



Acquest Stem Cell Research & Development

Stem Cell Pioneers in Thailand



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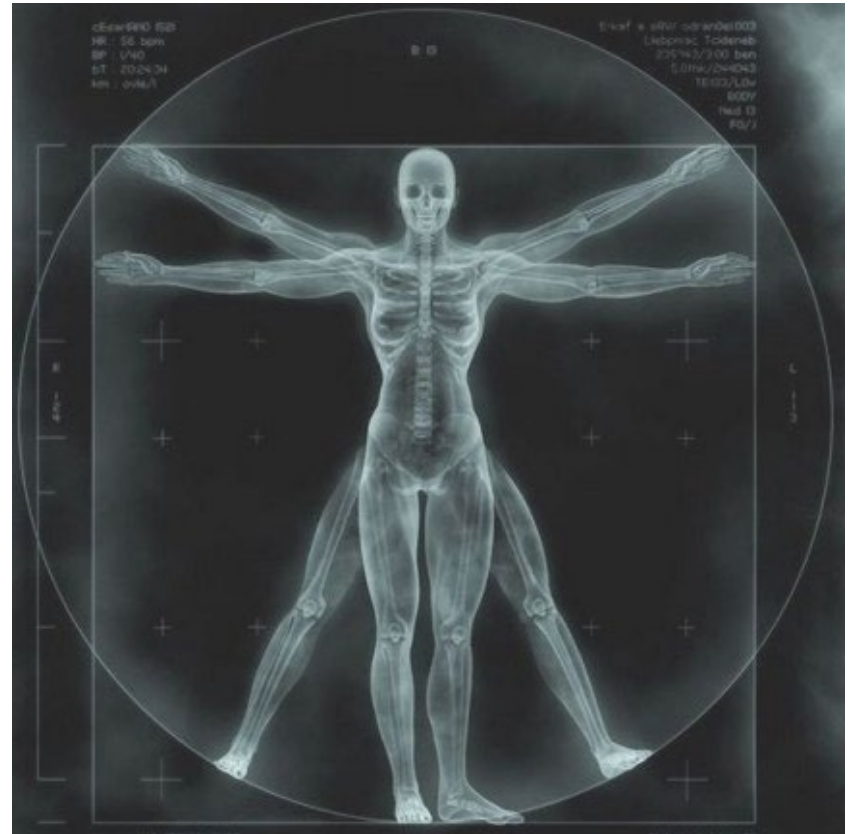
Acquest Stem Cell Research & Development

Utilizing adult stem-cell based therapy to treat degenerative diseases through a less invasive methodology



Objectives of Regenerative Medicine

- Reversal of the disease process
- Inducing recovery
- Improving patients' functionality and well-being
- No current treatments effectively reverse degenerative diseases
- Decreasing health care costs

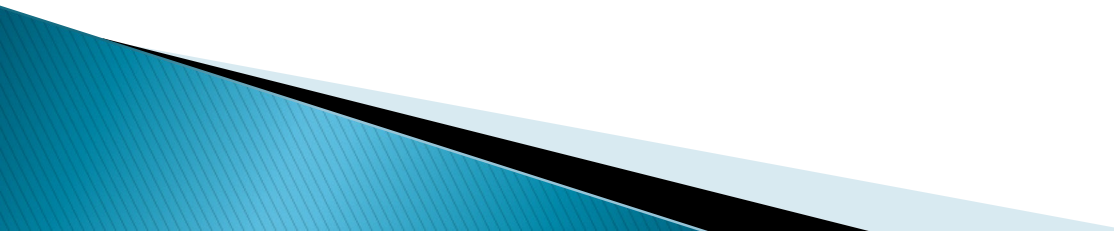


Degenerative diseases are the major cause of morbidity and mortality

Diabetes

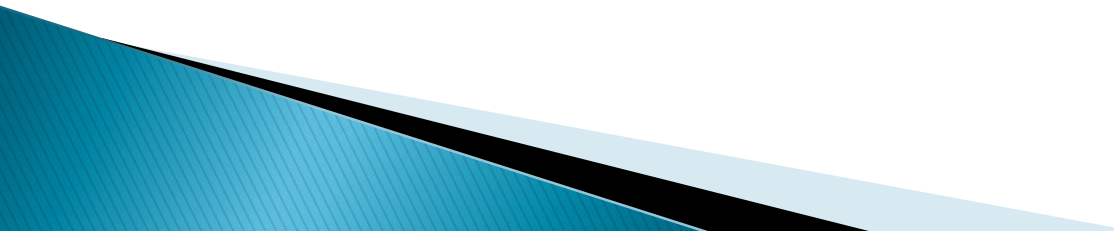
- An incurable chronic disease
- Affects 17.9 million people in the USA
- World Health Organization expects numbers to double by 2025

Congestive Heart Failure

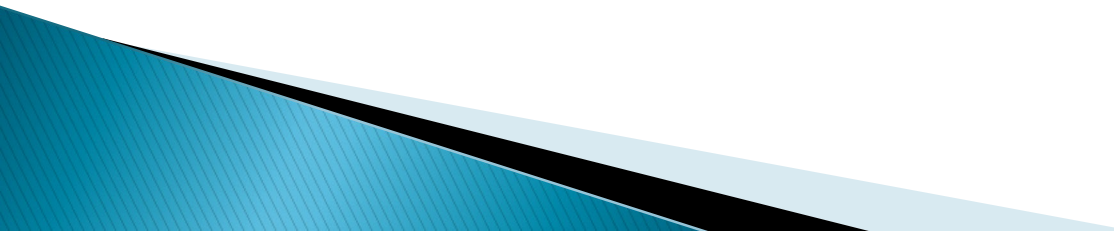
- 500,000 new cases a year
 - Largest single expenditure for Medicare
 - No therapeutic options other than heart transplant
 - 95% of patients die waiting for transplant
- 

Our Mission

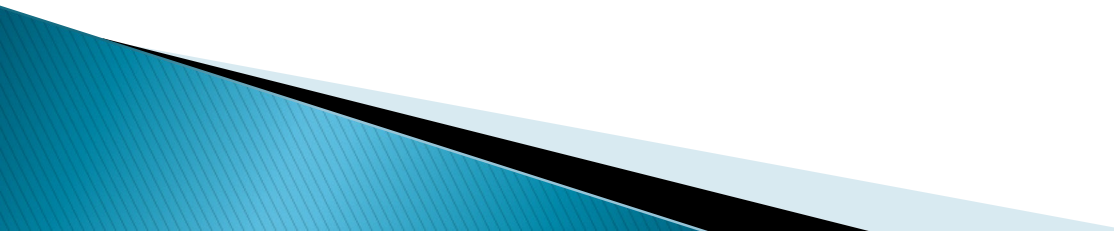
We are dedicated to

- Making treatment available TODAY to those in need
 - Developing of state-of-the-art cellular technology
 - Identifying medical talent in the field of stem cell research and treatment
 - Connecting exceptional doctors and treatment protocols to patients worldwide
 - Providing superior treatment for multiple indications through FDA medical trials
- 

The Technology

- Patients' own blood is used as raw material to manufacture Directed Cell Population
 - Cells are cultured under conditions designed to mimic and augment specific natural processes
 - A single administration of these cells back into the patient achieves the therapeutic effect
- 

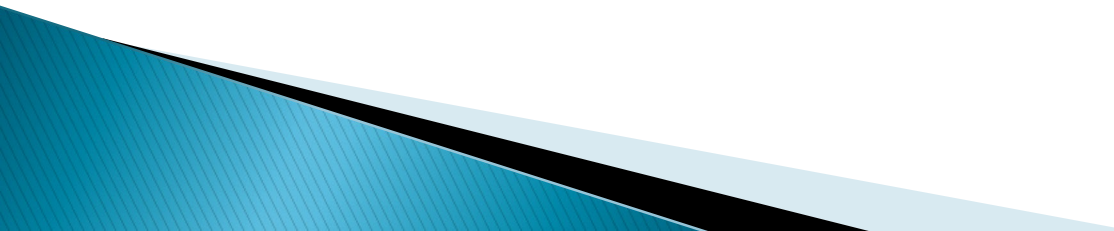
Technology Advantages

- A revolutionary patient-friendly therapy
 - No preparatory drug therapy is used
 - Blood is obtained using the routine method of blood collection (from the arm vein)
 - No surgery or anesthesia is required as the product contains only cells from the patient
 - No risk of rejection of cells
 - No harmful effects by the implanted cells
 - If treated with bone marrow stem cells, they are extracted from the patient's bone utilizing new state-of-the-art painless technology
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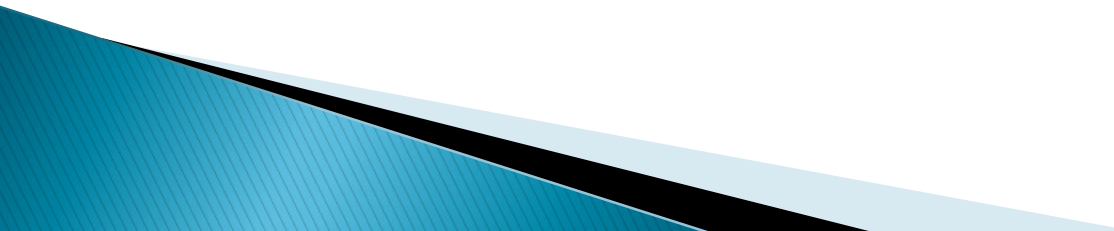
Processing Logistics

- Cells are presently being processed in Bangkok Thailand under the supervision of Acquest scientists in partnership with Siriraj Hospital

