cadherin. These results show that SK2 / S1P pathway besides activating the process in neighboring cells also has an effect on the extruded cell itself, regulating in a global and coordinated manner the entire cell extrusion process.

LI-C06
EFFECT OF CULTURE TEMPERATURE ON FATTY ACID COMPOSITION OF DIATOM *Cylindrothecaclosterium*

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Fish oil is widely used as a source of essential long chain poly-unsaturated omega-3 fatty acids, such eicosapentaenoic (EPA) and docosahexaenoic (DHA), for aquaculture. However, there is increasing interest in reducing the aquaculture industry's dependence on this resource due to its unsustainability and variable cost and supply. Marine microalgae naturally produce EPA and DHA fatty acids and their content can be modified by manipulation of the growth conditions. The aim of this study was to assess the effect of culture temperature on fatty acid composition of the marine diatom *Cylindrothecaclosterium.* To this end, *C. closterium* was grown in a photobioreactor: a) at 20 °C (control) and b) lowering the temperature from 20°C to 11°C in the stationary growth phase. Total lipid content and lipid fractions were determined spectrophotometrically and gravimetrically. Gas chromatography was performed to analyze fatty acid composition. *C. closterium* growth was not affected by temperature variation, as showed by cell density and dry weight determinations. When the temperature was lowered, triacylglyceride content significantly increased compared to the control condition. In addition, among omega-3 fatty acids, DHA and EPA showed a marked increase. Thus, these results evidence the potential of this strain as an alternative and sustainable source for aquaculture purposes.

LI-C07
CELLULAR LIPIDS CHANGES DURING ADIPOSE-DERIVED STEM CELLS OSTEOGENIC DIFFERENTIATION

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Adipose-derived Stem Cells (ASC) constitute a promising tool for many applications in regenerative medicine. In the last years, a large number of works describing the mechanism underlying ASC differentiation was published but the role of lipid metabolism in this process is still unclear. The aim of this work was to evaluate whether osteogenic differentiation of ASC involves changes on lipids content and biosynthesis. For this, adipose tissue was removed from adult Wistar rats and ASC were isolated and culture in low glucose DMEM through 3 passages. After that, ASC were characterized by measuring their capacity to differentiate into the osteogenic and adipogenic lineages and the expression of CD90. Third passage ASC was cultured and in vitro differentiated or not to an osteoblast phenotype with low glucose DMEM containing 100 nM dexamethasone, 10 mM β-glycerophosphate and 5 µg/ml ascorbic acid 2-phosphate. After 21 days, cellular lipids and phospholipid (PL) species were quantified. To evaluate lipid synthesis, cells were incubated in the presence of 0,1 µCi [14C(U)]-glycerol for 3h, and then lipids biosynthesis was determined. After treatment, differentiated cells showed a decrease on lipid synthesis and phospholipid content compared to control cells. Total PL content decreased by 54%, while PL species content varied in a different manner, leading to a different PL profile with enrichment in sphingomyelin in differentiated cells membranes. PL, Diacylglycerol (DAG) and Triacylglycerol (TAG) synthesis decreased by 90, 87 and 86%, respectively. Results show that ASC osteogenic differentiation is accompanied by changes on lipid synthesis and content

LI-C08
EXPRESSION OF GENES INVOLVED IN LIPID AND FATTY ACID METABOLISM IN *EX VIVO* CULTURED MOUSE TESTES

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Spermatogenesis has been achieved in vitro using neonatal mouse testes maintained in a gas-liquid interphase culture system. In this setting, it is possible to manipulate lipid metabolism to know its role during the spermatogenic process, thereby gathering information potentially useful for ex vivo spermatogenesis technology. Here, the progression of spermatogenesis was followed in mouse explants at cytological and histological levels and the gene expression of some proteins involved in lipid metabolism were compared in vitro vs. in vivo. Two PUFA elongases (Elovl2 and Elovl4), fatty acid 2-hydroxylase (Fa2h), two fatty acid binding proteins (Fabp3 and Fabp9) and a diacylglycerol acyltransferase (Dgat2) were examined by RT-qPCR. Testis explants from 6 days-old CD1 mice were cultured for 22 days. Primary spermatocytes (PS) appeared at around days 10-12, and the first round spermatids (RS) emerged after day 18 to become abundant at day 22. The whole process showed a delay compared with that in vivo. Interestingly, akin to findings in vivo, mRNA levels of Elovl4 were high in the pre-meiotic phase to decrease thereafter, while those of Elovl2 steadily increased from days 1 to 22. Fabp3 mRNA also increased with time in the explants, linked to interstitial cells differentiation. Maximal expression of Fa2h, Fabp9, and Dgat2 occurred at day 22 in culture, associated with the increase in RS numbers. Our results suggest that finding influences that promote lipid metabolism (growth factors, hormones) will be a promissory way to optimize spermatogenesis in explants. Supported by the MCIyU, Spain [BFU2013–42164-R, BFU2017–87095-R to JdM], PGI-UNS [24/B272 to GMO].