

HIGHER LIPOGENESIS ACTIVITY

INTRODUCTION

Triglycerides (TGs) are an efficient form of fatty acids to accumulate as energy reservoirs or as building blocks for membrane lipid synthesis. In adipose tissue, TGs are continuously synthesized during lipogenesis. In order to measure the lipogenesis activity of 3T3-L1 and mature human adipocytes, Adipored™ staining and Perilipin immunocytochemistry were performed.

Materials required

- HWP and 3T3-L1 grown in BIOMIMESYS® *Adipose tissue*
- DNA Quantitation Kit, Fluorescence Assay using bisBenzimide (SIGMA-Aldrich)
- AdipoRed™ Assay Reagent (Lonza)
- Perilipin monoclonal antibody (Abcam)

Hydro scaffold properties

Physiological, translucent and porous

Method

- Lipid quantification is performed using AdipoRed™ staining, normalized by the DNA quantitation kit following manufacturer's protocol
- AdipoRed™ Assay Reagent, follow manufacturer's instructions
- Perilipin staining

RESULTS

Lipids produced by adipocytes can be highlighted with the AdipoRed™ (green labelling).

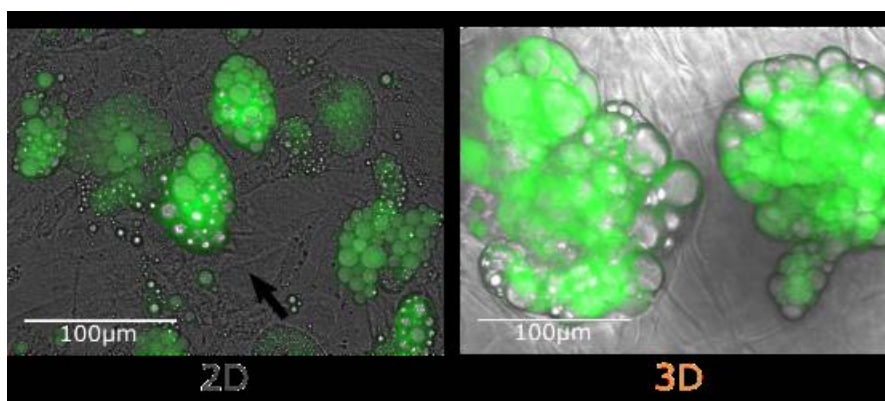


Figure 1: Fluorescence microscopy visualization of HWP cells after 28 days of nutrition, (arrow: undifferentiated cells)

Figure 1 shows that 2D culture contains undifferentiated cells (arrow), which do not show any AdipoRed™ staining contrary to BIOMIMESYS® *Adipose tissue* 3D culture, where all cells in aggregates possess lipid vesicles.

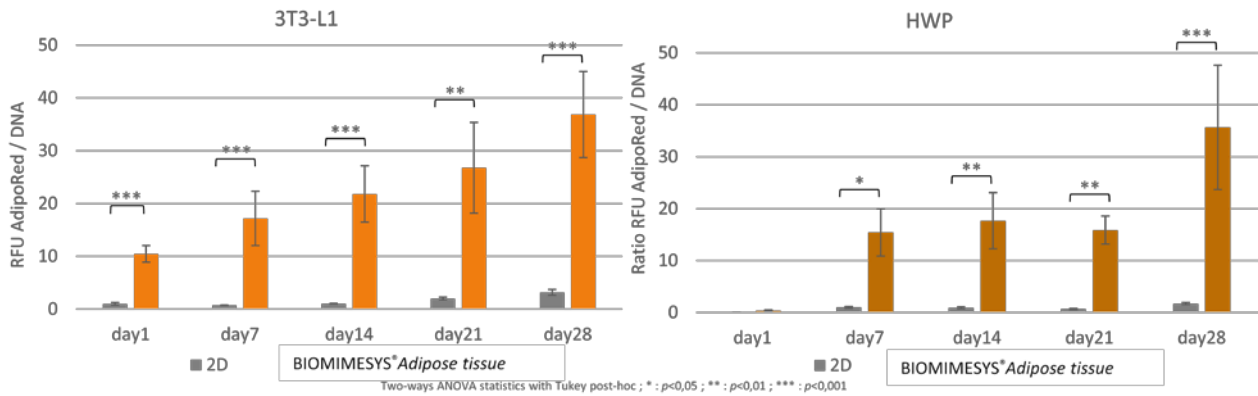


Figure 2: Lipid accumulation in 3T3-L1 and HWP using BIOMIMESYS® Adipocyte compared to 2D cultures. Two-ways ANOVA statistics with Tukey post-hoc: *: p<0.05; **: p<0.01; *: p<0.001**

The measured level of triglycerides in 3T3-L1 pre-adipocytes grown in BIOMIMESYS® *Adipose tissue* show a better lipid accumulation than in 2D culture.

CONCLUSION

The environment provided by BIOMIMESYS® *Adipose tissue* allows complete differentiation. Higher differentiation rate of adipocytes in 3D compared to 2D

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