Medet Jumabay et al., J Cell Sci Ther 2017, 8:1 (Suppl)
http://dx.doi.org/10.4172/2157-7013.C1.038



## Dedifferentiated fat (DFAT) cells - A new cell source for regenerative medicine

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The ability to identify an ideal cell source for tissue regeneration is still challenging researchers in the stem cell field. The possession of progeny cells to differentiate into other cell types is important for the processes of tissue reconstruction and tissue engineering and may have clinical, biochemical or molecular implications. Adaptation of stem cells from adipose tissue to use in regenerative medicine has created a new role for adipocytes. Mature adipocytes can easily be isolated from adipose cell suspensions and allowed to dedifferentiate into lipid-free multipotent cells, referred to as dedifferentiated fat (DFAT) cells. Compared with other adult stem cells, the DFAT cells have unique advantages in their abundance, ease of isolation and homogeneity. Under proper condition *in vitro* or *in vivo*, the DFAT cells have exhibited adipogenic, osteogenic, chondrogenic, cardiomyogenc, angiogenic, myogenic, and neurogenic potential. In addition, DFAT cells at early stage, spontaneously exhibit a high degree of pluripotency, which was responsive to changes in culture conditions and may benefit cell-based therapies. Thus, mature white adipocytes may be a new cell source for tissue regeneration. The unique features of DFAT cells are promising for clinical applications such as regenerative medicine.

### Biography

Dr. Medet Jumabay has been serving as a doctor and researcher in the field of cardiovascular medicine for more than twenty years. Dr. Medet Jumabay has graduated from medical school and started her medical career at the Emergency Center of the First Affiliated Hospital of Xinjiang Medical University. Later she became an attendant physician and cardiologist in the department of medicine at the same university. Dr. Medet Jumabay received her Master's degree from the Xinjiang Medical University and a PhD. degree from the Department of Medicine, Nihon University, Tokyo, Japan in medical science. Dr. Medet Jumabay first became fascinated by the power of cell plasticity when she saw beating cardiomyocytes, which are derived from adipose stem cells. Thus, she became interested in cell regeneration research immediately after completing her PhD. studies. In 2007, she was recruited to the Division of Cardiology, Department of Medicine, UCLA, as a researcher in the field of cardiovascular and stem cell biology.

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