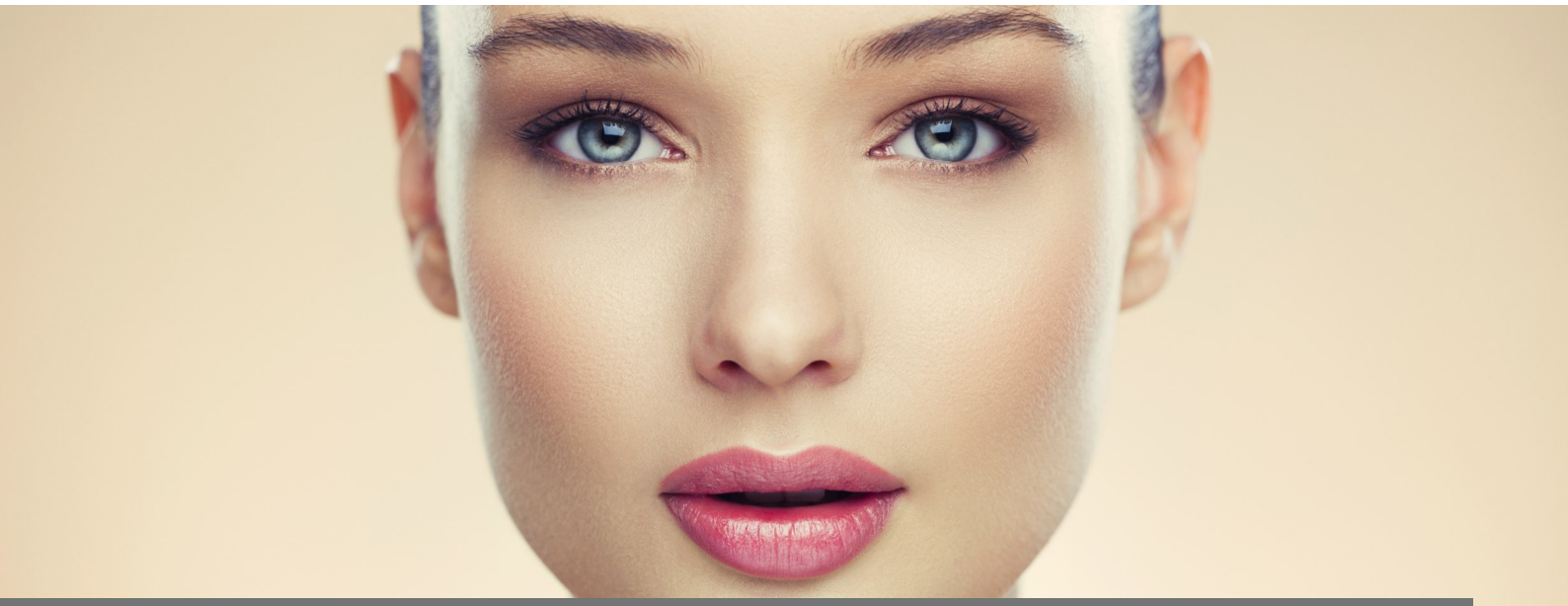
BINDER
Best conditions for your success



Institute for Regenerative Medicine works on making aging skin appear younger

Bioscience Clinic Middle East specializes in stem cell therapy

The Bioscience Institute and Clinic are among the world's leading centers for regenerative medicine. Founded in 2006 in San Marino, the company has recently opened a subsidiary in Dubai. The Institute specializes primarily in personalized autologous stem cell therapies, which involve harvesting the body's own cells for use in applications such as plastic surgery, anti-aging therapy, tissue repair, or dermatological and orthopaedic treatments. Every step of this complex process is performed in-house by the Institute, including tissue recovery, stem cell isolation and expansion, and ultimately patient treatment. It also boasts its own cryopreservation equipment with long-term storage for specimens that can be used in stem cell therapy. Whatever the requirements for extracting and storing stem cells, the Institute knows it can rely on climate chambers from BINDER, as they offer the utmost safety and defined, constant conditions that are so essential for these sensitive processes.

