SALIENT FEATURES FROM CHAPTER 1

- ADSCs CM treatment showed enhanced 2-NBDG uptake in insulin resistant 3T3L1, hypertrophied 3T3L1 and C2C12 cells.
- Adipogenesis in 3T3L1 cells was significantly inhibited by CM as revealed by triglyceride content and key adipogenic gene expression such as PPARγ and CEBPα.
- Reduction in intramuscular triglyceride accumulation in C2C12 cells was also evident.
- Inflammatory genes like Il6 and Pai-1 showed significant reduction by CM treatment in both 3T3L1 and C2C12 cells.
SALIENT FEATURES FROM CHAPTER 2

- Interleukin-10 found to be a component in CM.
- Paw volume measured by plethysmometer showed significant reduction after 24h of treatment.
- Histological analysis of paw showed reduction in inflammatory exudates in the treated group.
SALIENT FEATURES FROM CHAPTER 3

- In DIO model of mice, there was a remarkable reduction in serum levels of fasting glucose, triglyceride and oxidised low density lipoprotein by all the treatment groups at the end of the study.

- Oral glucose tolerance and showed improvement only by CS treatment which was comparable to that of metformin.

- Hyperinsulinemic condition was improved by metformin as well as CS treatment.

- Serum levels of pro inflammatory cytokine, interleukin-6 showed reduction by CS and CM treatment.

- Histological analysis of tissue showed improvement in the tissue architecture such as liver tissues showed reduced fatty infiltration by CS and CM treatment. Similarly, subcutaneous adipose tissue showed reduced macrophage infiltration. And, pancreas sectioning showed decrease in hypertrophied islets.

- Immunohistochemistry of muscle tissue showed increased Glut4 staining in the membrane by CS treatment. Also, Glut4 gene expression was upregulated.

- Upregulation of mi-RNA206 was evident in muscle tissue by metformin as well as CS treatment. Correspondingly, MyoD gene expression also increased in the treatment groups. However, protein content was also improved only in CS treated group.

- Significant reduction in Il-6, Pai-1 and ApoB gene expression was observed in liver tissues.
SALIENT FEATURES FROM CHAPTER 4

- After 4 weeks of injection with ADSCs preconditioned with metformin there was a significant reduction in body weight by MetADSCs treatment.
- MetADSCs treatment also showed reduction in serum parameters like triglycerides, oxidised LDL, insulin and interleukin-6.
- HOMA-IR and TyG showed improvement in insulin resistance
- Glut4 gene was upregulated in skeletal muscle tissue. On the other hand, Il-6 and Pai-1 gene expression showed decrease in liver tissue by MetADSCs treatment.