OMICS Group Conferences
Accelerating Scientific Discovery
3rd World Congress on
Cell Science & Stem Cell Research
November 20- 22, 2013 DoubleTree by Hilton Baltimore-BWI Airport, USA

# In vitro attractiveness and deviation of mesenchymal stem cell tagged with iron superparamagnetic iron oxide particles towards magnetic field

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## Abstract

The aim of this research was to test the magnetic power to attract or/and deviate the mesenchymal stem cells laden with nano-particles of superparamagnetic iron oxide. Mesenchymal stem cells were obtained from Wharton's jelly of the umbilical cord and labeled with superparamagnetic iron oxide particles.

The cell suspension was kept at 3 ml plastic tube as well as a 7 cm diameter Petri's dish. Different intensities of static magnetic field were applied by introducing a magnet to one side of the tube and the dish for 5 minutes. Gentle shaking of the suspension was applied manually.

Naked eye observation: a condensation of cells was noted at the side of the magnets that gave a light pinkish brown colour with a rather clearer medium in both the tube and Petri's dish. Moreover, with time there were aggregates of macroparticles of few mm sizes with a dark brown coloration. Furthermore, after removal of the magnets this phenomenon continues for more than 30 minutes denoting that the superparamagnetic nano-particles acquired magnetism.

Microscopic examination: fresh samples were taken from both sides of the tube and Petri's dish representing the nearest and the most fare points from the magnet and examined under the inverted light microscope. There were highly condensed cells with intact protoplasm of the near point in comparison with that of the fare point that showed a sparse cellular distribution with intact cytoplasm too.

A series of research is required in order to test for the effect of static and kinetic magnetic power on these labeled cells. Also, to test for vitality, liability, multiplicity and safety of these cells. We hope to be able to settle mesenchymal stem cells at certain tissue in vivo by of these cells. the use of this phenomenon.

## Biography

Prof. Mohamed Saad Hamed Mahmoud is currently a professor of endocrinology and diabetology at faculty of medicine, Ain Shams University, Cairo Egypt since 2002. Prof. Mohamed Mahmoud has many research works in the field of diabetology as well as endocrinology some of them had been published at regional magazines. Another area of interest is several works done over the effect and benefit of stem cells in the treatment of diabetes and/or some of its complications like peripheral neuropathy. Also, stem cells were tried in the treatment of infertility and sexual inability in males.