Company Overview

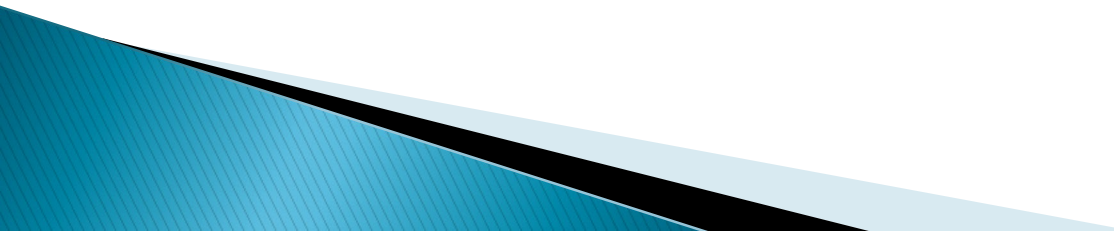
- Acquest operates and is registered in both Bangkok and Hong Kong
 - Considered one of the foremost providers of Adult Stem Cell Therapy in the world and involved in the industry since 2006
 - Together with its affiliates, Acquest has treated more than 400 commercial cases with an extremely high rate of success and safety
 - Treatment facility based in Bangkok Thailand, (a premier medical tourism destination)
 - Developing cutting edge procedure protocols
 - Designing stem cell specific devices
 - FDA applications and clinical trials completed
 - Establishing new disease protocols
 - Aggressive positioning in the academic medical community
- 

Competitive Advantage

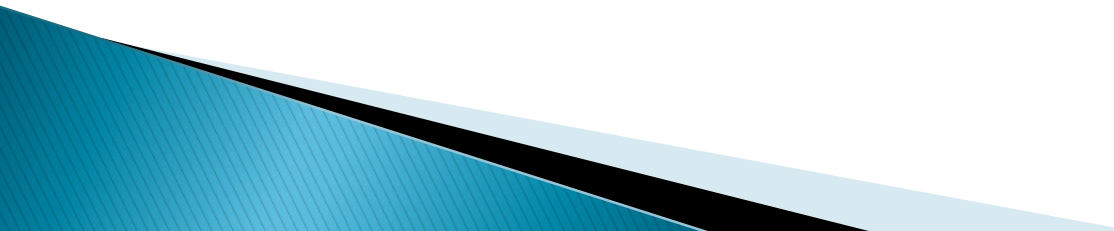
- A handful of other companies are targeting similar markets, with differing stem cell technology, however none have the infrastructure in place to bring the treatments to mass market
 - Acquest offers the newest technology available worldwide, has the highest safety standards and follows the most rigorous treatment protocols
 - We take a novel approach to the stem cell market by targeting the delivery of therapy rather than exclusively focusing on the development of cellular products
- 

Marketing

Acquest's primary markets are currently North America, Asia and Europe.

- We connect with patients in the following ways
 - A strong focus on news media and patient communication vehicles, using clinical data, testimonials and case studies to illustrate results
 - Via internet search results, which are driven by a strategic public relations campaign and web site optimization
 - Industry referral program
 - Patient referral because of our phenomenal success
 - Worldwide patient and physician education seminars
- 

Stem Cell Technology in the USA

- The USA lags behind the rest of the world in both research and treatment utilizing Stem Cell Therapy because of early controversy regarding Embryonic Stem Cells (Regenocyte does NOT use embryonic stem cells)
 - FDA approval can be attained in 5 to 7 years by meeting guidelines for clinical trials
 - Regenocyte Therapeutic will pursue clinical trials with major educational institutions once processing technology has been transferred to Florida Biologix®
 - The lack of available commercial Stem Cell therapy treatment in the U.S. has created a HUGE window of opportunity
- 

The Business

By applying professional, cutting-edge approaches to all company activity, Acquest makes innovative, therapeutic, cellular products available in order to reverse the processes of degenerative diseases and aging

- The business strategy, initially approaching peripheral markets, guarantees a rapid revenue stream concurrently with establishing a foothold in the major markets
- We are establishing partner staging centers throughout Europe and Asia and international markets that will have patient referrals from members of the clinical affiliate program
- Example:
$$1.5 \text{ million stent procedures a year facility fee } \$16,000 \times 1,500,000 = \$24,000,000,000$$

Stem Cell Sources

- **Embryonic**

- Not used for treatment

- Immunosuppressive medication for rejection

- Teratoma/cancer risk very high

- Loss of regenerative properties due to maturation of cells

- Controversial

- **IPS (Induced Pluripotent Stem Cells)**

- Very similar to Embryonic cells

- **Non Embryonic**

- Fetal Stem Cells

- Cord/placenta at Birth

- Adult Stem Cells

- Blood

- Bone marrow

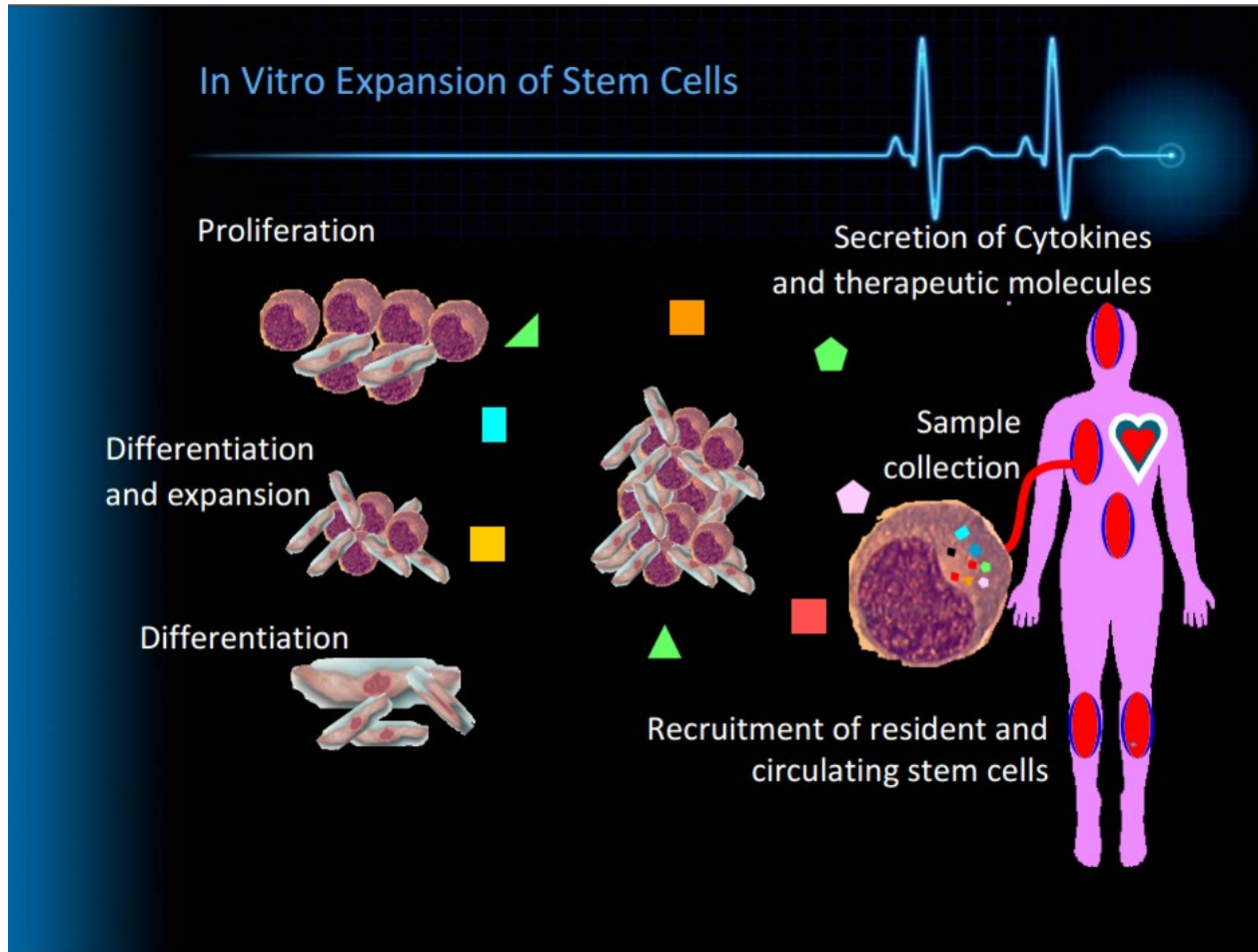
- Fat and other organs

Advantages and Protocol

Safe and Effective

- Acquest only uses Adult Stem Cells directly from the patient to achieve the safest and most effective treatment outcomes similar to Embryonic cells

In Vitro Expansion of Stem Cells

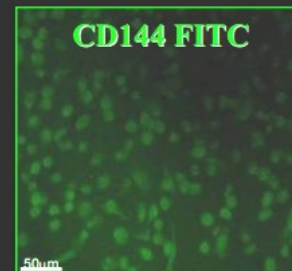
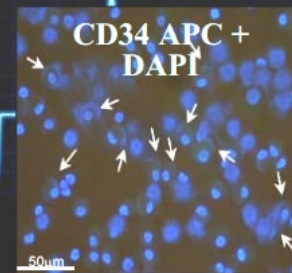
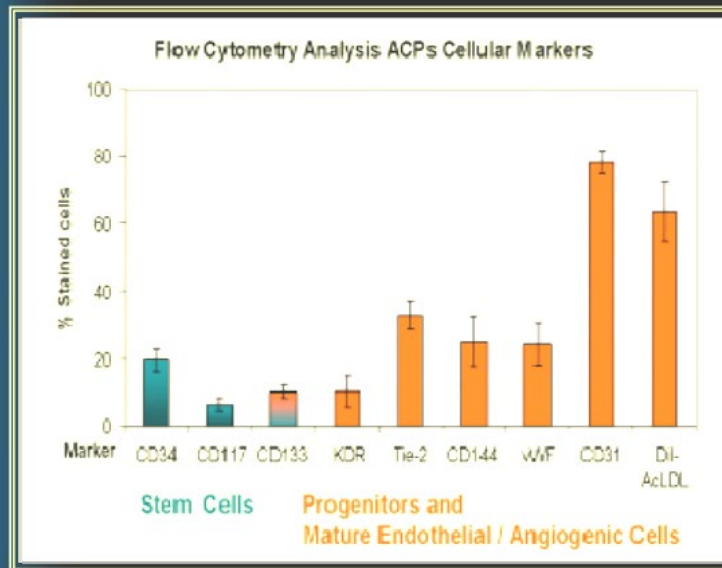


