העמותה לחקר בריאות העין ומניעת עיוורון בישראל

האספה הכללית השנתית של "עמותת לראות"

26.6.2024

Building a sustainable regeneration medicine ecosystem by catalyzing research, manufacturing, access to capital and talent development.

Prof. Noam Shomron and Dr. Sharone Naor

June 2024

Who we are

Prof. Noam Shomron

Uses basic science to advance better healthcare. A Professor of Digital Medicine and Functional Genomics at the Faculty of Medical & Health Sciences at Tel Aviv University. Leads a multidisciplinary team of scientists that develops computational methods for parsing big data in the bio-medical field using Artificial Intelligence.

Editor of 'Deep Sequencing Data Analysis' book (Springer, Edition I 2013, and II 2021); Director of 'Rare-Genomics' Israel (NPO); Director of Djerassi Institute of Oncology; Academic Director of 'ScienceAbroad' (NPO); ranked Major in the army forensic lab; Co-founder of several Biotech and Digital Medicine companies.

Dr. Sharone Naor

A staff researcher at the Department of Human Genetics and Biochemistry at the Medical & Health Sciences at Tel Aviv University.

Seventeen years of experience as a licensed clinical embryologist and andrologist, he has studied and worked in the USA. Additionally, he has managed IVF clinical laboratories in both the USA and Israel (Wolfson Medical Center).

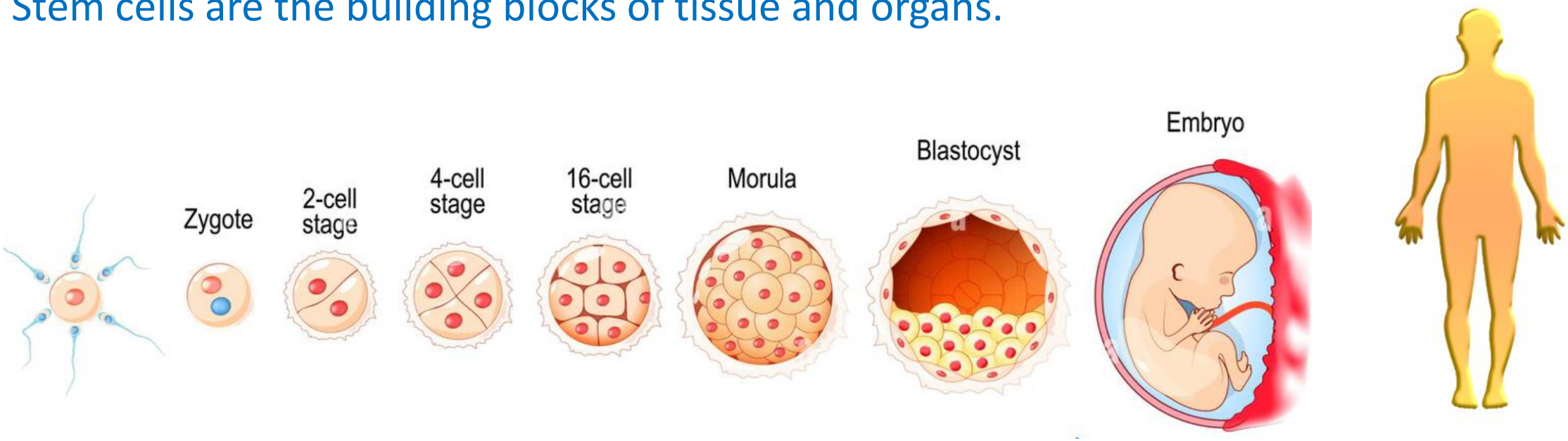
Co-established the Center for Stem Cells and Regenerative Medicine at the Sanford Burnham Medical Institute in San Diego, CA, and has an extensive experience in the field of stem cells and iPSCs.

