

## **Fertility Preservation for Cancer patients**

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Fertility preservation of living cells, tissues, and organs has been applied across a broad range of medical applications, such as livestock, endangered or economically beneficial species. Much effort and attention has been paid for preservation of female fertility in patients with cancer who may lose their ovary function after chemo-/radiotherapy.

As early diagnosis of cancer disease and increasing survival rate, fertility preservation by embryo cryopreservation is considered standard practice and is widely available. For those patients without partner, oocyte preservation is another choice. Due to the requirements for scheduling and procedures, the above techniques may entail a delay in cancer treatment. Furthermore, exposure to high hormonal levels, invasive surgical interventions, high costs, and cryodamage should be concerned. Other methods include ovarian tissue & whole ovary cryopreservation, ovarian transposition, and ovarian suppression with gonadotropin-releasing hormone (GnRH) agonist. Current gaps and opportunities in follicle and oocytes in vitro culture, and potential in bioengineering the ovary deserve for further study.

While childbearing is often considered as a “woman’s issue”, there is evidence suggesting that this issue is important to males as well. Fertility preservation for infertile male mice is promising by reconstruction of spermatogenesis after transplantation of spermatogonial germinal cells.

Before all the clinical application of these techniques based on many scientific and technical issues to be overcome, a number of ethical and legal issues must also be addressed to ensure a safe and realistic prospect for oncofertility.