Types of Stem Cells

- Regenocytes are stem cells that have been specifically directed and activated for tissue repair or regeneration
- Having additional physiological characteristics from basic Hematopoietic and Mesenchymal stem cells

Regenocytes

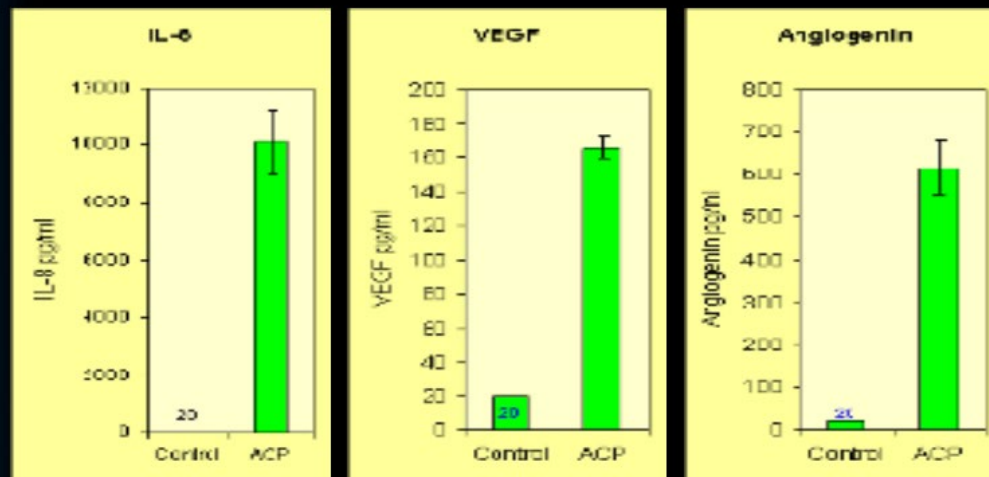
REGENOCYTES Product Characteristics Flow Cytometry



Regenocytes Physiological Activity

Regenocytes Physiological Activity

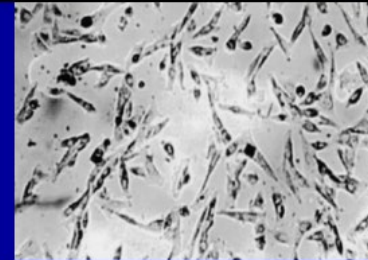
Secretion of regenerative factors compared to basic stem cells



Release Criteria

Release Criteria

- $>1.5 \times 10^6$ ACPs
- Sterile (according to CFR 610.12)
- Endotoxin – negative
- Mycoplasma Ab – negative
- Viability $>75\%$
- Morphology – *spindle-shaped* , *no color*
- Surface Marker- CD 34 , CD 133 ,KDR,Tie-2,CD144 & CD 31

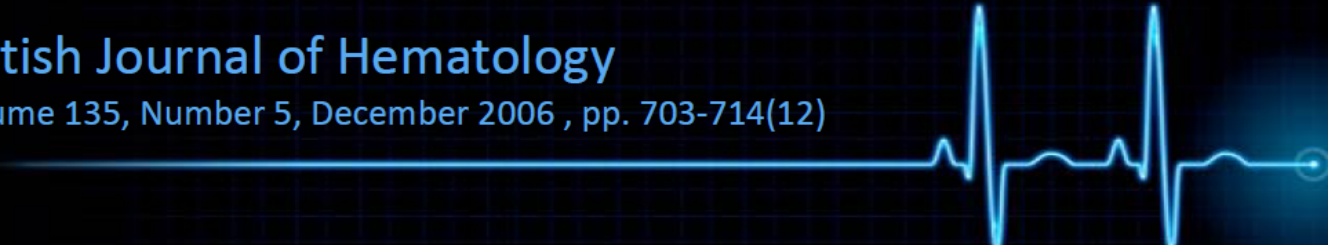


Code of Federal Regulation, US FDA

References

British Journal of Hematology

Volume 135, Number 5, December 2006 , pp. 703-714(12)



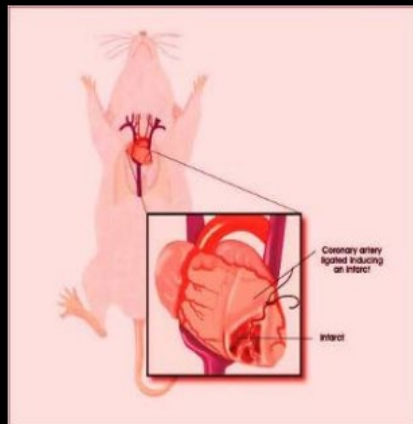
Isolation of an adult blood-derived progenitor cell population capable of differentiation into angiogenic, myocardial and neural lineages

Authors:

Porat, Yael¹; Porozov, Svetlana¹; Belkin, Danny¹; Shimoni, Daphna¹; Fisher, Yehudit¹; Belleli, Adina¹; Czeiger, David; Silverman, William F.²; Belkin, Michael; Battler, Alexander; Fulga, Valentin¹; Savion, Naphtali³

Clinical tests

Efficacy of ACPs in Rat Model of Myocardial Infarction



- Myocardial infarction via LAD Ligation in nude rats
- Route of Administration of Regenocytes
 - Intracoronary
 - Intramyocardial

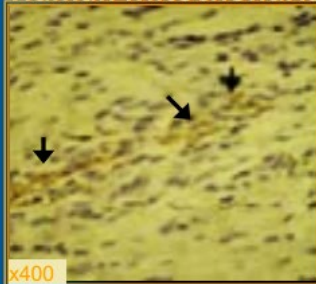
ACPs in Myocardial Infarction

Efficacy of ACPs in Model of Myocardial Infarction

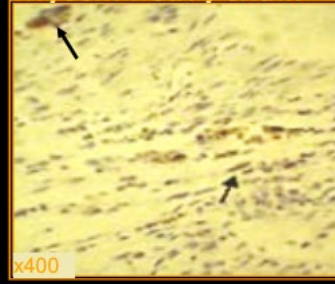


Engrafted Regenocytes in Area of Scar

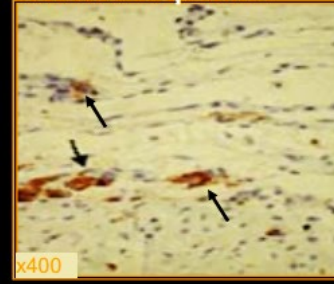
Human Mitochondria



Myosin heavy chain



Cardiac Troponin I



New Heart Muscle

New Blood Vessels

References

European Journal of Heart Failure

v. 10 (2008) 525–533



Human angiogenic cell precursors restore function in the infarcted rat heart: A comparison of cell delivery routes

Authors:

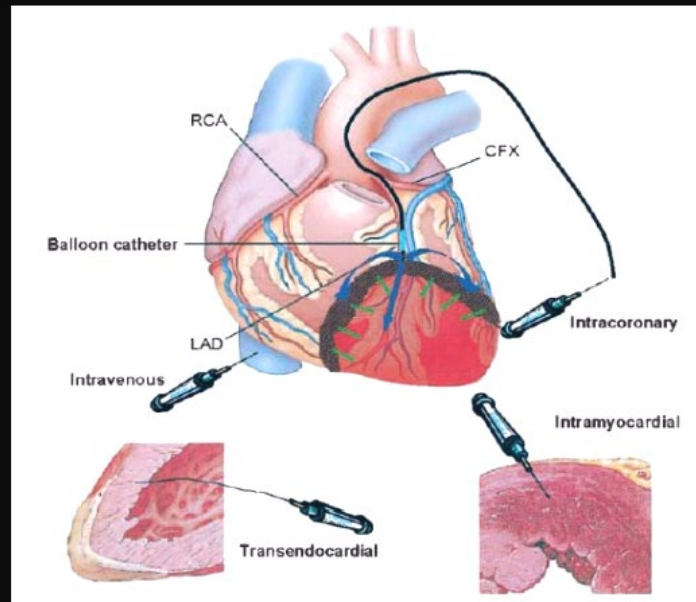
Zhuo Sun a, Jun Wu a, Hiroko Fujii a, Jiang Wu a, Shu-Hong Li a, Svetlana Porozov b, Adina Belleli b, Valentin Fulga b, Yael Porat b, Ren-Ke Li a,

Affiliations:

a Division of Cardiovascular Surgery, Toronto General Research Institute, Toronto General Hospital and University of Toronto, Toronto, Ontario, Canada

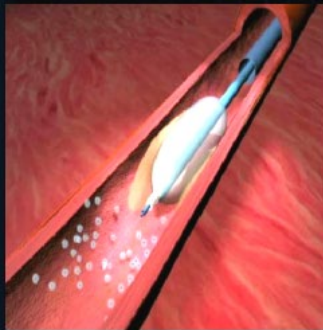
Delivery Methods

Delivery Methods



Clinical Therapy in Cardiac Patients

Clinical Therapy in Cardiac Patients



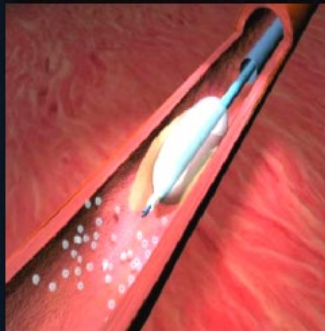
Bimodal Delivery:

Acquest is the only institution that utilises both modalities concurrently.



