Review

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# Two-Decade Experience of Royan Institute in Obtaining Mature Oocyte from Cryopreserved Ovarian Tissue: In Vitro and In Vivo Approaches

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## Abstract

Ovarian tissue cryopreservation (OTC) holds promise for preservation of fertility among women who have lost their fertility due to diseases such as cancer. OTC has significantly assisted such cases by helping them maintain normal hormonal levels and menstrual cycles. Appropriate strategies to develop and extract mature oocytes from OTC could overcome a range of complications that are associated with ovarian dysfunction, caused by aging, and primary or secondary ovarian insufficiency. Scientists from different departments at The Royan Institute (Tehran, Iran) have been conducting studies to find the best way to extract mature oocytes from animal and human cryopreserved ovarian tissues. The various studies conducted in this area in the past 20 years, by researchers of the Royan Institute, are collated and provided in this review, in order to provide an idea of where we are now in the area of fertility preservation.

**Keywords:** Cryopreservation; In vitro; In vivo; Mature oocyte; Ovarian tissue bank.