Regenerative Medicine

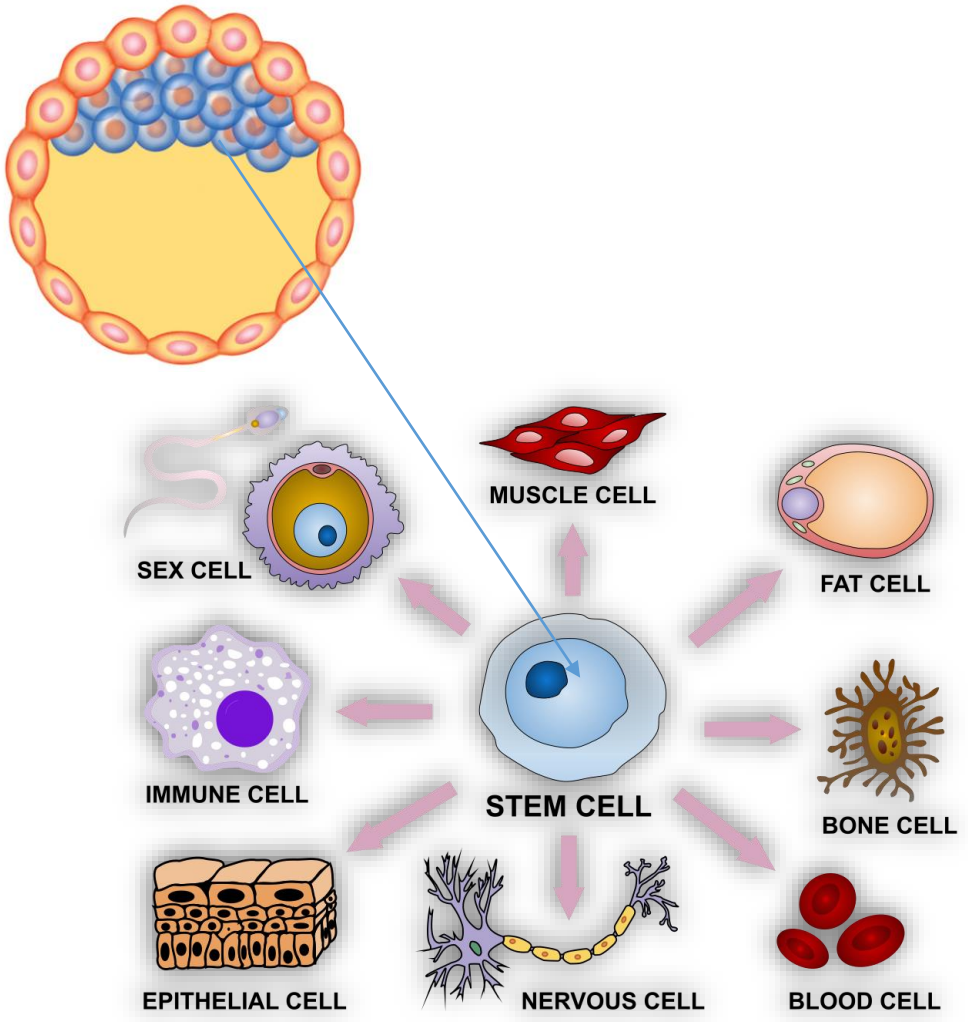
Regenerative medicine is a branch of medical science focused on repairing, replacing, or regenerating human cells, tissues, or organs to restore or establish normal function. This field includes a variety of approaches, including: stem cells, tissue engineering, gene therapy, cell therapy, and bioengineering.

The origin of stem cells, a case study.

