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The role of microRNAs and CD4+ T lymphocyte subsets in the regulation of the immune system during normal pregnancy

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miRNAs are non-protein-coding RNAs that regulate gene expression and may play a role in changes that occur during the gestational period. Some miRNAs can be involved in implantation, some may be expressed in the placenta under hypoxic conditions, and others may participate in the induction of immune tolerance during the gestational period. Several miRNAs have been identified as pregnancy-associated. These miRNAs could behave as diagnostic biomarkers as some may participate in pregnancy disorders like preeclampsia and fetal growth restriction. The role of miRNAs in pregnancy is not fully understood yet. CD4+ T lymphocyte subsets are key players in the regulation of the immune system during normal pregnancy. The Th1/Th2 paradigm has been used to explain T cell behavior during pregnancy for many years. However, the sole use of this model to elucidate the role of T lymphocytes in the regulation of the immune system during the gestational period could be over-simplifying the mechanisms involved. The participation of regulatory T lymphocytes (CD4+CD25+FoxP3+ Tregs) is essential for pregnancy continuation. Furthermore, four different Treg subsets have been identified throughout pregnancy, which differ on their expression of CD45RA and HLA-DR. The proportion of these subsets may participate in the development of certain pregnancy complications. Lastly, Th9 and Th2 cells may influence these Treg subsets. Research on the interactions between CD4+ lymphocyte subsets and Treg subsets during normal pregnancy may broaden our perspective regarding the regulation of the immune system during the gestational period, and may help us understand the pathophysiology of some pregnancy-related diseases.

Biography

Estibalitz Laresgoiti-Servitje is a Researcher at the National Institute of Perinatology (INPer) and an Associate Professor at the Monterrey Institute of Technology and Higher Education (ITESM), in Mexico City. She completed a Medical Doctorate, a Masters in Science in Immunology, a Masters in Neurosciences, and a PhD in Health Psychology. Her research interests include the neuroendocrine regulation of the immune system and the modulation of the immune system during normal pregnancy and preeclampsia.

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