

This product is not intended for diagnostic or medical purposes.

* Mesenchymal Stem Cells

Xeno-Free

Fibronectin Neosilk®

Fibronectin is one of the representative extracellular matrix proteins and controls cell adhesion/spreading, migration, proliferation and differentiation. There are three isoforms of fibronectin: plasma fibronectin, cellular fibronectin and fetal fibronectin.

Fibronectin

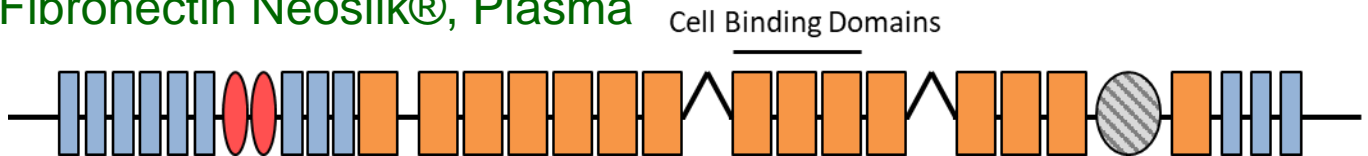
#54071 Fibronectin Neosilk®, Plasma

▪ Package Size : 1mg

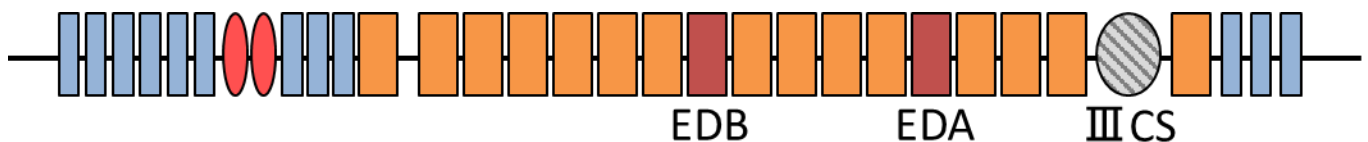
#54072 Fibronectin Neosilk®, Cellular

▪ Package Size : 1mg

Fibronectin Neosilk®, Plasma



Fibronectin Neosilk®, Cellular



Issues of Tissue-Derived Fibronectins

Plasma fibronectin has been widely used as a scaffold for cultured cells. Since the fibronectin is prepared from human or animal blood, **the risk of contamination with pathogens has been an issue.**

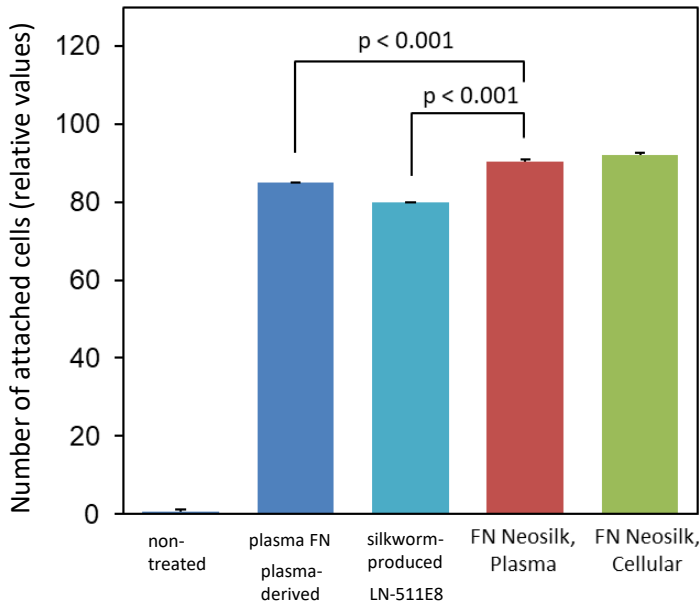
Cellular fibronectin is suggested to have superior cell adhesion and spreading abilities compared to plasma fibronectin, and also the possibility to promote cell proliferation. However, **it has not been available as a purified product due to the difficulty of extracting it from human or animal tissues.**

Fibronectin Neosilk®

Fibronectin Neosilk® is **xeno-free recombinant fibronectins** (plasma and cellular fibronectins) **produced by silkworms that are free from human-infectious pathogens.** We confirmed that the fibronectins form a dimer structure and bind to $\alpha 5\beta 1$ integrin receptor. They can be used as scaffolds for various cultured cells including mesenchymal stem cells.

