

Adipose Derived Stem Cells the Next Frontier of Medical Tourism



■ Disclosures

CEO and Chairman – American CryoStem Corporation

CEO – Personal Cell Sciences Corp.

■ About American CryoStem

- Operates a state-of-the-art, FDA-registered, clinical laboratory dedicated to collection, transportation, processing, bio-banking and developing cellular applications using autologous adipose (fat) tissue and adipose derived stem cells (ADSCs).
- The Company maintains a strategic portfolio of intellectual property that form its core standardized cellular platform currently being licensed globally.
- CRYO's cellular platform provides consumers and institutions with standardized, clinical grade solutions using adipose derived adult stem cells (ADSCs).



■ The Value of Adipose Tissue (Fat)

A significant, easily accessible source of **regenerative cells**



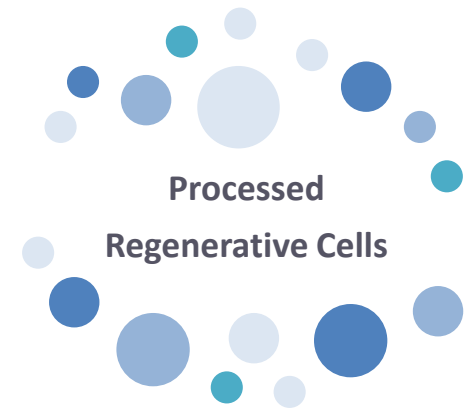
Available Source

A simple liposuction performed by a cosmetic or plastic surgeon is required to obtain the tissue.



Multiple Uses

Tissue can be processed into multiple products and/or stored for future treatments.



Regenerative Medicine

Once a sample is properly collected and stored it can be further processed into a specific applications prescribed by a treatment facility.

■ Adipose Tissue & Regenerative Medicine for Medical Tourism

Adipose Tissue the “Hot Topic” in cosmetic surgery:

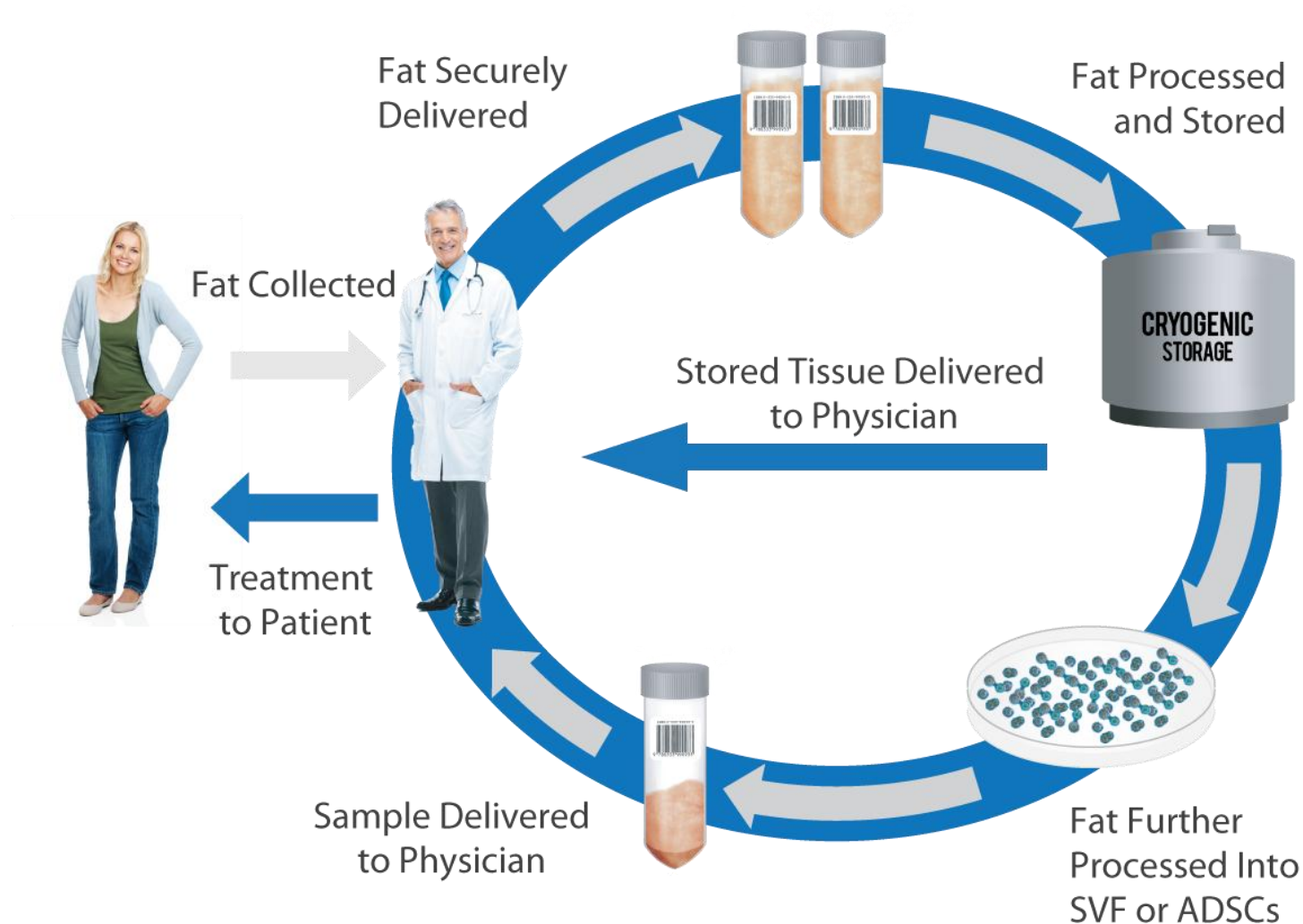
- Autologous fat transfers are the here and now.
- Adipose Tissue provides multiple applications for face and body procedures.
- All natural with greater retention than artificial fillers.