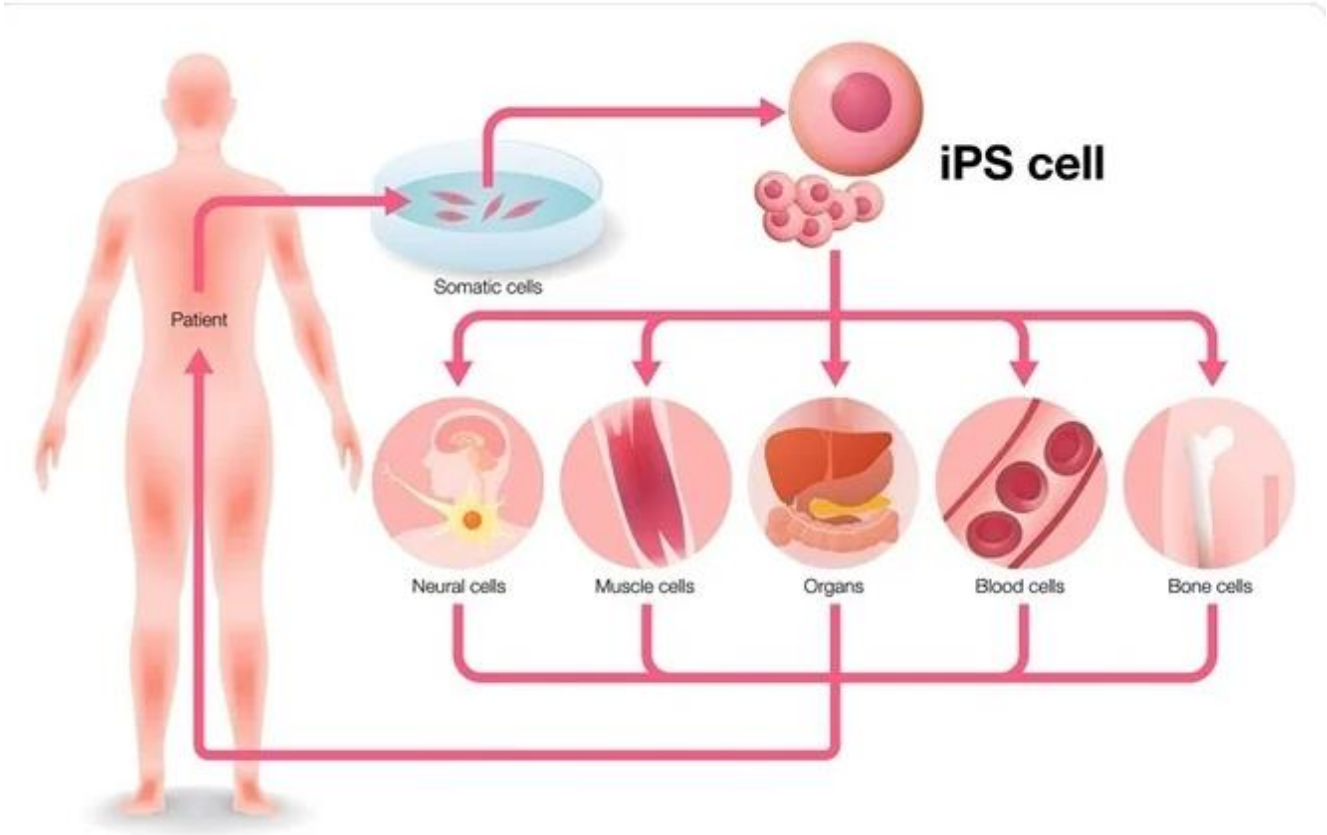
Stem cells are the building blocks of tissue and organs.



The Power of Stem Cells



“Reprogramming” human cells



Clinical case study: Ocular Regenerative Therapies

Retinitis Pigmentosa (RP)

- A family of congenital retinal dystrophies that results in severe vision loss at an early age.

Leber Congenital Amaurosis (LCA)

- LCA is a genetic disorder that causes severe vision loss due to mutations in the ***RPE65 gene***.

