MACROPHAGES IN EARLY PREGNANCY DECIDUA UNVEIL THE PRESENCE OF CD90 MARKER

George Boyadzhiev[1], Iliya Karagyozov[2], Kameliya Petkova[1], Vesselina Koleva-Topova[3], Emiliya Alova[4], Milena Mourdjeva[1], Tsvetelina Oreshkova[1]

[1]*Department of Molecular Immunology, Institute of Biology and Immunology of Reproduction "Akad. K. Bratanov" – Bulgarian Academy of Sciences, Sofia, Bulgaria*

[2]*Department of Obstetrics and Gynecology, Hospital Vita, Sofia, Bulgaria*

[3]*Clinical Laboratory, Acibadem CityClinic Tokuda Hospital, Sofia, Bulgaria*

[4]*Transfusion Hematology Laboratory Acibadem CityClinic Tokuda Hospital Sofia, Bulgaria*

Aim: CD90 is a 25-37 kDa adhesion glycoprotein from the immunoglobulin superfamily. It is expressed in mesenchymal stem cells, decidual stromal cells (DSCs) and endothelial cells. Inflammatory mediators up-regulate the expression of CD90 receptor in endothelial cells, which recruits leukocytes via integrin ligation. In early gestation CD90 is abundantly present in the decidual/endometrial stroma but its exact role is still not clarified.

Material and methods: Human decidual tissues from 6-10 weeks gestation were obtained from elective pregnancy terminations according to the ethical regulations of Tokuda Hospital, Sofia. Human deciduas were cryo-sectioned and immunofluorescently labeled with CD14, CD45 and CD90 markers. Primary cultures from DSCs were produced (passage 4-6) and their purity confirmed via a panel of markers (CD29, CD73, CD90, Vimentin, CD45, Cytokeratin7 and CD34).

Peripheral blood monocytes from non-pregnant women in reproductive age were enriched by negative magnetic sort (Miltenyi biotec) and were co-cultured with DSCs. After 10 days CD90 profile expression in $CD45^+CD14^+$cells was analyzed by confocal microscopy (Leica Microsystems) and flow cytometry (BD FACSCalibur).

Results: Tissue analyses of human decidua revealed massive number of resident/infiltrating $CD45^+$ immune cells with substantial proportion of $CD14^+$ cells. Monocyte and macrophage lineages, which are classically defined by $CD14^+$ marker showed low to intermediate intensity of CD90 in tissues (n=3). Moreover, some $CD14^+CD90^-$ cells derived from peripheral blood (n=2) co-cultured with DSCs (n=3) acquired CD90 phenotype. Notably, CD90 located on cell protrusions as detected by confocal microscopy.

Conclusion: Undefined microenvironment DSCs factors can change CD90 phenotype in $CD14^+$ cells.

Acknowledgement: *This work was supported by KP-06-KOCT/6 grant of the National Science Fund, Bulgaria, in the framework of COST action CA16113 CliniMark.*