Adipose Derived Stem Cells (ADSCs)

- Adult stem cells, found in fat tissue can be differentiated into multiple types of cells.
- The subject of ever-increasing research for the treatment of diseases and applications actively and aggressively being studied globally.



■ A Standardized International Platform

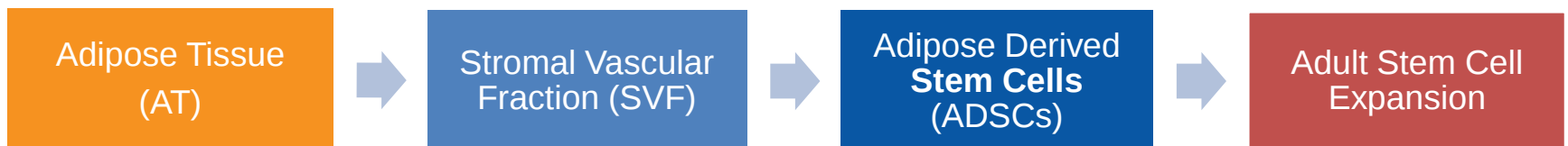


■ Defining “Adipose Tissue, SFV & Stem Cells”

Industry wide misuse of terminology

“I got a Stem Cell Treatment?”

Multiple Cellular Products Refined From a Single Tissue Source



■ How to Standardize a Fragmented Industry

Sterility and Cell Viability

1

Repeatability

- processing supply kits and cGMP processing procedures that are validated and tested for all aspects of the collection, processing and cryopreservation.

2

Consistency

- limit outside variables such as age, health and harvesting techniques by using a trackable, documented cGMP process each time.

3

Security and Quality

- Use an unbroken chain of custody tracking methodology with the creation of client and sample identification numbers that are globally recognized under the ISBT 128 Standards and Technical Specification by the ICCBBA.

■ What to Look for in Clinical Grade ADSCs

Important ADSC Factors

- Isolated from newly collected tissue during liposuction or properly cryopreserved stored samples.
- Autologous (single donor) low passage, cGMP processed cells.
- ADSC purity confirmed by flow cytometry
- Evidence of ADSC expansion capabilities