Regenerative medicine can help in these cases

Our Mission

To generate a sustainable basic research with health and economic benefits through local and global collaboration in regenerative medicine

SCIENCE

Israeli scientific members are internationally recognized regenerative medicine, hospitals and clinical research leaders who have a long and distinguished history of groundbreaking discoveries and scientific excellence

ECONOMY

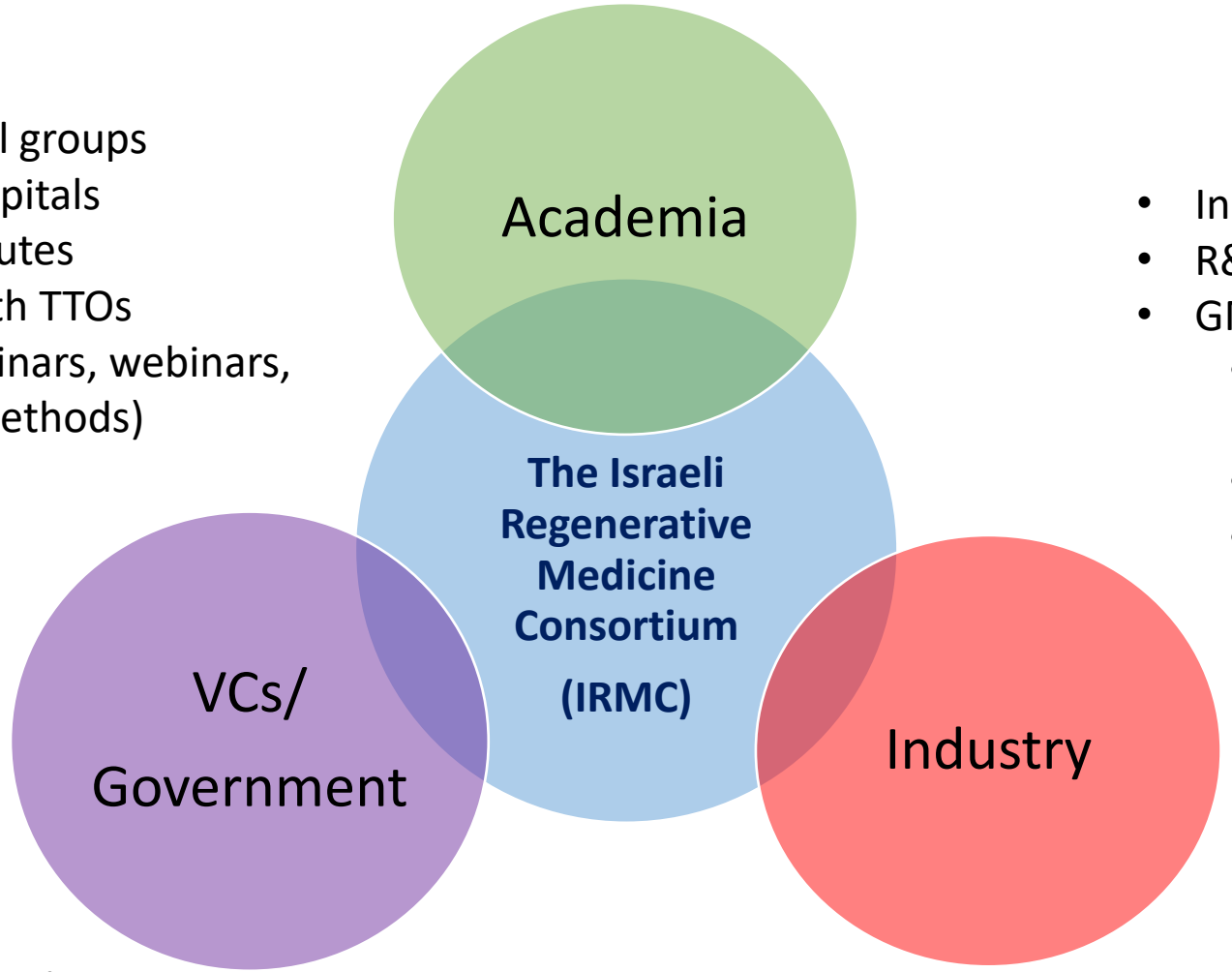
Represents a tremendous opportunity for Israelis to lead regenerative medicine commercialization and leading to new jobs

HEALTH

Taking regenerative medicine from bench to bedside by treating and potentially curing some of the most devastating and costly diseases in the world today.

