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著者	Minashima Takeshi, Aso Hisashi, Tahara Kouichi, Yamasaki Tadashi, Ohwada Syuichi, Watanabe Kouichi, Yamaguchi Takahiro
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P-13. Calcification needs the release of ANX II as well as ANX V from chondrocytes

Takeshi Minashima, Hisashi Aso, Kouichi Tahara*, Tadashi Yamasaki*, Syuichi Ohwada, Kouichi Watanabe, and Takahiro Yamaguchi (Graduate School of Agricultural Sciences, Tohoku University and *R & D Center, BML Inc., Japan.)

Mesenchymal stem cells have demonstrated the multipotential to differentiate into several cell lineages; osteogenic, chondrogenic or adipogenic lineages. However the exact mechanism of the steps in the pathway leading from an undifferentiated stem cell to a mature chondrocyte are not well understood. A clonal bovine intramuscular preadipocyte (BIP) line has an ability of differentiating to the chondrogenic lineage, because their formed spherical pellets had chondrogenic morphology and produced typical marker molecules for chondrogenesis, such as cartilage-specific proteoglycans and type II collagen. Under the proteomic approach, one of new spots was identified as annexin II (ANX II) during the chondrogenic differentiation of BIP cells. AXN II as well as AXN V was a marker for terminally differentiated chondrocytes in hyaline cartilage. In the chondrogenic pellet of BIP cells, AXN II increased until 7 days, and disappeared at 28 days, however, AXN V strongly increased at 28 days. We also investigated expression of AXN II and V in cartilages. In cartilage without calcification, AXN II was detected in chondrocytes and AXN V was detected in chondrocytes or the extracellular matrix surrounding chondrocytes. On the other hand, AXN II and V in cartilage with calcification were strongly stained in the extracellular matrix. ANX II. These results suggest that there is a quite difference in co-expression mechanism of AXN II and V between hyaline cartilage with calcification and the other cartilages, and that the calcification may need the release of AXN II as same as AXN V from cytosole to the extracellular matrix.

P-14. Effects of fatty acids on cytosolic TAG accumulation in primary cultured bovine mammary epithelial cells

Yonezawa, T., Katoh, K. and Obara, Y.
Department of Animal Physiology, Graduate School of Agricultural Science, Tohoku University, Amamiyamachi, Sendai 981-8555, Japan

We examined the effect on the accumulation of cytosolic triacylglycerol (TAG) in bovine mammary epithelial cells (bMEC) following the addition of short- (acetate and butyrate), medium- (octanoate) or long- (palmitate, stearate, oleate and linoleate) chain fatty acids to the media bathing the cells. Octanoate and long-chain fatty acids stimulated TAG accumulation in a concentration-dependent manner from 1 to 10 mM and from 50 to 400 μM, respectively, as well as mRNA expression of CD36 and UCP2. Octanoate, oleate and linoleate increased lipid droplet formation. Leptin mRNA expression was significantly reduced by acetate and butyrate addition, but was elevated by oleate and linoleate addition. Long-chain fatty acids stimulated αs1-casein mRNA expression.