

# Transcriptome Profiling and Analysis of Embryonic Stem Cells Differentiation to Adipocytes.

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**Position Title:** Research Assistant

**Faculty Name and Title:** Mohamed Al-Sayegh, Research Assistant Professor Biology

**Research Project Description:**

Adipose tissue (AT) have long been characterized as a lipid storage depository organ. AT is composed of two main types including brown adipose tissue (BAT), which is composed of brown adipocyte cells, and white adipose tissue (WAT), which is composed of white adipocyte cells. Both types store lipids for different biological purposes where brown adipocyte stores lipid for insulation purposes whereas white adipocytes store lipid to be consumed (free fatty acids) for various metabolic mechanisms when energy is required. Though AT have been characterized as lipid storage organ, in recent years that view have drifted to it contribution in the secretion of various hormones (adipokines). This mechanism, which is mainly regulated by white adipocytes, have made AT be considered as an essential endocrine organ that if altered can be associated with various chronic diseases (i.e. diabetes, cardiovascular diseases, cancer). Due to this, throughout the years, efforts have been implemented in understanding the molecular and cellular signatures of adipocyte differentiation focusing mainly mature preadipocyte cellular models (i.e. 3T3-L1, mouse embryonic fibroblasts) to adipocyte transformation. However, little is known about the molecular events (i.e. key transcriptional and epigenomic regulators) at earlier phases of preadipocyte and its lineage commitment. We are interested in the early developmental patterning phases of adipocyte differentiation leading to its mature state. As such, the Al-Sayegh lab will implement the use of embryonic stem cells as a model in addressing various topics associated with adipocyte differentiation at an early phase using molecular and cell biology tools as well as next generation sequencing methodologies. We are looking for a driven and motivated researcher who will be able to work in a highly collaborative and multi-cultural environment.

**Responsibilities of the Position:**

- Actively be involved in the process of project design data generation and analysis.
- Be responsible for the day-to-day running of the lab.
- Oversight of wet lab activities.
- Careful and efficient conductance of molecular and cell biology experiments in support of various lab projects.
- Provide administrative support as well as management of lab ordering.
- Excellent scientific communication and writing skills in a scientific environment with multi-cultural backgrounds.
- Report project progress and be able to present work efficiently and clearly in meetings (lab meetings, conferences, etc....).

**Essential Qualifications:**

Bachelors degree or higher in biological sciences or related fields.

**Preferred experience:**

Mammalian Tissue culture (basic cell lines), Molecular Biology skills (i.e. RNA/DNA extractions, qPCR, sub-cloning skills, etc....), computer skills (i.e. Office) and good understanding in various bioinformatics skills (i.e. R, Linux, NGS-analysis, etc....). A good understanding in stem cell biology (specifically embryonic stem cells) is a plus.

**Applicants to provide:**

1. Statement of interest
2. CV
3. Names and contact information for at least two people willing to provide letters of recommendation.