Integrating Scientific Leadership and Business

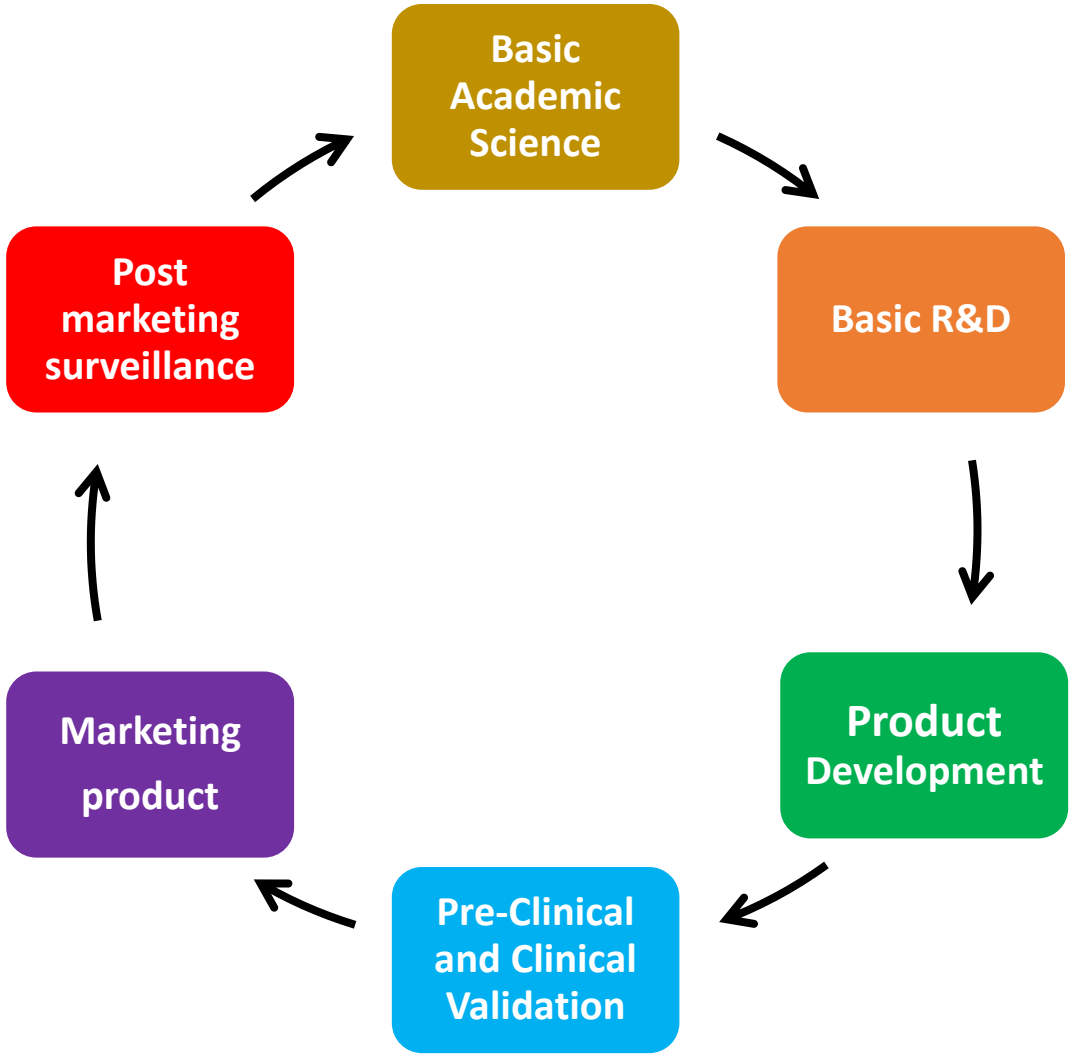
- PIs/teams/small groups
- Research in hospitals
- Studies in institutes
- Agreements with TTOs
- Education (seminars, webinars, recordings of methods)



- Innovative research in start-ups
- R&D
- GMP facilities:
  - hub for supporting hospitals and companies
  - regulation
  - bringing products to the market

- Seed money
- Advanced funding
- Reaching the US market

From the Bench to the Bedside



Taking regenerative medicine from bench to bedside and potentially curing some of the most devastating and costly diseases in the world today.