Clinical Therapy in Cardiac Patients

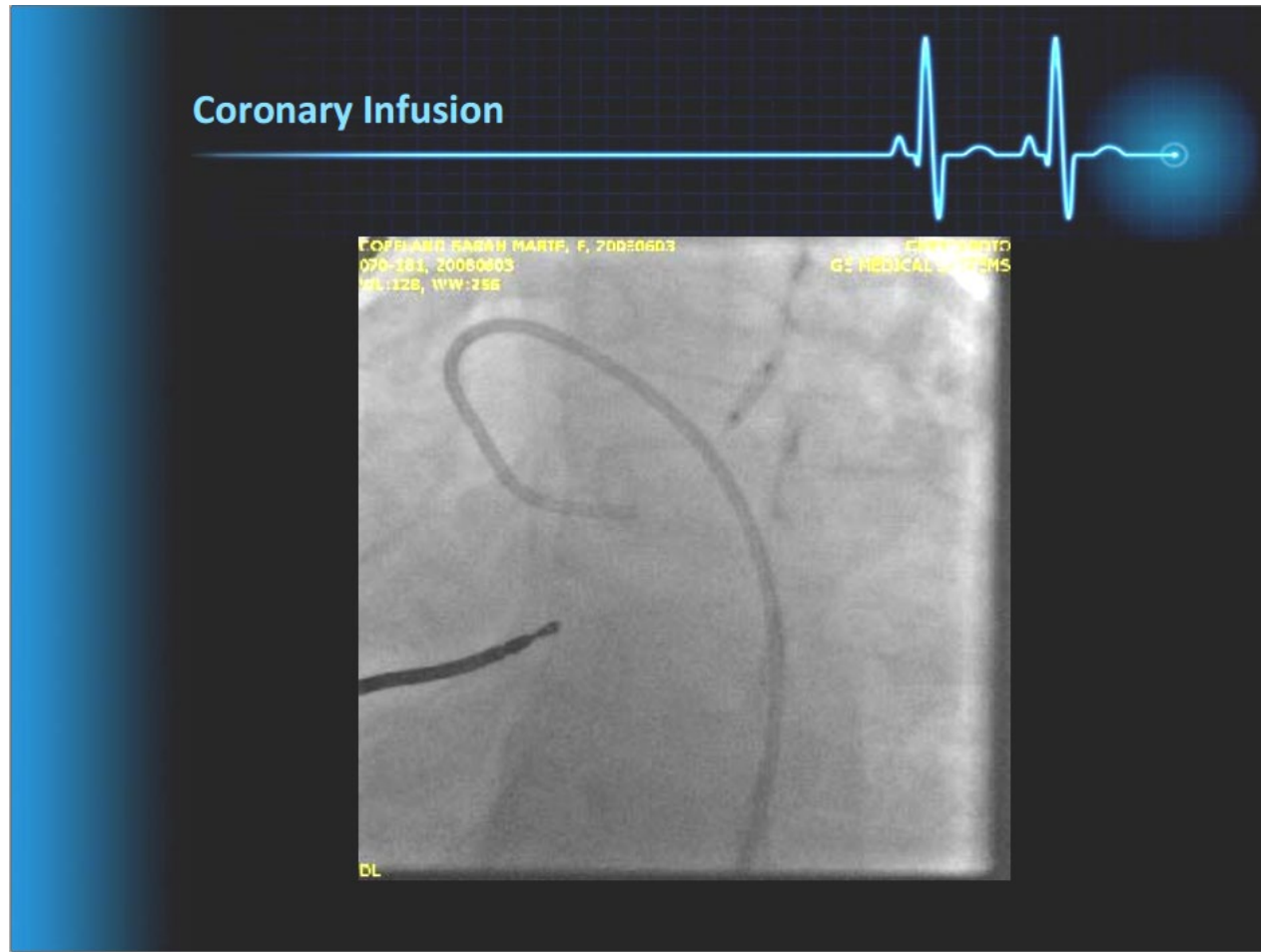
Clinical Therapy in Cardiac Patients



Coronary Delivery:

Cells infused via over-the-wire balloon catheter in the proximal coronary arteries supplying myocardium.

Coronary Infusion



Endomyocardial Injection Catheter

Endomyocardial Injection Catheter

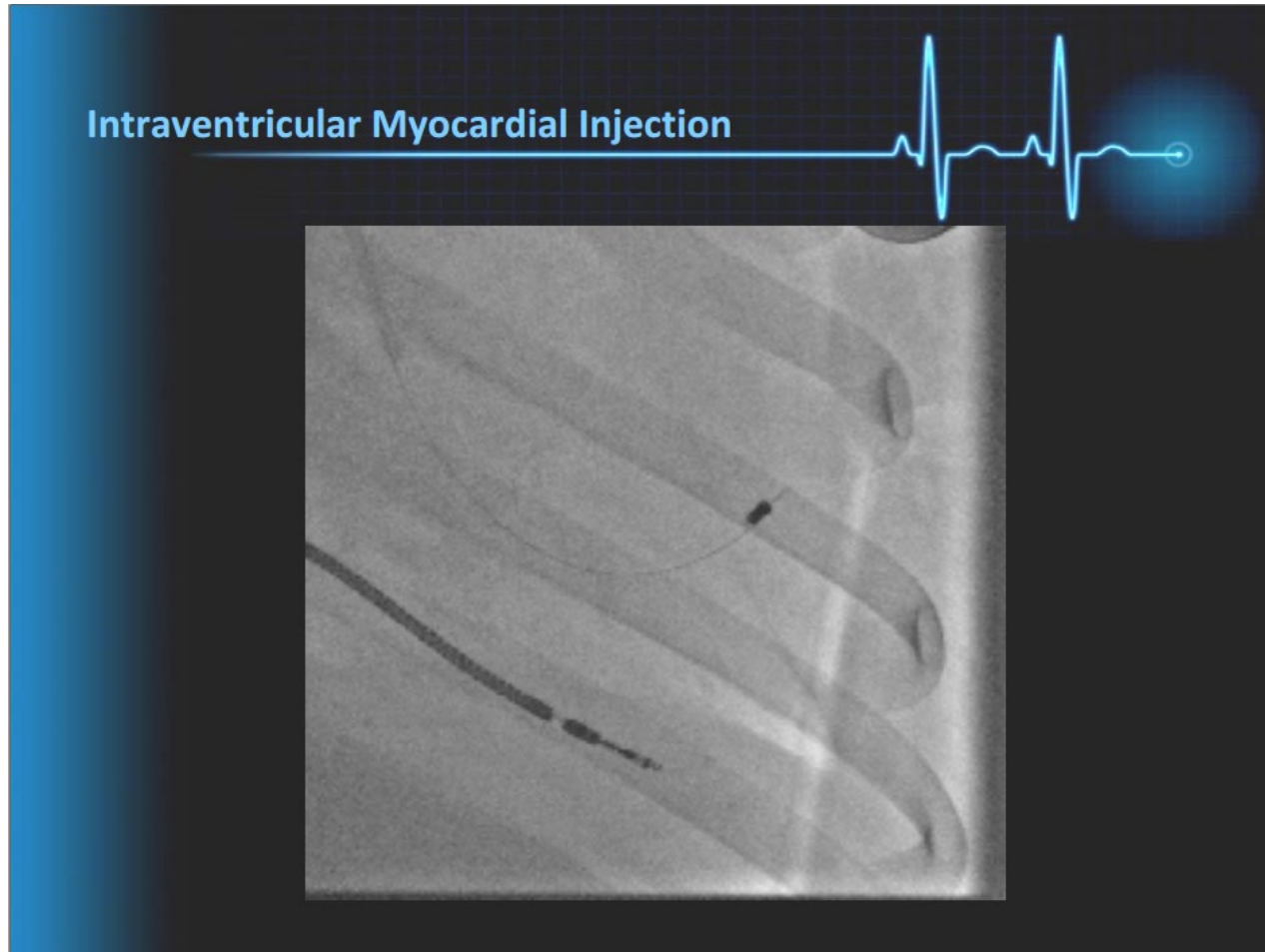


Regenocytes injected directly into
Endo-myocardium via Injection
Catheter

Up to 30 injections
throughout the Left Ventricle

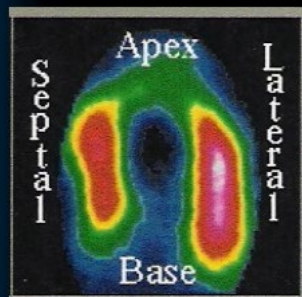


Intraventricular Myocardial Injection



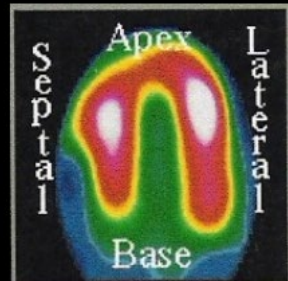
Infarcted Myocardium

Infarcted Myocardium



Anterior Wall myocardial infarct
Resting Nuclear scan

Before Therapy Ejection Fraction 30%



Anterior Wall myocardial infarct
Resting Nuclear scan

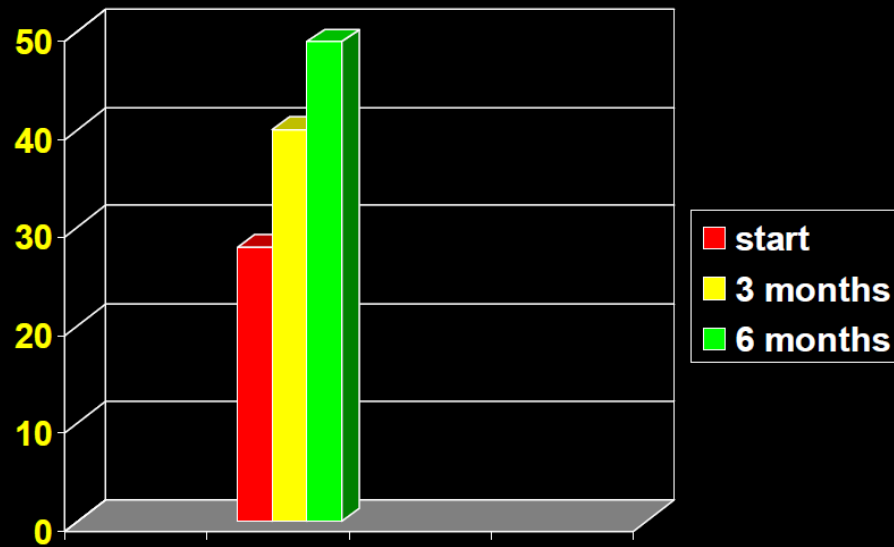
6 Months After Treatment Ejection Fraction 50%

