

Decreased expression of miRNA107, and increased expression of miRNA320a in granulosa from women with polycystic ovary syndrome

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Abstract

Polycystic ovary syndrome (PCOS) is a complex endocrine disorder that affects 5-10% of women in reproductive age. PCOS is considered as a multifactorial pathology with both genetic, and metabolic abnormalities, including insulin and leptin resistance. We have previously found that granulosa from PCOS women has leptin resistance and decreased expression of aromatase. Altered miRNAs expression have been associated with diabetes, insulin resistance and inflammation. Different studies have found differential amounts of miRNA in blood, follicular fluid and granulosa in PCOS patients. Therefore, in the present work we aimed to study the expression of several miRNA previously found to be related with insulin resistance or estrogen synthesis.

Granulosa cells from control (20) and polycystic ovary syndrome women (20) were obtained as waste product from in vitro fecundation, after informed consent. The Project was approved by the local IRB. Total RNA was isolated, miRNA retrotranscribed, and quantified by qPCR. Statistical significance was assessed by analysis of the variance followed by Bonferroni's post hoc test. P value < 0.05 was considered to be statistically significant

Most miRNA expression determined in granulosa from PCOS women was not statistically different compared with granulosa from control donors. However, miRNA107 expression (a miRNA that negatively regulates proliferation) was significantly decreased in granulosa from PCOS women compared with granulosa from control donors, and it could mediate the proliferation of the follicles. On the other hand, miRNA320a expression was found significantly increased in granulosa from women with PCOS. Leptin or insulin stimulation of control granulosa cells produced an increase in miRNA107 expression, and a decrease in the expression of miRNA-320a

The expression of several miRNA is altered in PCOS, decreased miRNA107 may not induce insulin resistance but may promote proliferation, mediating the increased number of follicles; whereas the increased miRNA320a expression in granulosa from PCOS could mediate the insulin and leptin resistance that occurs in this syndrome.



Biography:

Victor Sánchez-Margalet graduated in Medicine in 1988 in the University of Seville, PhD degree in the Dept. Medical Biochemistry and Molecular Biology, School of Medicine, University of Seville in 1991. Intern and resident, Clinical Biochemistry, Dept. Clinical Biochemistry, Virgen Macarena University Hospital 1990-93. Postdoctoral fellow, Diabetes Research Center, Mt Zion Hospital, UCSF, CA 1993-1994. Full professor of Biochemistry and Molecular Biology since 2004 in the University of Seville, School of Medicine. He has published more than 150 articles, with 7465 citations (h index 43). He is now head of the department of Medical Biochemistry and Molecular Biology, and Immunology

Speaker Publications:

1. "Sam68 mediates the leptin signaling and action in human granulosa cells: possible role in leptin resistance in PCOS"; *Endocrine Connections* / 2020 / Vol 9: Issue 6 /pp 479-488.
2. "14P Evolution of cytotoxic and regulatory T cells in blood and in tissue after neoadjuvant treatment in breast carcinoma"; *Annals of Oncology*/ 2020/Vol 31: Supplement 2/P: 21–22.
3. "Screening for Gestational Diabetes Mellitus by Measuring Glycated Hemoglobin Can Reduce the Use of the Glucose Challenge Test"; *Annals of Laboratory Medicine*/2019/ Vol 39(6)/524-529.
4. "1267PEvolution of myeloid-derived suppressor cells and objective response rate in relapsed/refractory diffuse large B cell lymphoma (R/R DLBCL) patients after receiving

immunotherapy”; *Annals of Oncology*/2019/ Vol 30, Supplement 5

5. “Postprandial triglyceride-rich lipoproteins promote M1/M2 microglia polarization in a fatty acid-dependent manner”; *Journal of Nutritional Biochemistry*/ Vol 75, 2020.

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