Israeli Regenerative Medicine Consortium (IRMC) Proposal

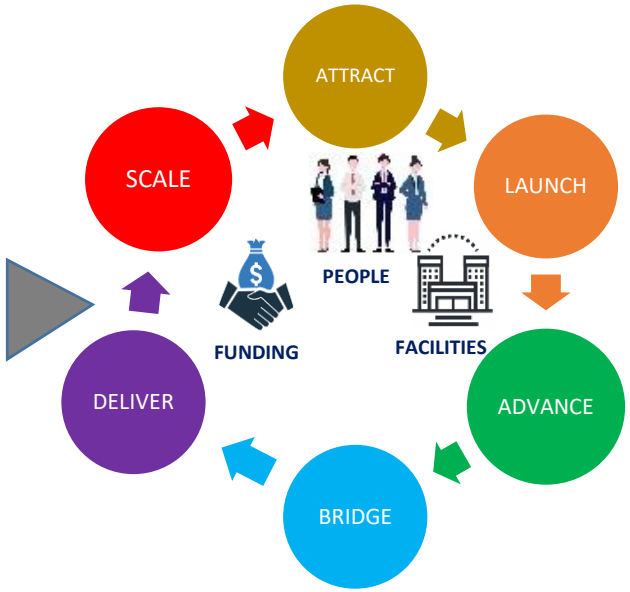
NETWORKS

- Academia
- Industry
- Investors

IP

Market Needs

APPLICATIONS



VALUE CENTERS

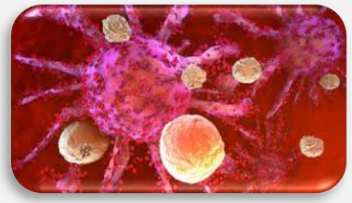
- Proprietary Development
- Contract Service
- Investment

OUTCOMES

Research discoveries. Breakthroughs Networks. Early access to companies. Support of manufactories.

Establishment of Research & Technology Development

Stem cells, iPSC reprogramming, gene editing, diffet., biobanking

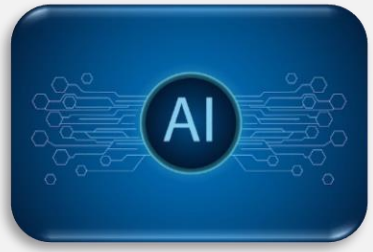


Automated, closed cell expansion and manufacturing

Custom and high-throughput media optimization

Infrastructure of viral vector USP and DSP development

Analytical development of therapy



Analyzing a patient's genomic data

Optimizing Cryopreservation Strategy

High experienced operational staff

GMP clean rooms of CGT products

Fit-for-purpose, quality systems

CGT= cell and gene therapy

IRMC work plan

Analysis and Groundwork

Environment and Opportunities Analysis:

Review the current state of regenerative medicine in Israel.

Identify opportunities and challenges in the local and international markets.

Understand local and international regulations in the field

Defining Objectives:

Define the center's objectives: research, development, commercialization, and workforce training

Strategic Planning

Business and Financial:

Develop a detailed business plan with financial forecasts.

Identify potential funding sources such as grants, private investments, and industry partnerships.

Infrastructure Setup:

Select a suitable location for the center.

Plan and establish the necessary infrastructure: research labs, production facilities, and support infrastructure.

Building Team and Infrastructure

Recruiting Professional Staff:

Recruit researchers, engineers, and experts in regenerative medicine.

Establish an experienced management team

Procurement and Facility Setup:
Purchase relevant research and production equipment.

Establish labs and production facilities according to international standards.

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Research Development and Partnerships

Research Development:

Develop research programs in various areas of regenerative medicine.

Create frameworks for collaboration between researchers from academic institutions and industry.

Industry and Partnerships:

Create partnerships with pharmaceutical and biotechnology industries.

