Stem Cell Information System (SCIS)

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Abstract—*Stem cells are the major source of importance specifically in relation to medical sector. Their pluripotent nature gives a better and demanding approach towards them in the field of medical biotechnology. Compilation of information in systematic manner is very beneficial for the people of different sectors working in the concern area of stem cells. Current information systems has a major advantages of storing data in the form of a database which allows the storage of a humungous amount of data and it also allows easy and fast retrieval of information of different sectors relates with stem cells specifically in concern with India. Front end was designed with the help of HTML and CSS to offer it more vivacity on the web interface. The backend was designed with the help of JAVA and servlet technology to make the website more secure. The database information in tabulated form was stored in MySQL. MySQL helps in easy and flexible retrieval of data. It contains near about fifteen attributes of different sectors viz, information of stem cell banks, institutes, treatment status, Stem cells experts, doctors and Scientists details involved in different projects, Stem cell treatment strategies and details etc. Current designed information system makes a easy retrieval of data in relation to stem cells from the ocean of scattered information on internet. It gives a much easier process and it will also helpful in assembling the data on stem cells in an organized and compiled format. It has tremendous magnitude as it is medically, scientifically and academically very important and significant too.*

1. INTRODUCTION

Stem cells are a class of undifferentiated cells that have the ability to divide into various types of cells present inside the human body. On the basis of their origin they are divided into two classes- the embryonic stem cells that arise from the inner cell mass of the growing blastocyst and the adult stem cells.[1] Stem cells are of great importance in various sectors of science and due to this various researches are going on to harness their full potential.[8][9] With the increase in the amount of information available about stem cells the need for data in a more organized form is also increasing. Outcomes from various studies and clinical trials[2] regarding the future aspects of various stem cell therapies were very encouraging but we do require a systematic arrangement of data for better results. Hence, stem cell information system was created to pile up the information categorizing the different attributes stem cells, their clinical aspects,[4] future uses etc.

2. METHODOLOGY

2.1 Database architecture and tools

Stem cell information system was placed on Apache server. However to provide good user interface HTML[3] and CSS were used and to create a secure and dynamic website Java and servlet technology[5] and jsp framework were used. MySQL provided flexibility and easy retrieval of data. For the user, the database contains search option to search their information, different database attributes, upload files, and download files and videos.

2.2. Database access

The database has a signup form for security of website and a homepage which has various options. The search bar can be used to search various information. Different databases options are also present if the user wants to search other databases as well. Website has also a submit option to submit their work or articles related to the field. Further the website is also equipped with video option where the user can watch various online videos related to stem cells. The homepage is operational with latest articles, news and blogs on current issues related to stem cells.

3. RESULT

Stem cell information system is in first version linked to a server and uploaded as a website for the usage of everyone. It a first database of its kind which contains information exclusively on stem cells and its various aspects. The website includes various attributes whose description is as under, for the users to browse the relevant information.

3.1 The homepage- The homepage of the website includes a search bar for the users to type in any keywords and go for specific searches. It would also contain the links to all the specific attributes to direct the user to those pages for further exploration. The homepage also has a continuous stream of news related to stem cells and has links to articles published about the same along with the links to videos and tutorials related to stem cells and other related topics. There is also a facility for the users for uploading of their articles on the website. The homepage also contains a group chat option

where fellow like-minded people can interact and share information about stem cells and related fields.

3.2 Universities-The major concern of students who want to pursue a career in stem cells and related field can browse it to get proper information. In our website we have a complete page devoted to the concern of career option for such struggling students. It provides information regarding colleges and universities that offer undergraduate, post-graduate and doctoral courses related to stem cells, cancer and regenerative medicine.

3.3 Stem cell banks- With the advent of technology various treatments of different diseases through the help of stem cells are also being discovered. In progression of such therapies the stem cells have to be donated and received from stem cells banks across the globe for people in need. In this page of our information system we give information about different stem cell banks and how can they be made accessible to people. Complete details of stem cell banking programs are also equipped here.

3.4 Experts- This page contains information about details of different scientists and doctors that are dealing with stem cells at present.

3.5 Treatments- With a vast majority of diseases that were previously considered fatal being cured by stem cells now,[6] we need to make the public aware of the uses of the stem cells. Here we share information regarding the different treatments that can be done with the help of stem cells; their success rates and their future aspects.

3.5 Information- This page deal with more of the biological aspect of stem cell. The types of stem cell, the type of divisibility that they show and the genes that are responsible for their production.

4. DISCUSSION

Stem cell information system (SCIS) is the unique database in India that deals exclusively with stem cells and includes various attributes like stem cell banks, stem cell therapies, courses regarding stem cells etc. the varied attributes serve to a rather large section of the population. This database would help the user by limiting their endeavours to gather information from various sources. All the information will be provided to the user in a single click which will prove to be very time effective. Also lots of resources will be saved because the user will be able to access all the respective information beforehand. The database will be regularly updated to keep it at par with the new discoveries in the field of science related to stem cells. Stem cell information system will be very useful for students, doctors, researchers and various pharmaceutical companies to retrieve all the information regarding stem cells from a single place. This can be an asset for the stem cell biologist as retrieval on single click to get plethora of information may be much supportive to research and other related fields.

5. ACKNOWLEDGEMENTS

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