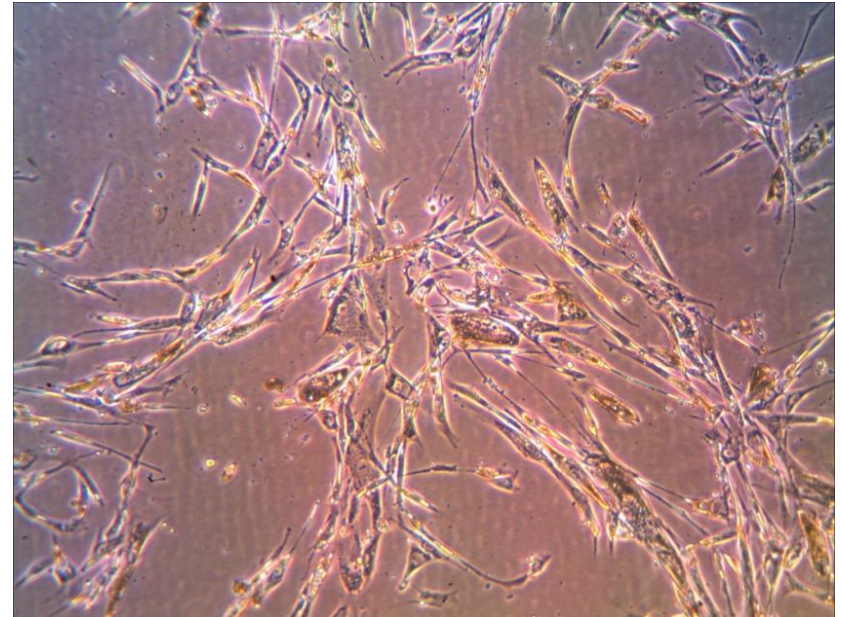


Photo of ADSCs courtesy of American CryoStem

■ Confirmation of ADSCs

ADSCs should be validated through surface marker flow cytometry and differentiation analysis (adipogenic, chondrogenic, osteogenic)