Develop collaborative networks with international research .centers

Commercialization and Implementation

Product and Technology Development:

Identify and develop technologies and products suitable for the market.

Build development pathways from research to application and commercialization

Intellectual Property Protection:

Develop strategies for intellectual property protection and patent registration.

Manage registration processes and regulatory approvals.

Marketing and Promotion

Marketing Strategy:

Develop a marketing and commercialization strategy for technologies and products.

Build a strong brand and create market presence.

Education and Workforce Training:

Develop training programs for employees in regenerative medicine.

Create connections with academic institutions for student and young researcher training.

Performance Monitoring

Performance Monitoring:

Establish systems for monitoring and evaluating the performance of various projects and initiatives in the center.

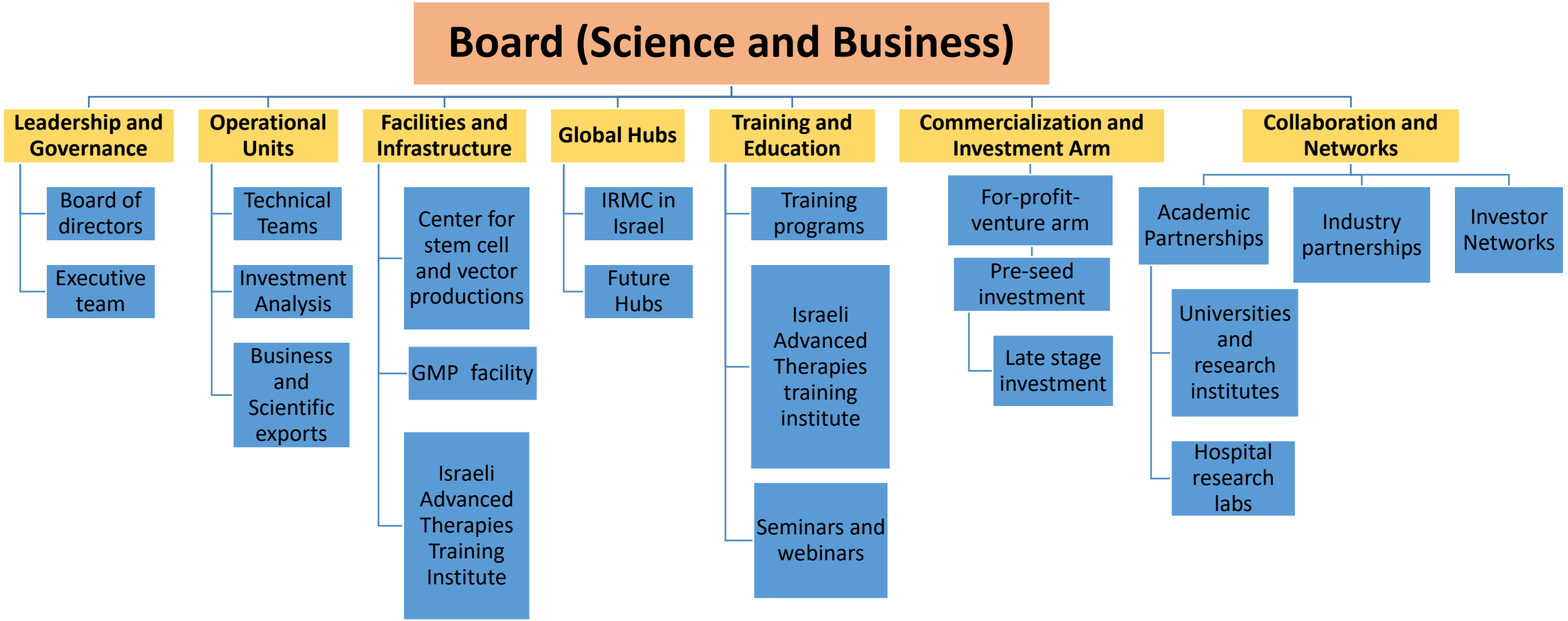
Conduct continuous improvements based on feedback and analyses.

