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Methylation level of anti-mullerian hormone (AMH) in polycystic ovary syndrome (PCOS) patients

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Statement of the Problem: Polycystic ovary syndrome (PCOS) is a common disorder in women that characterized by an increase in follicle number, hyperandrogenism, and ovulatory dysfunction. In PCOS patients, anti-mullerian hormone (AMH) has been shown to be two- or three-fold higher as compared to health women. The cause of the increased AMH production in PCOS is unknown; however, increased concentrations may be a consequence of other factors altered in PCOS, for example DNA methylation, a principle mechanism of epigenetic. The objective of this study was to evaluate the methylation level in the promoter region of AMH gene.

Methodology and Theoretical Orientation: To evaluate methylation level in PCOS, we used whole blood from 13 patients compared to health women. Methylation level of AMH promoter in both groups was analysed using methylation-specific PCR (MSP).

Findings: The intensity of AMH methylation bands was found lower among the PCOS, 33.64%, respectively, compared to control (Fig. 1). The methylation level of AMH gene promoter in PCOS patients (12.97 ± 5.13) was significantly different compared to control (46.61 ± 1.77) obtained from healthy women ($p < 0.001$).

Conclusion: Promoter region of AMH gene in PCOS are hypomethylated compared to health women. This hypomethylation in AMH gene might be contribute in increasing the level of AMH in serum from women with PCOS.

Recent Publications

1. Asmarinah, Febri RR, Rifani A, Putri AH and Muharam R (2017) Progesterone receptor gene polymorphisms of rs1042838 and new mutation in ovarian endometriosis in Indonesian women. *Advance Science Letter* 23(7):6906-6908.
2. Asmarinah, Febri RR, Putri AH, Rifani A and Muharam R (2017) Association of progesterone receptor gene polymorphisms in promoter region with ovarian endometriosis in Indonesia woman. *Advance Science Letter* 23(7):6909-6911.
3. Asmarinah, Syauqy A, Umar LA, Lestari SW, Mansyur E, Hestiantoro A and Paradowska-Dogan A (2016) Sperm chromatin maturity and integrity correlated to zygote development in ICSI program. *System Biology and Reproductive Medicine* 62(5):309-16.
4. Muharam R, Harzif AK, Catherine, Asmarinah, Wiweko B (2016) A preliminary communication: ongoing study on HOXA10 methylation profile of endometriosis patients with infertility. *Journal Endometriosis and Pelvic Pain Disorders* 8(3):106-110.
5. Asmarinah, Paradowska-Dogan A, Kodariah R, Tanuhardja B, Waliszewski P, Mochtar CA, Weidner W and Hinsch E (2014) Expression of Bcl-2 family genes and complexes involved in the mitochondrial transport in prostate cancer cells. *International Journal of Oncology* 45(4):1489-96.

Biography

Asmarinah is a Lecturer in Medical Biology Department, Faculty of Medicine Universitas Indonesia. She graduated from the Faculty of Mathematics and Natural Sciences, Universitas Indonesia (UI) in 1989. In 1996, she received Master's degree in Biomedical Sciences from UI and Doctoral degree at Faculty of Biology, Chemistry, and Geo-Sciences from Justus-Liebig University of Giessen, Germany in 2003. She received awards and grants including scholarship and research fellowship from DAAD (German Academic Exchange Service), Universitas Indonesia as well as from Indonesian Ministry for Education and Culture. Her research interests include Human Reproduction, Human Genetic and Epigenetic. Currently, she is doing research in sperm genetic and epigenetic as well as in woman reproductive disorders.

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