Excellent performance as a scaffold

A. Cell Attachment Assay using Mesenchymal Stem Cells (MSCs)



MSCs were adhered to dishes coated with various coating materials, and the relative number of adherent cells was calculated.

There was no significant difference between FN Neosilk Plasma and FN Neosilk Cellular, however, it was confirmed that these FNs had **slightly higher adhesion activities** than plasma-derived FN, and **superior adhesion activities** to Laminin 511E8 produced from silkworms.

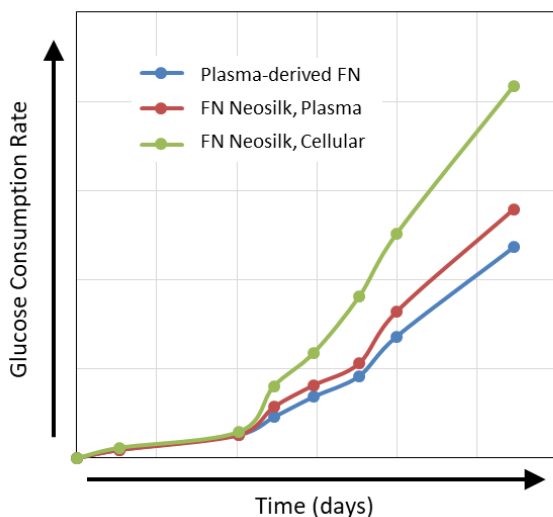
This data was the result of the collaborative research with Professor Akira Shimamoto and Assistant Professor Kyoshiro Tsuge, Department of Regenerative Medicine Research, Faculty of Pharmaceutical Sciences, Sanyo-Onoda City University.

B. Cell Growth Assay using MSCs

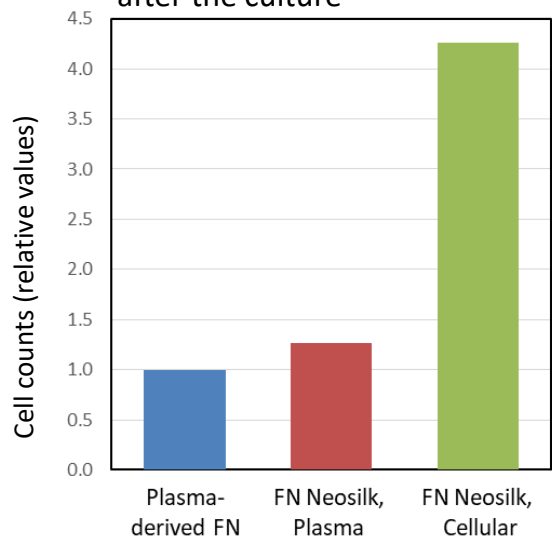
We evaluated FNs using a cell culture device, Quantum cell Expansion System of TERUMO BCT, Inc. MSCs on FN Neosilk Plasma had grown a **slightly higher rate** than the cells on plasma-derived FN, and a rate of cell growth of on FN Neosilk Cellular was **much higher** than that of FN Neosilk Plasma.

After the culture, the collected MSCs on FN Neosilk Cellular increased **4.4 times** in number of cells as compared with those on plasma-derived FN (right figure).

Cell growth rates estimated from glucose consumption rates



Relative cell numbers collected after the culture



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In the case of 2D culture using tissue culture dishes, no significant differences may be observed between FN Neosilk, Cellular and FN Neosilk, Plasma.