Impact Assessment:

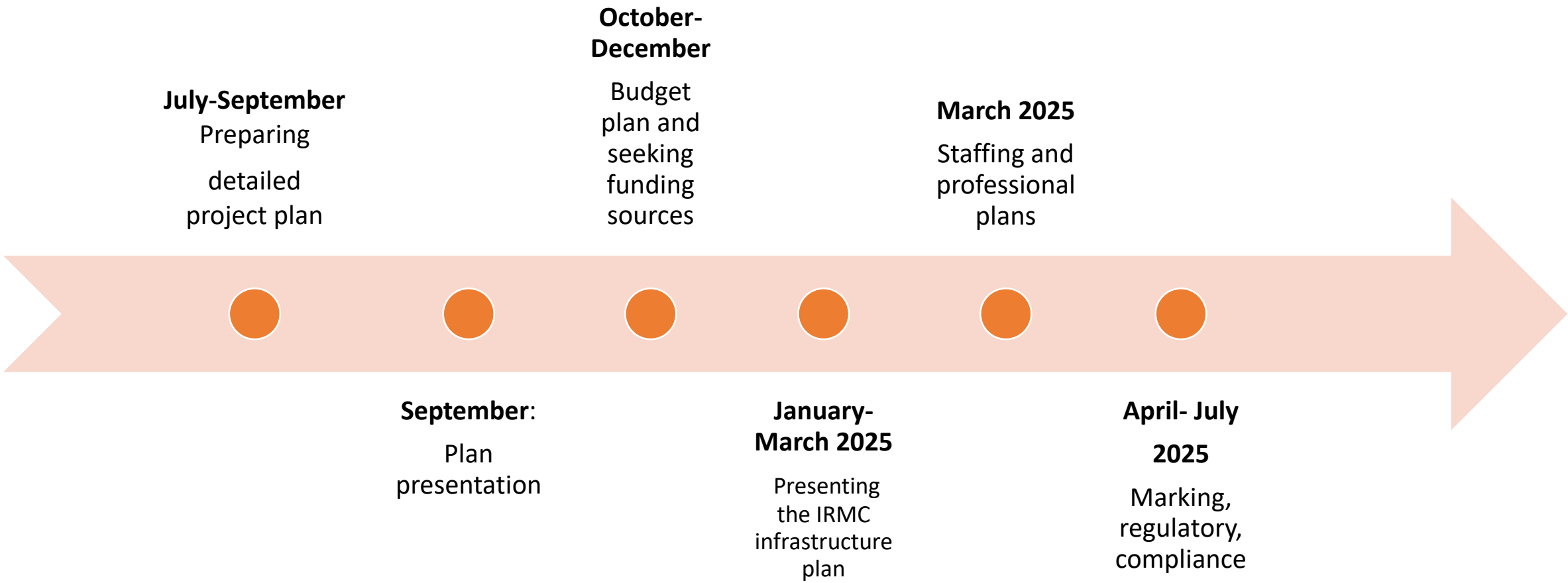
Measure the center's impact on the scientific community, industry, and society.

Provide periodic reports to investors, partners, and government bodies.

IRMC Structure



IRMC Timeline



IRMC Summary

Israeli Scientific Leadership

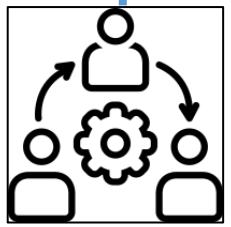
Israeli Business Leadership

IP In-licensing

IRMC

Market Pull and Co-development

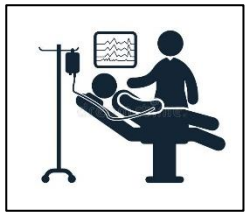
External IP



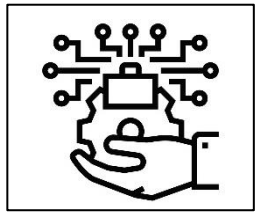
Industry Consortium

Cell Therapies

High Value Technologies



Clinical Validation



Establishing companies