

Title of the proposed thematic issue: **Immunometabolic programming of obesity in the mother-infant relationship**

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Guest editor's H-index: 15

Guest Editor's list of publications (last 5-years):

1. Gómez-Arauz AY, Bueno-Hernández N, Palomera LF, Alcántara-Suárez R, De León KL, Méndez-García LA, Carrero-Aguirre M, Manjarrez-Reyna AN, Martínez-Reyes CP, Esquivel-Velázquez M, Ruiz-Barranco A, Baltazar-López N, Islas-Andrade S, Escobedo G, Meléndez, G. A Single 48 mg Sucralose Sip Unbalances Monocyte Subpopulations and Stimulates Insulin Secretion in Healthy Young Adults. *J Immunol Res.* 2019:1-10.
2. Palomera LF, Gómez-Arauz AY, Villanueva-Ortega E, Meléndez-Mier G, Islas-Andrade SA, Escobedo G. Serum levels of interleukin-1 beta associate better with severity of simple steatosis than liver function tests in morbidly obese patients. *J Res Med Sci.* 2018;23:93. Doi: 10.4103/jrms.JRMS_142_18.
3. Vargas-Alarcon G, Perez-Mendez O, Herrera-Maya G, Posadas-Romero C, Posadas-Sanchez R, Ramirez-Bello J, Escobedo G, Fragoso JM. The rs1805193, rs5361, and rs5355 single nucleotide polymorphisms in the E-selectin gene (SEL-E) are associated with subclinical atherosclerosis: The Genetics of Atherosclerotic Disease (GEA) Mexican study. *Immunobiology.* 2019;224(1):10-14. Doi:10.1016/j.imbio.2018.11.003.
4. Arista Romeu EJ, Escobedo G, Campos-Espinosa A, Romero-Bello II, Moreno-González J, Fabila-Bustos DA, Reed AV, Isakina SS, Vázquez JMR, Guzmán C. Diffuse reflectance spectroscopy accurately discriminates early and advanced grades of fatty liver in mice. *J Biomed Opt.* 2018;23(11):1-8. Doi:10.1117/1.JBO.23.11.115005.

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6. Grün JL, Manjarrez-Reyna AN, Gómez-Arauz AY, Leon-Cabrera S, Rückert F, Fragoso JM, Bueno-Hernández N, Islas-Andrade S, Meléndez-Mier G, Escobedo G. High-Density Lipoprotein Reduction Differentially Modulates to Classical and Nonclassical Monocyte Subpopulations in Metabolic Syndrome Patients and in LPS-Stimulated Primary Human Monocytes In Vitro. *J Immunol Res.* 2018;2018:2737040. Doi: 10.1155/2018/2737040.
7. Martínez-Reyes CP, Gómez-Arauz AY, Torres-Castro I, Manjarrez-Reyna AN, Palomera LF, Olivos-García A, Mendoza-Tenorio E, Sánchez-Medina GA, Islas-Andrade S, Melendez-Mier G, Escobedo G. Serum Levels of Interleukin-13 Increase in Subjects with Insulin Resistance but Do Not Correlate with Markers of Low-Grade Systemic Inflammation. *J Diabetes Res.* 2018;2018:7209872. Doi:10.1155/2018/7209872.
8. Villalobos-Gómez FDR, García-Lorenzana M, Escobedo G, Talamás-Rohana P, Salinas-Gutiérrez R, Hernández-Ramírez VI, Sánchez-Alemán E, Campos-Esparza MDR, Muñoz-Ortega MH, Ventura-Juárez J. *Entamoeba histolytica* L220 induces the in vitro activation of macrophages and neutrophils and is modulated by neurotransmitters. *Acta Parasitol.* 2018;63(2):270-279. Doi:10.1515/ap-2018-0031.
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Issue description

Immunometabolic programming is a growing field of knowledge aimed to understand the role of the mother's immunoendocrine response in the infant's risk of developing obesity and metabolic disease later in life. A complex network of mother's hormones, antibodies,

cytokines, and immune cells has been suggested to affect insulin secretion, glucose homeostasis, and lipid metabolism in the infant, thus increasing the risk of becoming obese during childhood. Notably, a few experimental studies have underlined the importance of lowering the mother's tumor necrosis factor-alpha (TNF-alpha) serum levels during pregnancy, which in turn might predispose to the infant to develop insulin resistance and type 2 diabetes in the adulthood. In parallel, a mother's serum microenvironment rich in interleukin (IL-) 4 and IL-10 has been associated with normal body mass index and increased insulin sensitivity in the infancy. It has been also suggested that intrauterine exposure to non-nutritive sweeteners and endocrine disruptors (i.e., sucralose and bisphenol, respectively) may induce systemic inflammation that in turn contributes to adipogenesis and increased body weight at birth. Although solid, most of this evidence has been described in animal models of obesity and there is still an urgent need to conduct studies in mothers and infants with the aim of understanding the role of immunometabolic programming in obesity and metabolic disease in humans. The main goal of this thematic issue is to invite eminent contributors in the field of immunometabolic programming, whose work helps to understand the immunoendocrine mechanisms behind infant and childhood obesity. The thematic issue is open for in vitro and in vivo studies, as well as reviews, addressing some of these potential topics, but not limited to:

1. Possible role of mother's pro- and anti-inflammatory cytokines in birth weight and infant's metabolism.
2. Effect of mother's insulin and glucose levels on infant's metabolic health and immune response.
3. Levels of non-nutritive sweeteners and endocrine disruptors in mother's blood stream and their association with birth weight and infant's metabolism.
4. Mechanisms through which non-nutritive sweeteners and endocrine disruptors increase the risk of becoming obese in the childhood.
5. Role of monocytes, macrophages, and lymphocytes in insulin sensitivity and secretion.
6. Possible mechanisms of TNF-alpha and IL-10 in hepatic and adipose insulin resistance.

7. Anti-inflammatory immunotherapy during pregnancy to prevent obesity and metabolic syndrome in childhood and adulthood.

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