homology to mediators of cholesterol homeostasis. Science, 1997. 277(5323): p. 228-31.
[2] Sokol, J., et al., Type C Niemann-Pick disease. Lysosomal accumulation and defective intracellular mobilization of low density lipoprotein cholesterol. J Biol Chem, 1988. 263(7): p. 3411-7.
[3] Vanier, M.T., Niemann-Pick disease type C. Orphanet J Rare Dis, 2010. 5: p. 16.
[4] Wraith, J.E., et al., Recommendations on the diagnosis and management of Niemann-Pick disease type C. Mol Genet Metab, 2009. 98(1-2): p. 152-65.
[5] Yu, K.R., et al., Rapid and Efficient Direct Conversion of Human Adult Somatic Cells into Neural Stem Cells by HMGA2/let-7b. Cell Rep, 2015.

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Inflammasome as a Novel Regulator of Human Mesenchymal Stem Cell Function

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Introduction: Inflammasome is a multimeric proteincomplex which senses inflammatory stimuli. Mesenchymal stem cells (MSCs) are promisingtool for regenerative medicine and immune-related diseases. Previous reportsdemonstrate that MSC function can be altered by stimuli derived from innate andadaptive immunity. In the present study, we investigated the expression andfunctional regulation of inflammasomes in human umbilical cord blood-derived MSCs(hUCB-MSCs).

Materials and Methods: The expression of inflammasomecomplex genes in hUCB-MSCs was detected by RT-PCR. Change in the expression ofsurface markers after inflammasome activation was analyzed by flow cytometry. Proliferation, pyroptosis differentiation and immunomodulation of hUCB-MSCsafter inflammasome activation were assessed. Therapeutic efficacy ofinflammasome-activated hUCB-MSCs was determined in mouse colitis model inducedby dextran sulfate sodium.

Results: The hUCB-MSCs expressed the componentsof inflammasomes. Among several types of inflammasomes, NLRP activation did notalter the characteristics of hUCB-MSCs nor induced the pyroptosis of MSCs. Surprisingly, NLRP activation promoted the proliferationand osteogenic differentiation of hUCB-MSCs. Moreover, the immunomodulatoryeffects of MSCs on T cell proliferation, dendritic cell (DC) and regulatory Tcell were changed in response to NLRP activation. In addition, the expressionlevels of immunomodulatory factors were elevated in hUCB-MSC after NLRPstimulation.

Conclusions: In conclusion, for the first time, ourdata suggest that NLRP, one of the inflammasome family, is expressed inhUCB-MSCs and its activation can regulate the functions of hUCB-MSCs along withthe up-regulation of multiple soluble factors.

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Evaluation of a SYBR Green Real-Time PCR Assay forQuantification of Major Cytokines in PBMC from Bovine

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Introduction: Cytokines are important in host responses toinfection, immune responses, inflammation, trauma, sepsis, cancer, andreproduction. Currently, SYBR Green quantitative real time PCR (qRT-PCR) is themost general method used to investigate the expression pattern of cytokine genein ruminants[1]. The objective of this study was to determine expression levelof systemic inflammatory markers in Peripheral blood mononuclear cells (PBMC) frombovine[2].

Materials and Methods: PBMC wereisolated from heparinized whole blood by density gradient centrifugation. TotalRNA was extracted andconverted to complementary DNA for qRT-PCR analysis.

Results: Primersets were designed to quantify cytokines, their related genes and reference genes in bovine. All the primer sets werecomparted to exon-exon boundaries and used the similar hybridization temperature. And also, we investigated total relative expression of cytokine andtheir-related genes in PBMC from bovine. Results of these experimentsindicated that expression levels of pro-inflammatory markers such as interleukin-8,13, 17, 23 and CCL-8 increased in PBMC isolated from bovine, excluding tumor necrosisfactor-α, interleukin-2, 12(p40), 16, CCL-3 and interferon-g.

Conclusions: Based on the above findings, it could be concluded that the experiment technique was amethod to measure that the relative quantification of cytokine genes expressioncompared with precise normalization by reference genes. We speculated that qRT-PCR assay could be used to investigate ruminant immuneresponses, and also it wouldbe widely achievable to the veterinary investigationcommunity.

References:

[1] Puech C, et al. Design and evaluation of aunique SYBR green real-time RT-PCR assay for quantification of five majorcytokines in cattle, sheep and goats. BMC Vet Res. 2015, 11:65.
[2] Rezamand P, et al. Effects of α-linolenicacid-enriched diets on gene expression of key inflammatory mediators in immuneand milk cells obtained from Holstein dairy cows. J Dairy Res. 2016, 83:20-27.