

## Stem cells research is a wide world challenge

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Stem cells research is becoming a very interesting field for investigation and experimental studies. Although, scientists from all over the world started studying and investigating stem cells more than 30 years ago, scientists in Egypt started their research in this field not before the year 2000. My first research was about using stem cells in bone remodeling after making bone defect in mandible. My second research was about using stem cells in healing of soft tissue ulcer. In both researches, dogs were used as animal model. I was very interested to explore the efficacy of stem cells in treatment and repairing of different body organs, that's why I decided to orient my research towards the body organs and the using of stem cells as treatment of defected or diseased organs.

All my research work in the stem cells field was carried out on experimental animals. The titles of the papers I published so far in this domain are:

- "New Approach of Bone Marrow-derived Mesenchymal Stem Cells and Human Amniotic Epithelial Cells Applications in Accelerating Wound Healing of Irradiated Albino Rats", published in the *International Journal of Stem Cells*, 2013.
- "Efficiency of systemic versus intra lesional bone marrow-derived stem cells in regeneration of oral mucosa after induction of formocresol induced ulcers in dogs", published in the *Dental Research Journal*, 2013.
- "Assessment of the effect of bone marrow and adipose-derived stem cells on the healing of induced bone defects on irradiated albino rats", published in the *Egyptian Dental Journal*, 2014.
- "Therapeutic Potential of Mesenchymal Stem Cells and Vitamin E on Experimental Hepatocellular Carcinoma", published in the *Stem Cell Research and Therapy Journal*, 2016.

This research took a lot of work and the experiment lasted for more than two years and half, due to the long period required to induce liver cancer (HCC) in the animal model. This research work was presented in the World Conference of Regenerative Medicine held in Leipzig, Germany in 2015. This research was a real challenge for me in this branch of science.

- "The role of bone marrow-derived mesenchymal stem cells and vitamin C in the treatment of HgCl<sub>2</sub>-induced renal tubular damage in albino rats: a histological and biochemical study", published in the *Egyptian Journal of Histology*, 2016.

- "Therapeutic Potential of Bone Marrow Derived Mesenchymal Stem Cells in Modulating Astroglial Reaction of Surgical Induced Experimental Spinal Cord Injury", published in *Advances in Bioscience and Biotechnology Journal*, 2016.
- "Exosomes Derived from Bone Marrow Mesenchymal Stem Cells Restore Cisplatin Induced Ovarian Damage by Promoting Stem Cell Survival, Meiotic, and Apoptotic Markers" published in *Advance Global Research*, 2017 (1-3).

Currently, I am preparing a new research work about the effect of stem cells micro vesicles in treatment of damaged brain tissues. The preparation for the research work took about two years, and it will take about three years to proceed with the work and gain good results. This research represents a strong challenge to me as many scientists who investigated this point did not find out any promising results.

Regarding to the funding of my scientific team, its members are totally responsible of funding the research work. The team receives no financial aid from our university or any other research institutes. More details about this research will be provided upon the achievement of promising results.

I have been working in the research domain for more than 20 years. I spent most of this period, working in the stem cells research domain and I find this domain to be very promising, but it needs lots of effort, accuracy, patience and financial support.

Finally, I feel very grateful to take this chance to express my research work.

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