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## Advantages of Stem Cell Research: Role of Medical therapy in India.

T Mohana Lakshmi<sup>1</sup>, Chidambaram<sup>2</sup>, A Vaithialingam<sup>3</sup>, and E Prabhakar Reddy<sup>4\*</sup>.

<sup>1</sup>Department of Microbiology, Sri Lakshmi Narayana Institute of Medical Sciences, (Affiliated to Bharath University, Chennai), Pondicherry, India.

<sup>2</sup>Department of Radiodiagnosis, Sri Lakshmi Narayana Institute of Medical Sciences, (Affiliated to Bharath University, Chennai), Pondicherry, India.

<sup>3</sup> Department of Orthopaedics, Sri Lakshmi Narayana Institute of Medical Sciences, (Affiliated to Bharath University, Chennai), Pondicherry, India.

<sup>4</sup>Department of Biochemistry and Central Laboratory Head, Sri Lakshmi Narayana Institute of Medical Sciences, (Affiliated to Bharath University, Chennai), Pondicherry, India.

### ABSTRACT

Current stem cell research is to how healthy cells can replace diseased or otherwise damaged (effect) cells in the body. This will allow for medical therapies to create compatible cell lines to replace diseased cells in the body. The promising approach is to see stem cells as promoting regeneration rather than being the source of new building blocks themselves. Clinical research gauge the effectiveness of the medical therapy. Researchers still have long way to go before they completely control the regulation of stem cells. Now clinical research focused on medical therapy particularly scientists, concentrated on stem cell to treat diseases like cancer. Stem cells are mainly used in Parkinsons disease, Type-1 Diabetes, Arthritis, Burn Victims and Cardiovascular diseases.

**Keywords:** Stem cells, Cancer, Medical Therapy, Mutation, Human gene.

*\*Corresponding author*



## INTRODUCTION

In the Mid 1800s it was discovered that cells were basically the building blocks of life and that some cells had the ability to produce other cells. Stem cells research has now progressed dramatically and there is countless research studies published each year in scientific journals. Adult stem cells are already being used to treat many conditions such as leukaemia and heart disease. Current stem cell research is to how healthy cells can replace diseased or otherwise damaged (effect) cells in the body. This will allow for medical therapies to create compatible cell lines to replace diseased cells in the body [1-8]

### To understand stem cell research

By studying stem cells, we can learn about the actual process that occurs from a single stem cell to a huge array of specialised cells that let us live and function each day countless devastating and serious disease such a cancer are thought to occur at same point in the division process of a stem cell to a specialised cell. Though Scientific research gives a knowledge about the development of a normal stem cell, scientists can better learn how to correct the mistakes that occur and lead to such diseases with 1 in 3 people developing cancer in their lifetime and 1 in 4 dying from cancer, stem cells may have the ability to have a great many lives. So what we are able to identify exactly why cells become cancerous and how, they can find ways to prevent the change occurring in the first place as well as develop drugs to treat the disease in a scientific manner of medical therapy.

Now-a-days Scientists are focusing on how stem cells transform or differentiate; in to the diverse range of specialised cells that make humans what stage they are today. Because diseases like cancer is a conditions such as Birth defects are thought to occur because of problems in the differential process, one understanding of the development that happens in normal cells will help scientists to treat developmental errors that can occur.

## DISCUSSION AND CONCLUSION

### Stem cells - Medical therapy

Stem cells are to form cells and tissues for medical therapies. Stem cells after variable source of replacement cells to treat diseases and can potentially reduce the morbidity and mortality for those awaiting transplants. By directing stem cells to differentiate into specialised cell types, there is the exciting possibility to provide a reversible source of replacement cells for those suffering from diseases. The biggest hurdles in the stem cell research involves the use of embryonic stem cells which these stem cells have the greatest potential in terms of their ability to differentiate into many different kinds of cells in the human body, They also bring with them enormous ethical cantroreories. It involves the removal of cell- a blastomere from a cluster of approximately ten cells that make up an embryo in its earlier stages. Researchers grew a stem cell line form just that are capable of growing in to a human being in this instance, the cells extracted were plueripotent cells that are capable of differentiating in to numerous cell types.

There are still many tests and also research must be conducted to verify the safety and reliability of the procedure. But it is indeed hopeful that funding can increase for stem cell research. Stem cells have the potential to treat a vast number of debilitating disease in same countries but conversely and surprisingly to many people, they also have the potential to trigger the growth of cancers.

If you think about normal stem cell development, one important aspect is to suppress genes that can later be switched on to develop into specific kinds of cells. If the cell is normal, this gene suppression can be reversed. If the cell is abnormal as in the case of cancer cells, these vital genes change due to a bodily process known as DNA mutation. A person would be more likely to develop cancer due to the permanent and irreversible suppression of that person's gene. If you are wondering just how this change occurs, the answer relates to genes yet again. There is a gene group called polycomb genes which are in deactivated form. In a person who has cancer, these polycomb genes are for more likely to be switched off by this methylational process [9-12].

It is when they are in this particular state that they divide more than in normal and healthy, which leaves more time for mutations to occur as they continue dividing in turn, these mutations become cancerous.

### CONCLUSION

Government of India realises this and the Department of Biotechnology has located more than 300 crores over the last five years towards basic and applied research in stem cell technology. Now all the researchers are concentrated to put their efforts in understanding the fundamentals of how stem cells will work in all the diseases.

Clinical research gauge the effectiveness of the medical therapy. Now researchers still have long way to go before they completely control the regulation of stem cells, so what we are going to start overwhelmingly positive and with support of research scientists will ideally be able to tell the full power of stem cells to treat diseases like cancer.

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