

# Science: Malaysia to be stem cell producer's global hub

**MALAYSIA is set to become the global hub for stem cell transplantation following a decision by the world's largest manufacturer of stem cells to site its main manufacturing plant here soon.**



**Dr E. Michael Molnar, one of the world's foremost experts on stem cell transplantation**

Bio-Cellular Research Organisation (BCRO), which is the world's foremost researcher in stem cell transplantation with almost three decades standing, is headquartered in the United States.

Its present manufacturing plant is in Slovakia.

BCRO is projecting an estimated RM280 million over a three-year period to transfer its technical know how by its scientists from the USA and European Union.

According to Dr E. Michael Molnar, who is one of the world's foremost experts on stem cell transplantation, BCRO currently supplies stem cell transplants to doctors and hospitals in North and South America, Europe, Africa, Asia and Australia.

"We have extended treatment to about 200 patients in South East Asia, Hong Kong and Australia, including about 100 cases in Malaysia over the last 2½ years.

"The best results were seen among

Down Syndrome and brain-injured children, and adult patients with neuro-degenerative diseases and complications from diabetes."

He said for more than 16 years, BCRO stem cell transplants have been carried out with negligible pain and rare local infection as the only side effect.

This qualifies this method as a cutting edge technology for therapy of a whole variety of indications which include:

- diabetes
- hormone deficiency disorders
- early menopause
- male and female infertility, where usual treatment has failed
- immune deficiency disorders such as chronic weakness syndrome, AIDS, cancer and auto-immune illnesses
- aging diseases including menopause, impotence and depression

- cirrhosis of the liver and chronic hepatitis

"Besides these diseases, physicians have also used stem cell transplants as a treatment for many other ailments where patients need a direct stimulation of regeneration (repair) of damaged cells and tissues.

"We at BCRO have found a method to prepare stem cells transplants of any of the 200 kinds of cells for clinical use that can be implanted with state-of-the-art technology," said Dr Molnar.

He added that a stem cell transplant can range from RM26,000 upwards.

"However, once we set up in Malaysia, we can expect the price to be much cheaper."

Treatment for all diseased organs STEM cell transplantation was introduced into clinical practice in 1931 and has since preceded organ transplantation, with the potential of dominating the medicine of the 21st century.

The main reasons for this are:

- Stem cell transplants are a minor procedure for a patient and should be used in the earlier stages of those diseases that current medicine cannot cure, or even treat.

It means that there is no reason a patient has to wait till the end-stage as in the case of organ transplants.

- One reason why stem cell transplantation is such a simple procedure is because of a principle called "homing".

This means that the respective stem cells do not have to be implanted into the damaged organ (i.e. liver stem cells into liver), but can be implanted into any of the more accessible superficial tissues.

This is because these cells will be able to find their way into the damaged organ. Implanted stem cells are not attracted by any other healthy organ, tissue or cells.

- Every diseased organ can be treated by stem cell transplantation.

Transplanted cells bring back to life (or repair) those cells of such organs that actually have not died, but had stopped functioning as a result of the disease, besides serving as a replacement for dead cells of the diseased organ.

- If stem cells are properly prepared, they can be implanted without immunosuppression (reducing the function of the immune system), thus

avoiding any complications caused by such medications.

BCRO has always manufactured stem cells from rabbit fetuses.

Coming from a closed colony in existence for nearly 30 years with documented lineages, having been bred and raised in captivity with minimal exposure to vectors of infectious agents, the rabbit fetuses used by BCRO have been free from any disease.

"Besides that, rabbits are the sole laboratory animal in which no retroviruses have been identified," said Dr E. Michael Molnar, one of the world's foremost experts in stem cell transplantation.

## No surgery involved

A STEM cell transplant is a complex procedure to replace unhealthy stem cells with healthy ones.

Stem cell transplants don't involve surgery and is the infusion of healthy stem cells into your body.

If all goes well, these healthy stem cells soon begin normal production of blood cells.

Stem cell transplants are used to treat people whose stem cells have been damaged by disease or treatment of a disease and can benefit a variety of both cancerous (malignant) and noncancerous (nonmalignant) diseases.

For instance, in aplastic anaemia, which is a noncancerous condition, the bone marrow stops producing enough new blood cells.

A stem cell transplant destroys dysfunctional marrow and infuses healthy stem cells.

The new stem cells migrate to the marrow and begin working normally.

Similarly, in leukaemia, the unhealthy bone marrow is destroyed because it doesn't work properly and may contain cancer cells.

When healthy stem cells are transplanted, normal cell production can resume.

Immune factors in the transplanted cells may also help destroy any cancer cells left in your bone marrow.