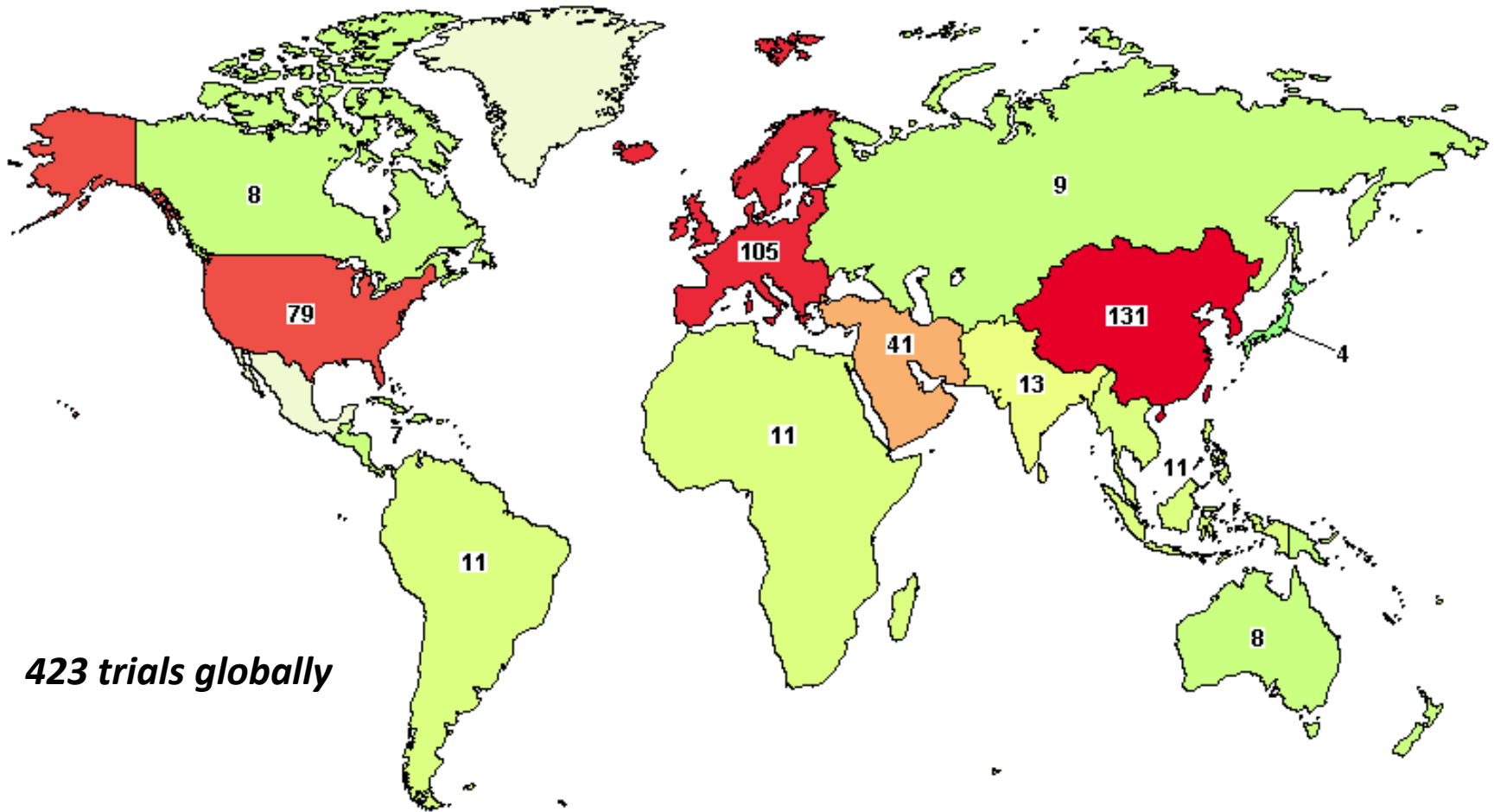
Protein markers expressed by ADSCs

Antigenic Marker	Significance	Expressed?
CD14	Innate immune system cells	No
CD19	B-cell marker	No
CD29	Innate immune system cells	Yes
CD31	PECAM-1 (Platelet Endothelial Adhesion Molecule)	No
CD34	BMDSC (Bone Marrow Derived Stem Cells)	No
CD44	Hyaluronic acid receptor	Yes
CD45	Lymphocyte common antigen	No
CD49d	Integrin $\alpha 4$	Yes
CD73	Conversion of AMP to adenosine	Yes
CD90	Thy-1; stem cell marker	Yes
CD105	Endoglin; role in angiogenesis	Yes
CD146	MCAM (Melanoma Adhesion Molecule Marker); MSC marker	Yes

Maintaining cellular identity though culture

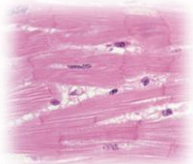
Antigenic Marker	Initial Expression	Third Passage (P3)	Fourth Passage (P4)
CD14	No	No	No
CD19	No	No	No
CD29	Yes	Yes	Yes
CD31	No	No	No
CD44	Yes	Yes	Yes
CD45	No	No	No
CD49d	Yes	Yes	Yes
CD73	Yes	Yes	Yes
CD90	Yes	Yes	Yes
CD105	Yes	Yes	Yes
CD146	Yes	Yes	Yes

■ Global “Mesenchymal Stem Cell” Clinical Trials



Data from clincialtrial.gov search term: Mesenchymal Stem Cell – Date:9/18/2014

■ What is Offered Today in Stem Cell Clinics?



- Neurological, Auto-Immune, Orthopedic, Cardio Vascular, Aesthetics, etc.
- 65% of Clinics Using Adipose Derived Regenerative Cells
 - >10% of Clinics Culture Expand Cells
 - >20% of Clinics Inject with Image Guiding
- Average Cost per Treatment: \$20,000 dollars

Global Stem Cell Survey

■ Top 5 Diseases that Motivate Medical Tourism

Based on 125 patient advocacy groups;

The top diseases that motivate patients to seek medical tourism are:

- **Multiple sclerosis (MS)**
- **Cerebral Palsy (CP)**
- **Spinal Cord Injury (SCI)**
- **Amyotrophic Lateral Sclerosis (ALS)**
- **Parkinson's Disease (PD)**

Stem Cell Tourism and Public Education: The Missing Elements

Cell Stem Cell 15, September 4, 2014

■ What Patients Want to Know About Your Clinic

- Illustrate the difference between established stem cells therapies, and clinical research therapies.
- Type of treatment protocol? (How are the cells delivered?)
- Clear explanation of the risks of getting a stem cell treatment
- Showing different evidence and patient testimonials
- Description of the clinic and protocols to ensure patient safety

Stem Cell Tourism and Public Education: The Missing Elements
Cell Stem Cell 15, September 4, 2014

■ The Current State of Stem Cell Medicine

THE REALITY

- There are between 250 to 300 Stem Cell Clinics worldwide
- Lack of clinical testing, sterility and viability
- Most Clinics offer a Single Protocol for the Treatment of Multiple, Unrelated Conditions
- Substandard or Non-Existent Informed Consents
- No Patient Candidacy Grading
- Lack of Inclusion and Exclusion Criteria for Treatment
- No independent data collection or analysis
- Insufficient evidence for the use of stem cells in treatments
- No peer, ethical or review board oversight

■ How to Participate in Regenerative Medicine

- Only work with certified laboratories or cGMP protocols
- Ensure **patient safety** at every step
- Work within your current regulatory environment
- Collect and report all data to advance scientific developments



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