

Sector:

Pharmaceuticals

Project Title:

Stem Cell Bank

Project Description

Stem cell research offers immense potential for revolutionary advances in clinical therapy to provide possible therapeutic solutions for complex and debilitating diseases such as Parkinson's, spinal injury etc. Across the globe, biotechnology companies and research institutions are investing huge sum in creating enabling infrastructure for undertaking research in stem cell.

Umbilical cord blood is the rich source of stem cells, which can be preserved cryogenically for years. In future, if a person suffers from life threatening diseases such as leukemia or other genetic disorders, his stored cells can be used to provide a potential cure. Use of one own cells minimizes the possibility of cell rejection by body immune system. Stem cell storage offers once in a lifetime opportunity to prospective parents for storing infant's cells that can be utilized to treat the child or its near siblings in future.

To collect and preserve this blood, specialized cord blood/ stem cells banks are being established across the world. These banks are large scale cryogenic facility that preserves cord blood at around -196 °C. Stem cell banks are well developed business concept in developed nations and it is rapidly gaining ground in India.

To provide thrust to stem cell research in the Country, the Government of Madhya Pradesh proposes to establish a stem cell bank in the State. The proposed bank would be a modern cryopreservation facility that would alleviate collection, processing and preservation of cord blood. It would employ State-of-the-art IT infrastructure for coding, tracking and security functions.

The proposed stem cell bank would be established on 2 acres of land in the envisaged pharmaceutical cluster at Indore. Based on hub and spoke model, the principle storage unit would be established at Indore while collection centers would be located at different strategic locations across the state and in the Country.

The bank would be a commercial entity and would provide cord blood storage for a chargeable fee. It would foster link with medical institutes, hospitals, research institutions and biotechnology companies to aid in stem cell research.

The bank would be affiliated and certified by a key governing agency such as US FDA or NIH. The quality and operational procedures of bank would confirm to the guidelines recommended by these agencies.

Project Rationale

Cord blood storage offers promising option to safeguard potential therapeutic solutions for various incurable diseases and genetic disorders which can affect an infant in future. Cord blood storage although is a new concept but it is rapidly gaining ground in India. Already 2 banking facilities have started operation in Chennai and Gurgaon respectively.

Madhya Pradesh being centrally located offers a lucrative value proposition for stem cell banks. The strategic central location at the heart of the Country facilitates equidistance connectivity with all key cities and commercial centers. Being located in MP, the bank could become the central repository for various collection centers and extension branches. Well developed connectivity would further facilitate convenient transfer of collected samples from various parts of the Country.

The envisaged pharmaceutical cluster at Indore would offer various operational and infrastructure benefits to the bank. Since the cluster would be an integrated facility with several pharma, biotech, CRO's and R&D companies as its prospective tenants, it would offer significant options for operational and technical collaboration.

Further, the envisaged Clinical Trial Center in the cluster would facilitate testing of pioneering stem cell therapies. Joint research collaboration between biotech firm and stem cell bank would expedite the process wherein the bank would extend its hi-end storage facilities to be used for trials in the vicinity of trial center. Thus the cluster would assist the bank realize various growth avenues arising out of such a configuration.

Madhya Pradesh is increasingly preferred by the domestic and multinational corporate houses to establish their operational centers. The State offers unmatched advantages in terms of equidistance connectivity, low manpower and land costs, availability of skilled workforce etc. The proposed stem cell bank would further consolidate its position among the upcoming knowledge hubs in the Country.

Proposed Facility

The stem cell bank would have the following facilities:

- Processing section
- Testing laboratory
- Cryopreservation center
- IT support center
- DG set
- Administrative office
- Cafeteria

Market Potential and Demand Dynamics

Stem cell preservation is a huge business opportunity in the international market and as per estimates the global stem cell market is expected to become USD 10 bn opportunity over next 10 years.

Due to high birth rates, India presents lucrative opportunity for stem cell banking business. With 43 million births a year, the Country is poised to become the largest supplier of umbilical cord blood in the world. Leading cell banking companies are keenly eying the Country's potential and are contemplating to enter Indian market preferably via joint venture with a local firm.

Further, India offers unmatched advantages in terms of land and manpower cost competitiveness, availability of technical workforce with high skill sets and regulated market. The Country has all the essential ingredients to emerge as a key repository of cord blood for companies across the globe. Leveraging the well developed logistics infrastructure, leading companies can create huge storage capacities for their global and Asia pacific operations in India.

With rapid economic growth, widening base of high income group couples, the Country has huge target population that could be enticed towards the benefits of cord blood storage. Estimated cost of cord blood storage cost around USD 1,500 to USD 2200 for a 20 year period and India has huge customer base which could afford this.

Presently, lack of awareness and highly technical nature of the process is the key reason for a small customer base in the Country. However, the market has tremendous potential that could be tapped by initiating an awareness campaign and a customized marketing plan.

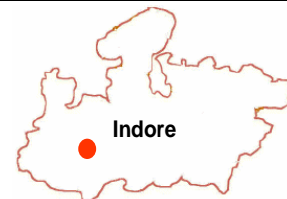
Why Madhya Pradesh?

- The State has a rapidly burgeoning base of pharmaceutical industry. Major players such as Ranbaxy, Lupin and IPCA already have a foot hold in the State and are on the road to expansion under the favorable industrial policies and initiatives by the State Government.
- Madhya Pradesh is envisaging a pharma cluster at Indore and has constituted a board for Biodiversity and life sciences under the chairmanship of the Chief Minister.
- Efforts are also being made to establish national level training centers through support of large industrial houses of MP. This would ensure that the State will never be short of professional expertise. This is an added advantage to the investors looking to invest in the in the State as there would be a wide availability of qualified and skilled professionals at a relative low manpower investment cost.
- MP has the right blend on freshers and laterals for the clinical trial and pharmaceutical industry. The institutes across the State are well equipped to provide trained manpower in each domain. There are 9 key pharmacy colleges in the State supported by 6 medical colleges and 43 management institutes (including one of the six Indian Institutes of Management at Indore). The laterals have experience of working in India's leading pharmaceutical companies such as Ranbaxy, Lupin, NPIL, etc.
- Every year ~300 Students pass-out from the State key pharmacy colleges which can provide adequate skilled manpower for the industry. some key pharmacy colleges are as follows:
 - ✓ B. R. Natha College of Pharmacy, Mandsaur
 - ✓ College of Pharmacy, Indore
 - ✓ Department of Pharmacy, Bhopal
 - ✓ Dr. Harisingh Gour Viswavidyalaya, Sagar
 - ✓ Institute of Pharmacy, Gwalior
 - ✓ R.K.D.F. Institute of Sciences & Technology, Mandideep
 - ✓ Shri G.S. Institute of Technology & Science, Indore
 - ✓ V.N.S. Institute of Pharmacy, Bhopal

Location Analysis

The Stem cell bank would be located in the envisaged Pharma cluster at Indore. Various factors which positioned Indore as a location of choice are:

- ✓ High quality of life
- ✓ Well developed infrastructure
- ✓ Ample availability of economic land



- ✓ Availability of skilled manpower
- ✓ Commercial capital of MP

Proposed Capacity

The bank would have the Storage capacity of 0.1 million samples.

Proposed Investment

The total investment for the project is estimated to be around USD 2.2 mn or INR 10 crores.

Returns

The Internal Rate of Return from the project is estimated to be in the range of 16 – 18%.

Coordinating Agency

Madhya Pradesh Industrial Development Corporation