Improvement in Ejection Fraction

Improvement in Ejection Fraction



Ischemic Cardiomyopathy



Ischemic Cardiomyopathy

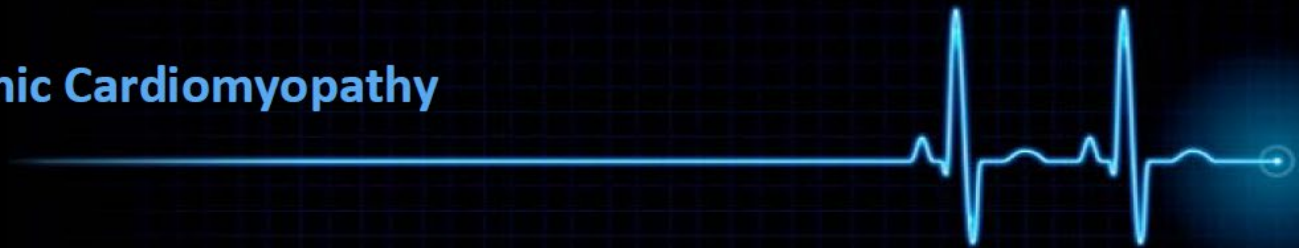
Ischemic Cardiomyopathy

Mortality:

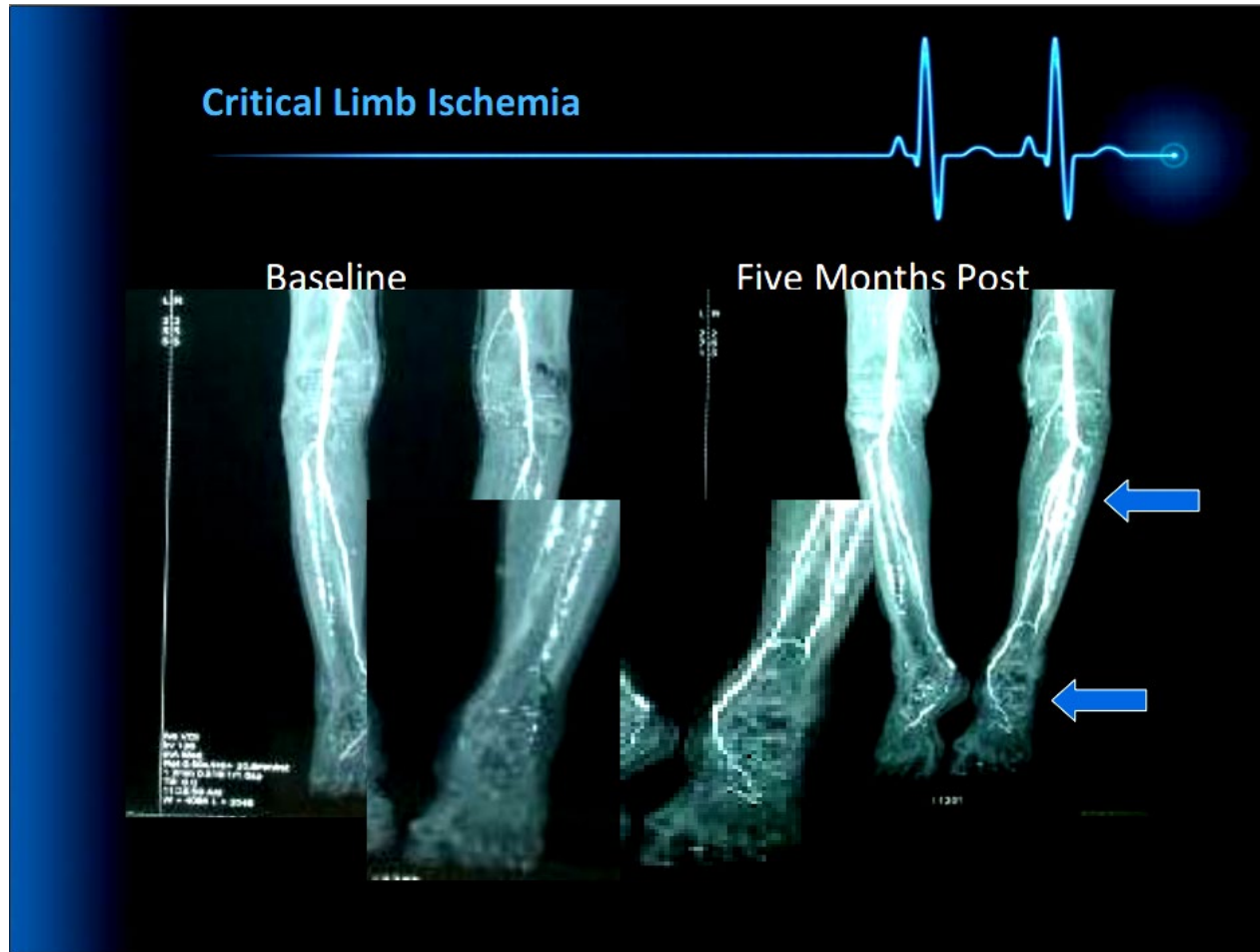
76% reduction at 4 years of all cause Mortality in end stage Cardiomyopathy.

Hospitalizations:

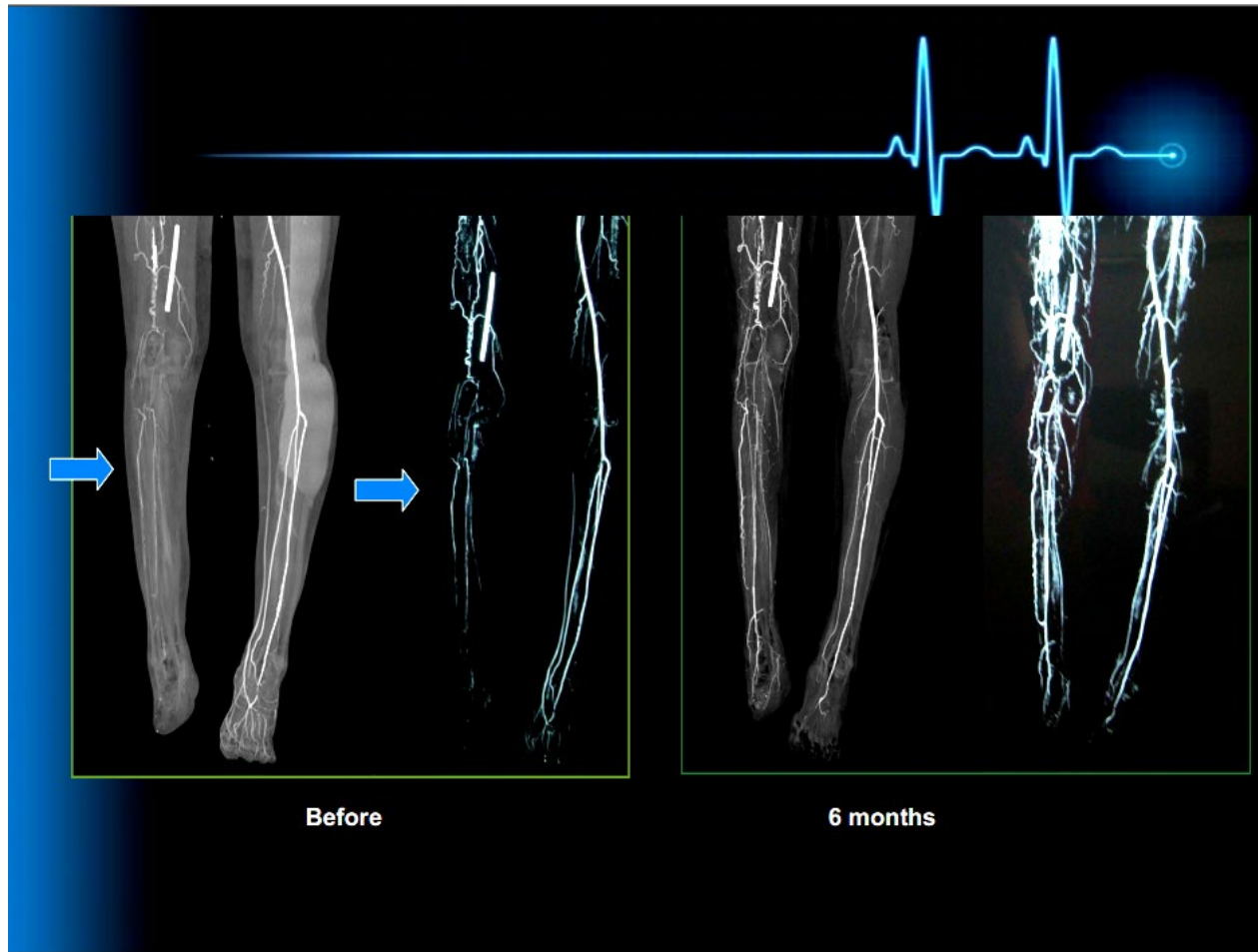
80% reduction in congestive heart failure Hospitalizations.



