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## Cell-Free DNA as a Biomarker of IVF Success

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Cell-free DNA fragments detected in blood and in other biological fluids are released from apoptotic/necrotic cells. In this study, we analyzed cfDNA levels in follicular fluid (FF) samples from patients with infertility. Samples were collected from 178 infertile women and cfDNA was extracted and quantified by qPCR, using ALU115 and ALU247 primers, and statistical correlations were performed. We found that cfDNA concentration was significantly higher in FF pools from women aged 35 and over than in women under 35 years of age ( $p = 0.017$ ). We also found that q247 cfDNA levels were significantly higher in women with an associated female factor, such as endometriosis, PCOS and POF, compared with women with no specific cause of infertility ( $p = 0.033$ ). The concentration of cfDNA did not vary significantly in each group of women with an associated female factor. The concentration of cfDNA was significantly higher in the FF of women that obtained embryos with a high fragmentation rate, compared to embryos with a low fragmentation rate ( $p = 0.007$ ). Finally, we found that women who did not become pregnant during IVF treatments had higher q247 cfDNA levels ( $p = 0.043$ ). The quantification of cfDNA could be an important biomarker of follicular micro-environment quality to predict embryo quality and the success of IVF, making them more specific and effective.

### Biography

Ana Ramalhinho has completed his PhD in 2014 from University of Beira Interior (UBI), Covilhã, Portugal. She is Assistant Professor and Researcher at UBI and Clinical Embryologist at Assisted Reproductive Unit in Cova da Beira Local Unit of Health, Covilhã, Portugal.