The Cell Factory

Once tissue has been recovered, the first critical step is to extract and isolate adult (mature) stem cells from it. It is absolutely essential during this process to work in aseptic condition and perform extensive incubator tests. The selected cells are then expanded, i.e., multiplied *in vitro* in a phar-

▲ Utmost safety is essential while preparing stem cells

Requirements

- Reproduceiable growth conditions
- Constant climate conditions
- Low risks of contamination
- Reliable decontamination concept
- Long-term storage of samples
- High safety performance
- Growth of selected cells

BINDER solutions

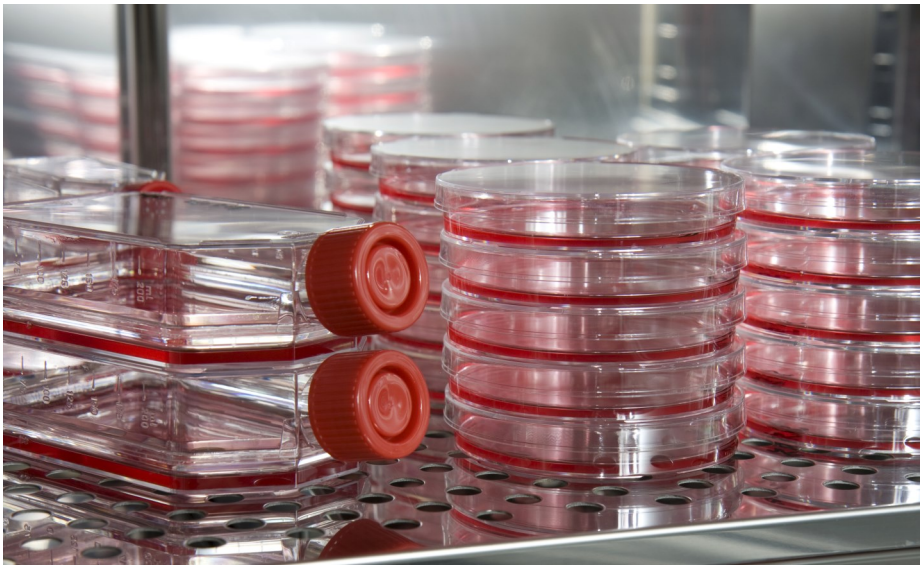
- **CO_2 incubators CB 160**
- High temperature uniformity provided by the APT.line™ preheating chamber
- Saturated relativ humidity up to 95 % r.H.
- Stable ph-values thanks to drift-free CO_2 / O_2 IR sensor technology

- **Ultralow temperature freezers UF V500**
- Optimal sample capacity for up to 52.800 samples
- Pesonalized access control with RFID technology
- Simple data management

ma-grade clean room equipped with a CO_2 incubator and subjected to final genetic tests in an incubator for added safety before being used in patient treatments.

"When incubating the cells, it is vitally important for the set parameters to remain exactly constant across all levels."

Dr. Simona Alfano, Biologist



▲ Incubation of cell culturs in a CO_2 incubator

Cryopreservation and long-term storage

Once expanded and tested, the stem cells can be stored while transferring them to the gas phase of liquid nitrogen vessels at -196 °C for future use. These conditions allow the living cells to retain their vitality for years so that they can then be used in innovative therapeutic applications as they are conceived. The first step of this process is cryopreservation. This involves aliquoting (dividing into smaller portions, or "aliquots") the cells and freezing them at -86 °C in a BINDER ultralow temperature freezer before transferring them to the gas phase of liquid nitrogen vessels. At this point, the water's critical gas transition temperature of -130 °C is undershot and the water ice becomes amorphous, i.e., the ice crystals that would otherwise destroy the cells no longer form.

Natural and sustainable results

The Bioscience Clinic only uses skin and fat tissue specimens from adult (mature) cells. Using the body's own – i.e., autologous – cells eliminate the risk of rejection while also preventing the complication of graft-versus-host disease (an unwanted reaction to the donor's immune cells). BINDER's CO_2 incubators are predominantly used to incubate stem cells from mesenchyme tissue (undifferential connective tissue). Before these cells can be placed inside a CO_2 incubator, however, they must first be extracted from the fat tissue. This process is performed by means of enzymatic disaggregation (separation) using various steps of filtration and centrifugation. The crucial stage here is the expansion, i.e., extracting as many stem cells as possible, which is why it is absolutely essential to create the best possible growth conditions. Dr. Simona Alfano, Biologist at the Bioscience Clinic explains that when incubating the cells, it is vitally important for the set parameters to remain exactly constant across all levels.

Advantages

- Temperature range 7 °C — 60 °C above ambient temperature
- Hot-air sterilization at 180 °C
- Gas mixing head
- Easy cleaning

Application

- Cell culture
- Tissue Engineering
- In vitro Fertilisation

▲ *CO_2 incubator CB 160*

Contact Data

BIOSCIENCE CLINIC -
MIDDLE EAST FZ-LLC
Dubai Healthcare City
Unit No GF-6R, Building No 64
Dubai, United Arab Emirates
Licence No: 00702

Contact Person

Dr. Simona Alfano, Biologist

CB 160 Request