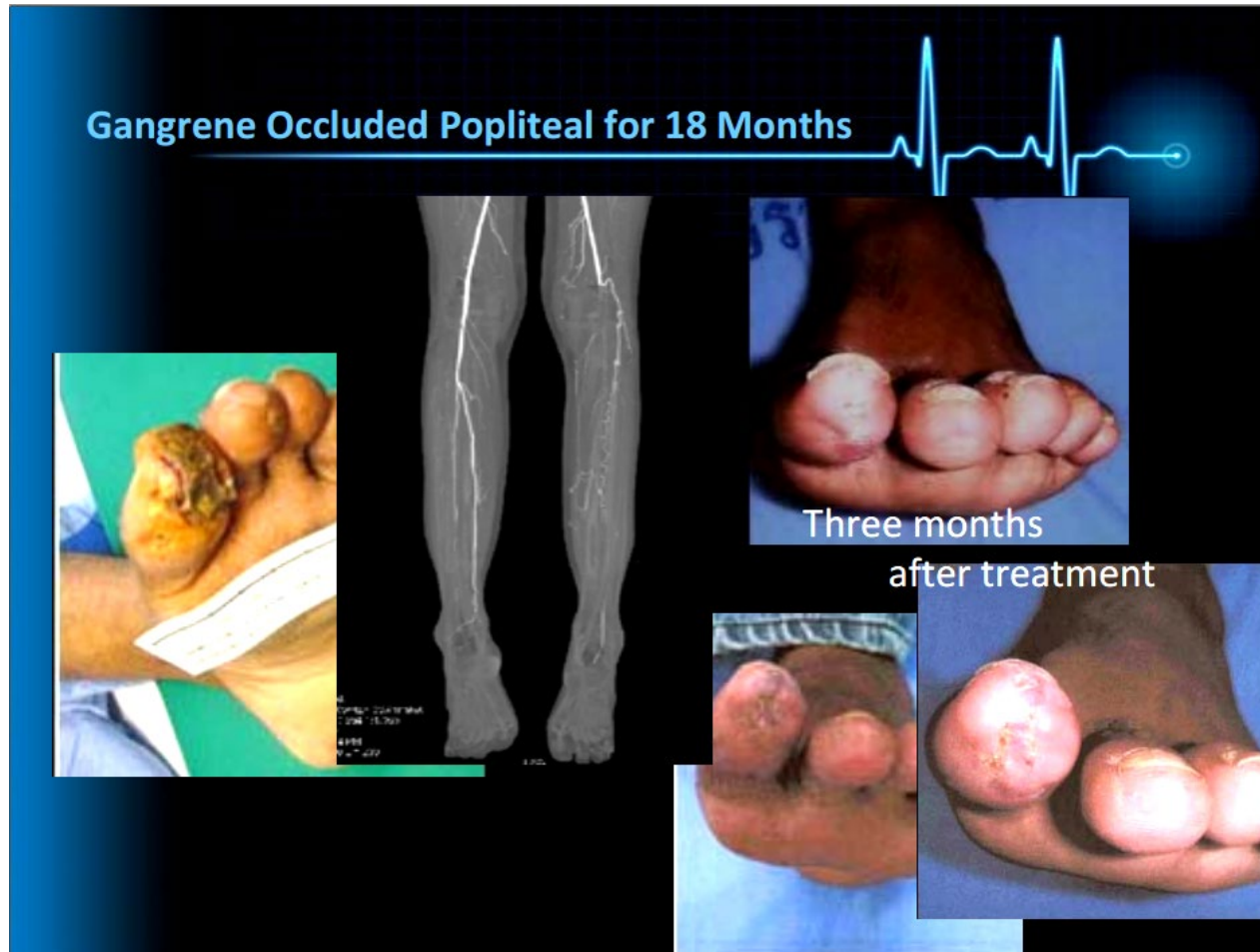
Critical Limb Ischemia



Circulatory Improvement



Treatment of Gangrene



Mummification of Extremities

Mummification of Extremities



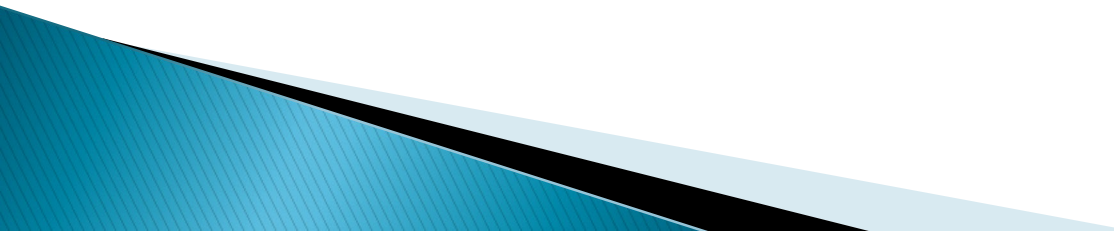
Tissue Regeneration

Regeneration of Tissue



Positive Side Effects

Approximately 60% of treated patients have presented the following

- Improved cognitive function
 - Reduction of arthritic symptoms
 - Increased energy levels
 - Increased physical capacity
 - Bald spots growing dark hair
 - Visual improvements
 - Improved neurological symptoms
- 

Colon

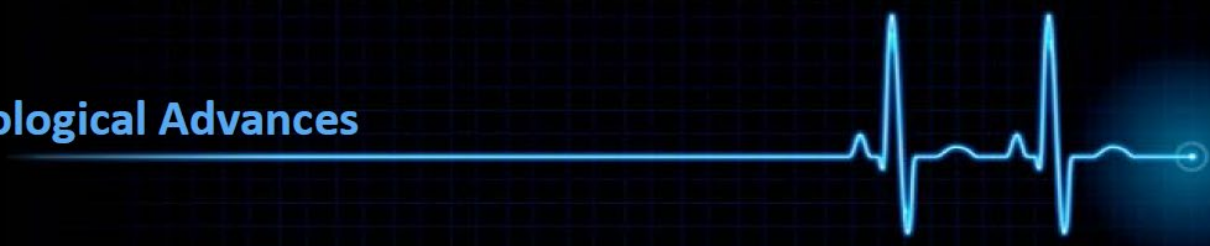
Colon - Villous Adenoma



Using Microgravity bioreactors allows for three dimensional architecture and the potential for solid organ generation.

Neurological Advances

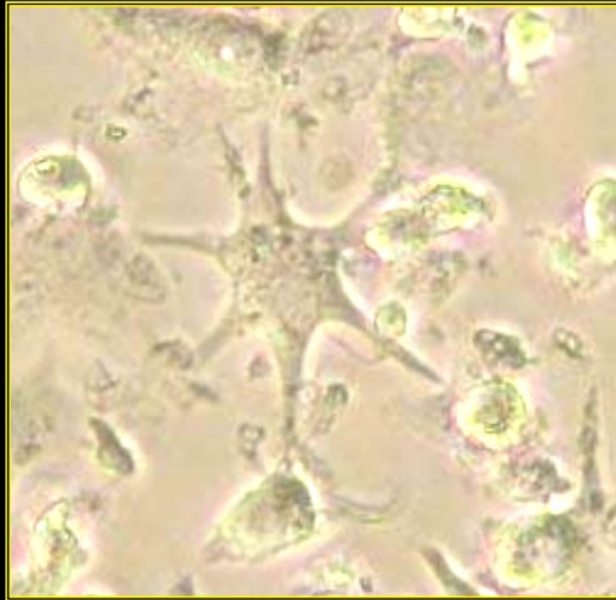
Neurological Advances



- Stroke Model
- Spinal cord injury model
- Retinal injury model

Neural Regenocyte Cell

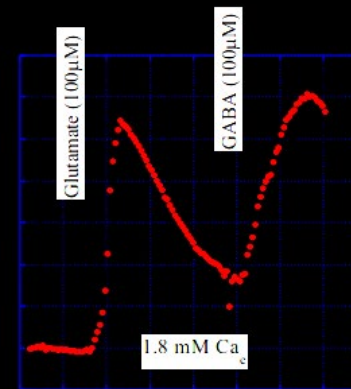
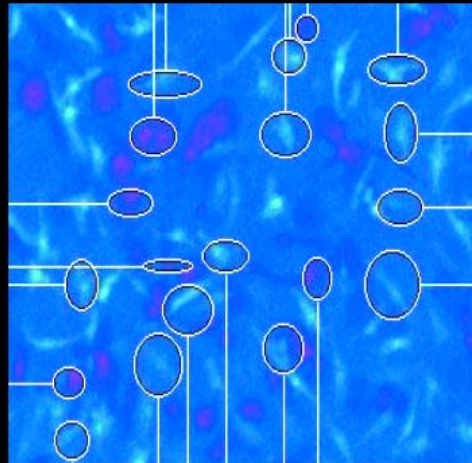
Neural Regenocyte Cell



