Cell Type & Viability

SurForce® works by protecting and supporting articular joints. Other commonly asked questions from physicians include determining the presence and viability of mesenchymal stem cells (MSCs) in SurForce®.

Identifying the cellular contents of SurForce® does not imply mechanism of action.
All data was tested and reported to SURGENEX® from a third party via **flow cytometry**.

Using Cell Markers

Determining cell type can be a complex process. Cell markers provide scientists with the identifiers needed to properly determine cell type. MSCs must be identified by the presence of at least three cell markers and the absence of at least two hemato-poeitic markers.

What are MSCs?

Mesenchymal stem cells (MSCs) are multipotent stromal cells that can differentiate into many different cell types, and can stimulate resident cells through paracrine activity.

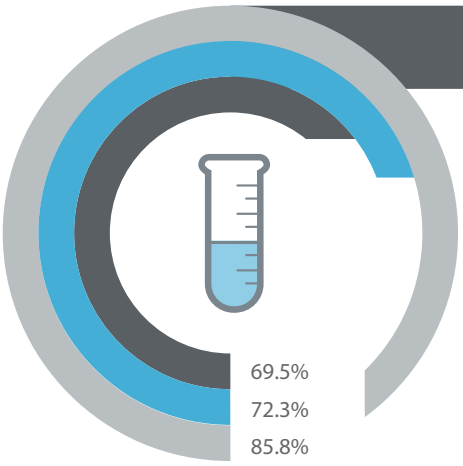
Deciphering the Data

Cells can share certain markers, so to properly determine the presence of MSCs testing must look for all relevant identifiable cell markers. Surgenex® has identified six cell markers where competitors have deemed three or less positive markers as sufficient. Identifying less than three positive markers is insuff-icient to properly indicate the presence of MSCs. Having more identifiers allows for more precise identification.

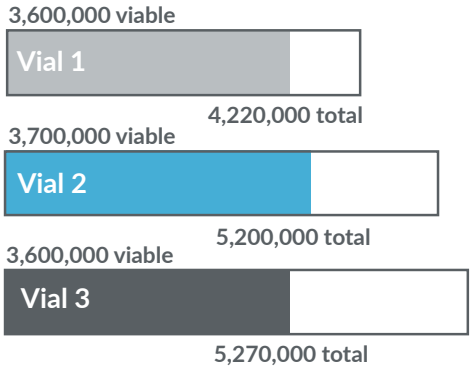
Identifying MSCs

MSCs differ in their markers in each tissue type. The markers identified in SurForce® indicate the presence of amniotic membrane mesenchymal stem cells (AM-MSC) and amniotic epithelial cells (AEC), another immunosuppresive and stem-like cell from the amniotic membrane.

Cell Viability



Percentage of Viable Cells Per Vial



Cells measured per ml of SurForce®

Identified MSC Markers

CD90: CD90 (Thy-1) can be used as a marker for a variety of stem cells.

CD44: Involved in cell–cell interactions, cell adhesion and migration.

CD29: Involved in cell adhesion.

CD73: CD73 has enzymatic and non enzymatic properties, and is very important for immunoescape activity.

CD166: Transmembrane glycoprotein believed to have a role in cell adhesion, usually used as a marker for a variety of stem cells.

CD105: Endoglin (CD105) is a component of the transforming growth factor-beta (TGF-β) receptor (TGF-βR) complex.

Hematopoeitic Markers

Determining the presence of hematopoetic markers in SurForce®

All testing performed by the third party lab was performed on three vials of cryopreserved SurForce®.

Industry-Leading Quality & Safety

Why is this Important?

Hematopoetic (blood cell) markers are an indication of non-MSC cells in the allograft. When these markers are present in higher percentages the likelihood of inflammation increases as the body's immune response is triggered, and may affect therapeutic properties of MSCs.

CD34
Characteristic marker of hematopoietic stem cells.

CD45
Lymphocyte common antigen characteristic of white blood cells

Lack of Expression
Lack of expression of these cell markers is also a clear indicator of MSCs in SurForce®.

SurForce® lacked expression for cell markers CD34 and CD45

*SurForce® is explicitly intended for use in articular joints.

References at www.surgenex.com/references.html