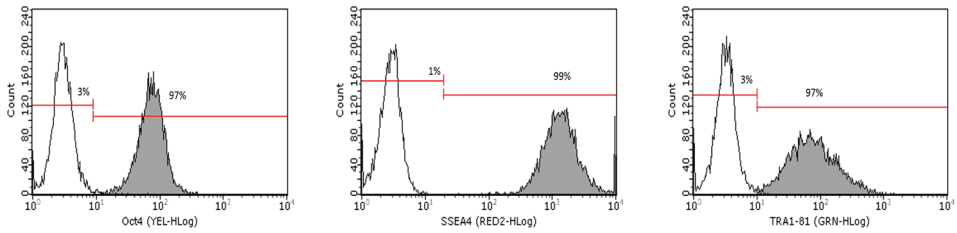

Figure 1. Flow cytometry analysis reveals that hiPSCs grown on Primorigen's rhVitronectin for 5 passages are strongly pluripotent. The pluripotency markers SSEA4, Oct4, and Tra-1-81 are highly expressed (> 97% of cells).

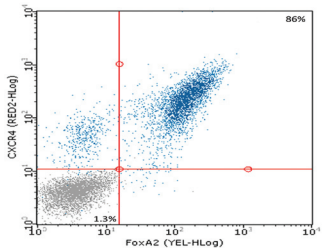

Figure 2. Flow cytometry analysis for the markers FoxA2 and CXCR4 reveal robust (86%) conversion of hiPSCs to definitive endoderm.

Primorigen's rhVitronectin Supports Pluripotency and Differentiation

Primorigen's rhVitronectin supports robust maintenance and expansion of highly pluripotent cells. hiPSCs on rhVitronectin can also efficiently differentiate into DE and other cells further down the endoderm lineage. Primorigen is investigating the utility of rhVitronectin for the ectodermal and mesodermal lineages.

Product Information

Product is currently under development and alpha testing. Primorigen is currently recruiting beta testers and expects to launch the product in Q4 2011.

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