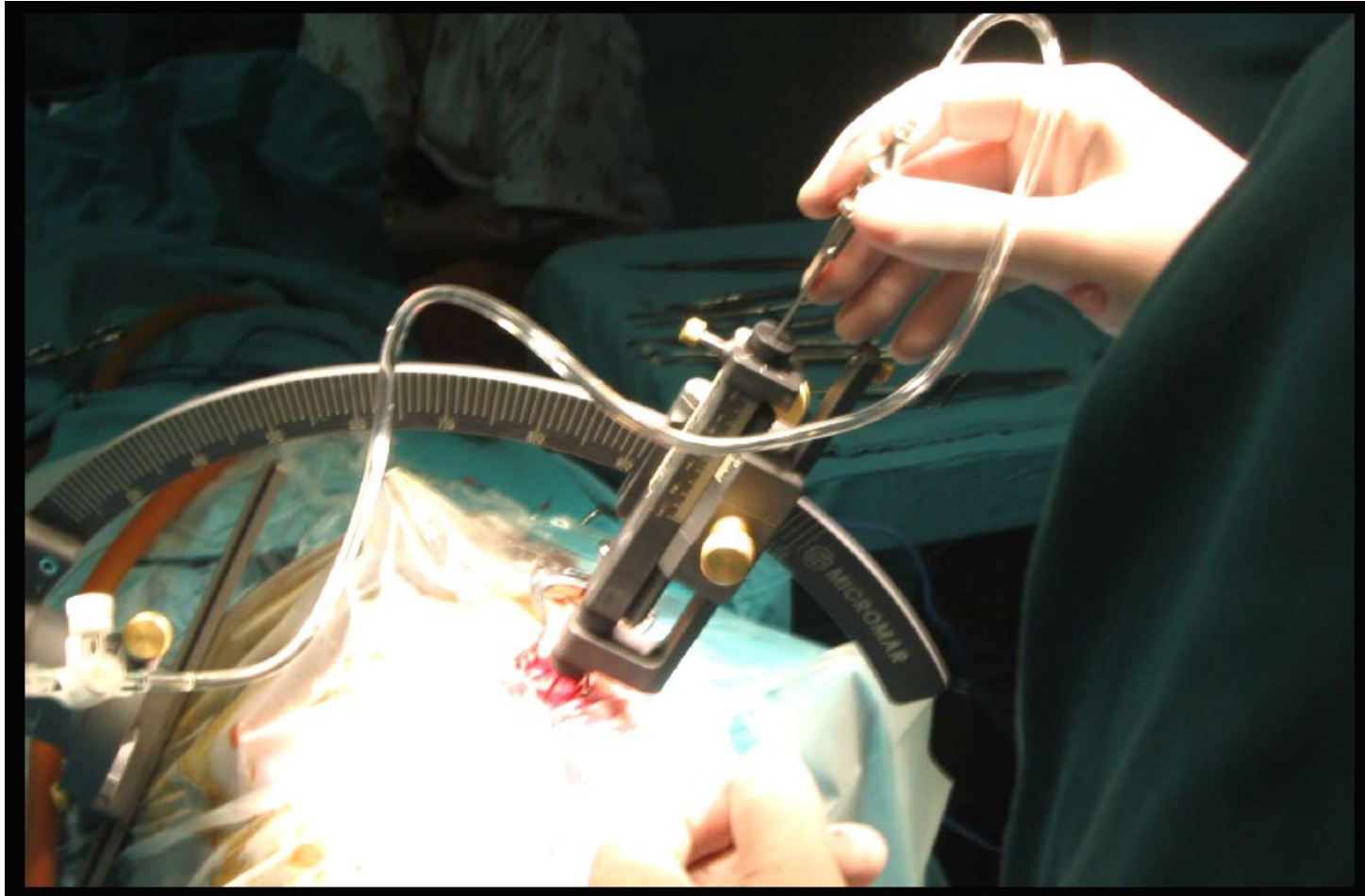
Physiological Activity

Neural Cell Precursors Physiological Activity

Response to the neurotransmitters Glutamate and GABA.



Stereotactic Brain Delivery

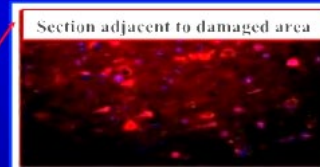
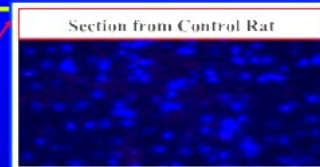


Neurological Studies

Neurologic Studies

Human NPCs engraft adjacent to infarct area

Nuclei - DAPI
H Mitoch-CY3



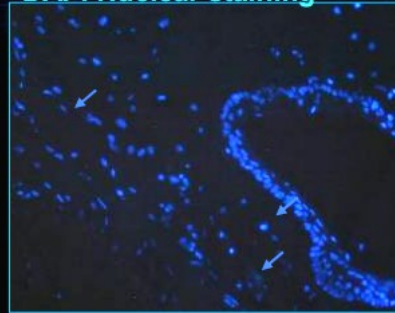
Neural Cell Precursors

SCP- Neural Cell Precursors *In Vivo* characterization

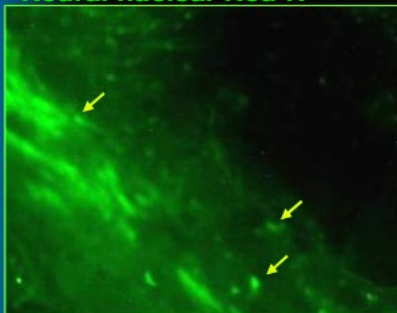
Morphology



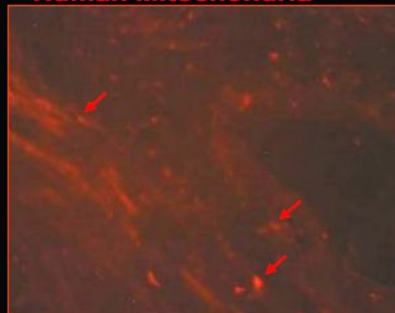
DAPI Nuclear staining



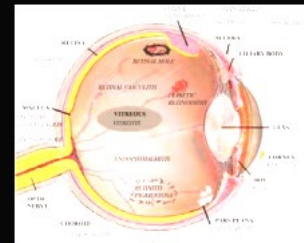
Neural nuclear Neu-N



Human Mitochondria

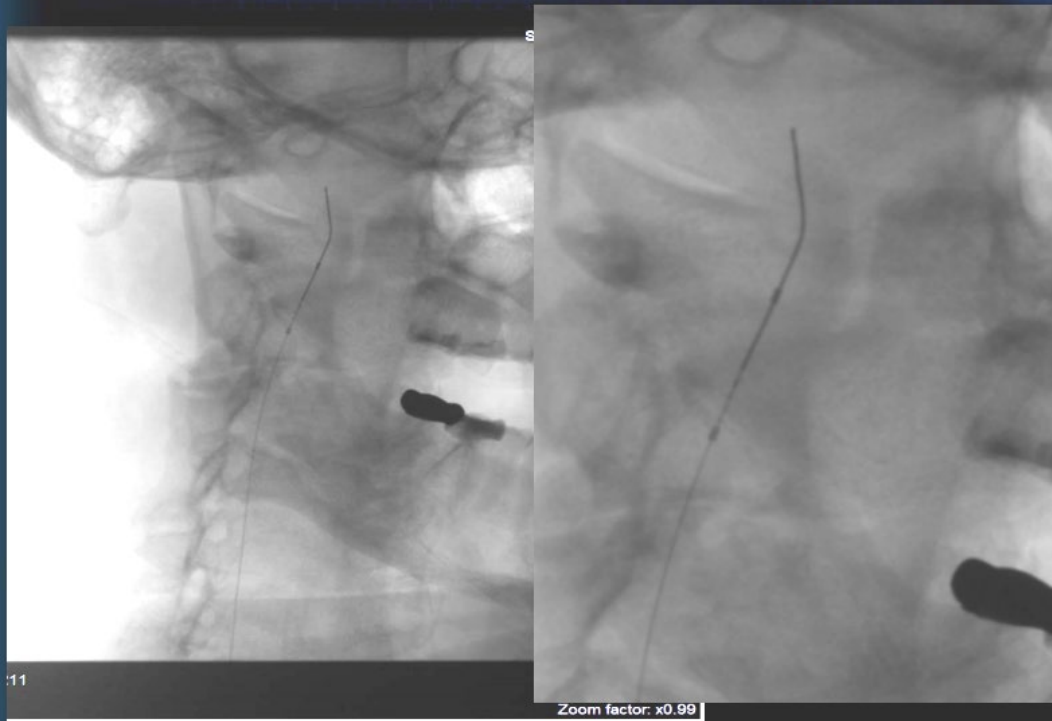


Homing and
engraftment of human
NCPs into rat eyes
after laser injury to
the retina



Carotid Infusion

Internal Carotid Infusion
68 yo w/age related cognitive deficit



MUGA Scan

MUGA SCAN



68 yo male with ischemic cardiomyopathy

EXAM#	TYPE/EXAM	RESULT
001406759	NM/CARDIAC MUGA	
PROCEDURE: NUCLEAR MEDICINE MUGA SCAN		
INDICATION: Cardiomyopathy, stem cell recipient		
COMPARISON: Compare with previous examination of July 7, 2008		
TECHNIQUE 24.5 mCi of technetium tagged red blood cells was administered for the study.		
FINDINGS The left ventricular ejection fraction is markedly improved at 31% No regional wall motion abnormality is evident		
CONCLUSION The left ventricular ejection fraction has improved from 15% on July 7, 2008, to 31% on the current study.		

