

The Translational Role of miRNA in Polycystic Ovary Syndrome: From Bench to Bedside-A Systematic Literature Review.

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ABSTRACT

MicroRNAs (miRNAs) are small, non-coding RNAs that are essential for the regulation of post-transcriptional gene expression during tissue development and differentiation. They are involved in the regulation of manifold metabolic and hormonal processes and, within the female reproductive tract, in oocyte maturation and folliculogenesis. Altered miRNA levels have been observed in oncological and inflammatory diseases, diabetes or polycystic ovary syndrome (PCOS). Therefore, miRNAs are proving to be promising potential biomarkers. In women with PCOS, circulating miRNAs can be obtained from whole blood, serum, plasma, urine, and follicular fluid. Our systematic review summarizes data from 2010-2021 on miRNA expression in granulosa and theca cells; the relationship between miRNAs, hormonal changes, glucose and lipid metabolism in women with PCOS; and the potential role of altered miRNAs in fertility (oocyte quality) in PCOS. Furthermore, we discuss miRNAs as a potential therapeutic target in PCOS and as a diagnostic marker for PCOS.