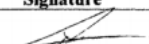
Results

Final Analysis

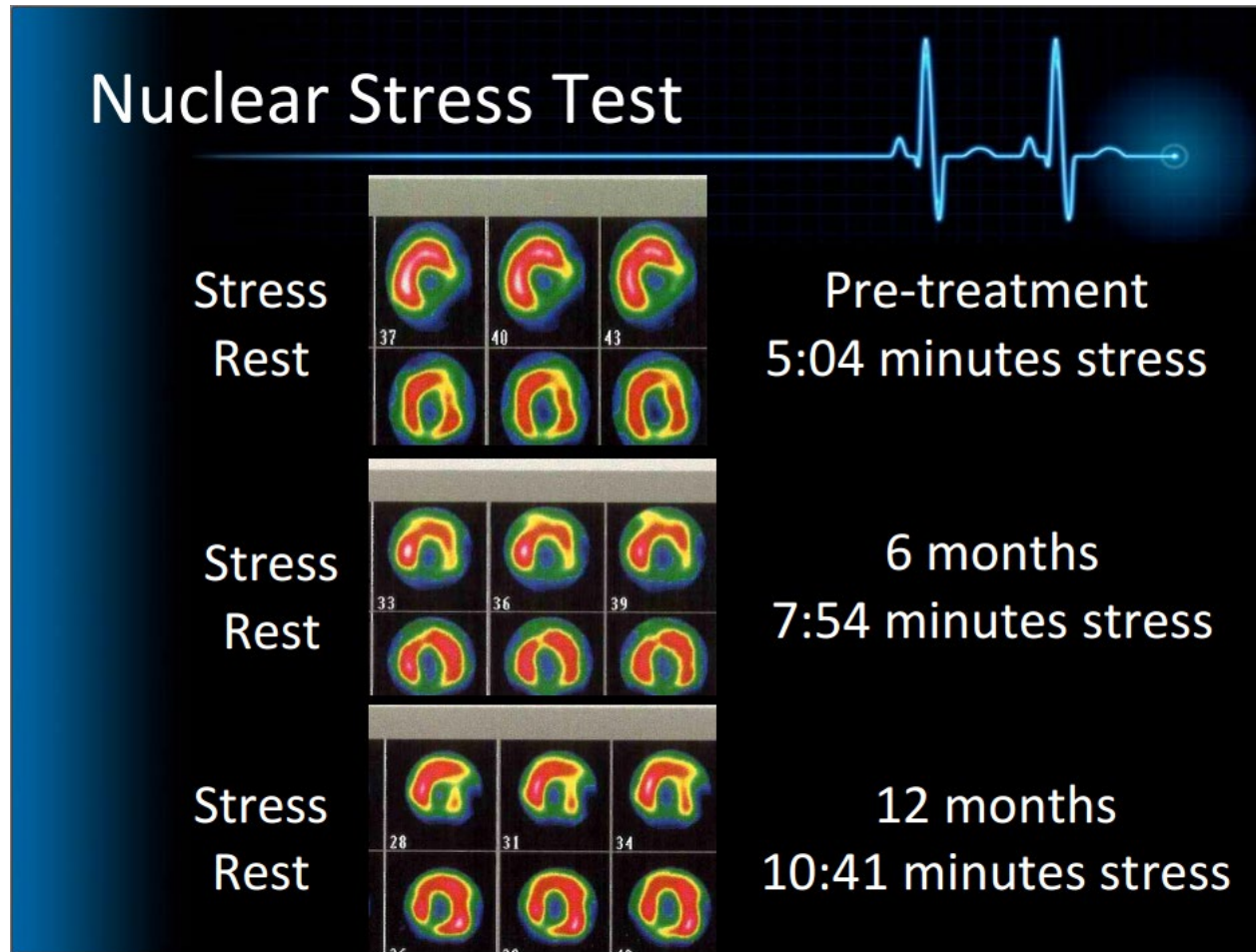
57 yo male w/multi-vessel Coronary Disease
Recommendation: 4 vessel CABG
Treated with Stem Cells

Test	Specification	Results	Pass/Fail
Sterility	No growth	No growth	Pass
Endotoxins	≤ 23.3 EU/ml	< 0.24 EU/ml	Pass
Gram stain	No evidence of bacterial cells	No evidence of bacterial cells	Pass
Viability	≥ 75 %	99.59 %	Pass
Total number of cells	$\leq 200 \times 10^6$ viable cells	65.54×10^6 viable cells	Pass
Cytometry Analysis	Total % of CD34 stained cells ≥ 1.5 %	69.70 %	Pass
	Total number of CD34 stained cells $\geq 1.0 \times 10^6$	45.68×10^6	Pass
	Number of specific stained cells CD31 bright x AcLDL ($\times 10^6$) $> 3 \times 10^6$ Cells	35.06×10^6 cells	Pass
IL-8 by ELISA	≥ 18.0 ng/ dose	134.9 ng/ dose	Pass

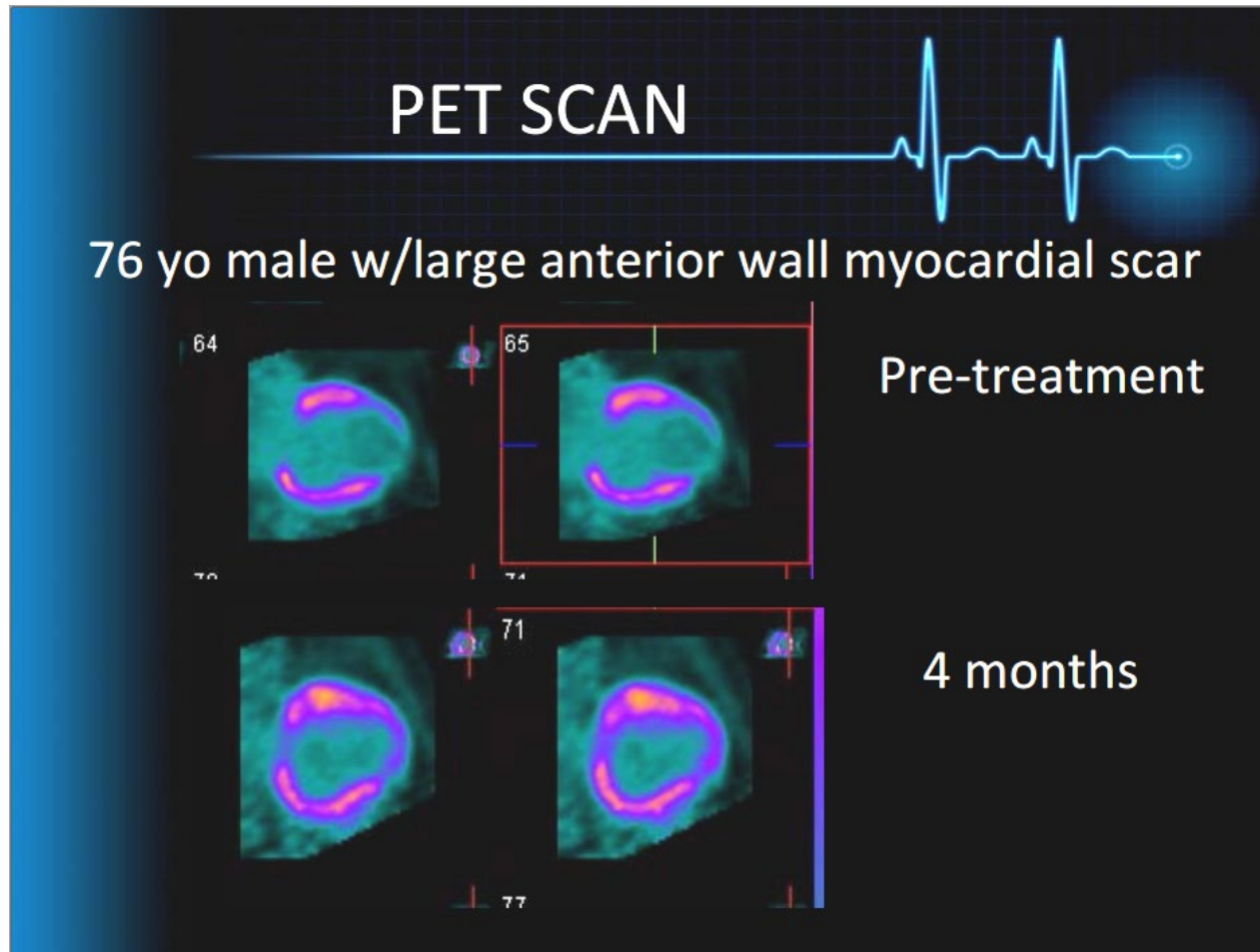
The results Comply with the Release Specifications

Approved	Name	Signature	Date (Israel)	Time (Israel)
Quality Assurance Manager	Kobi Elkayam		8-Apr-08	10:56

Nuclear Stress Test



PET Scan



Medical Team

Medical Team



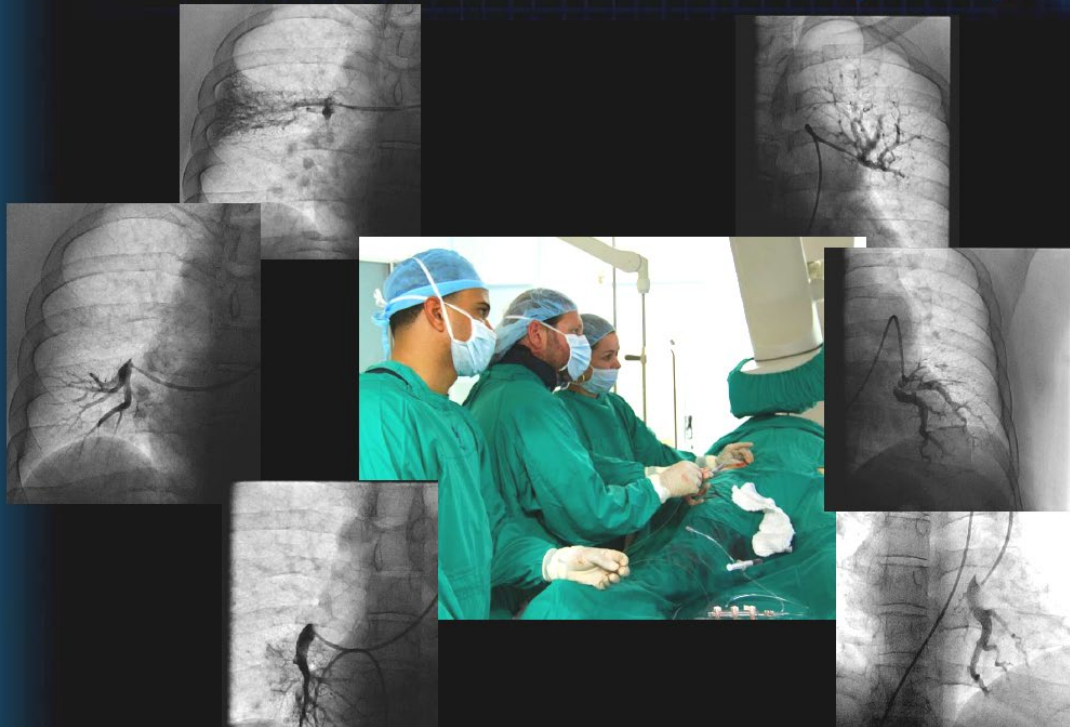
The First pulmonary patient treated



Advanced Pulmonary Disease

Advanced Pulmonary Disease

Sub - segmental Artery Delivery



Advanced Pulmonary Disease

Advanced Pulmonary Disease

Pulmonary Hypertension

COPD (Emphysema)

Pulmonary Fibrosis



Outcomes:

- Increase in functional capacity
- Improvement in pulmonary pressures
- Improvement in oxygen diffusion capacity
- Improvement in PFT parameters
- Decrease in oxygen use
- Decrease in Steroid / Medication / Inhaler use