



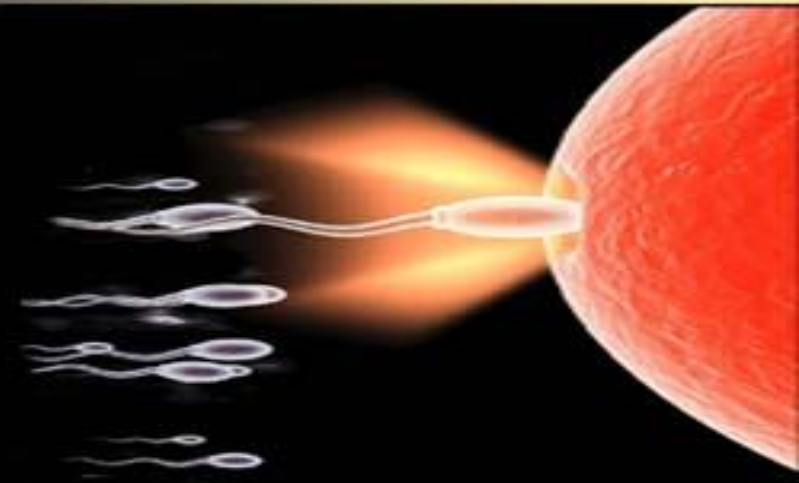
## Fertility Preservation in Patient Cancer

**Diba Eskandari**  
Supervisor

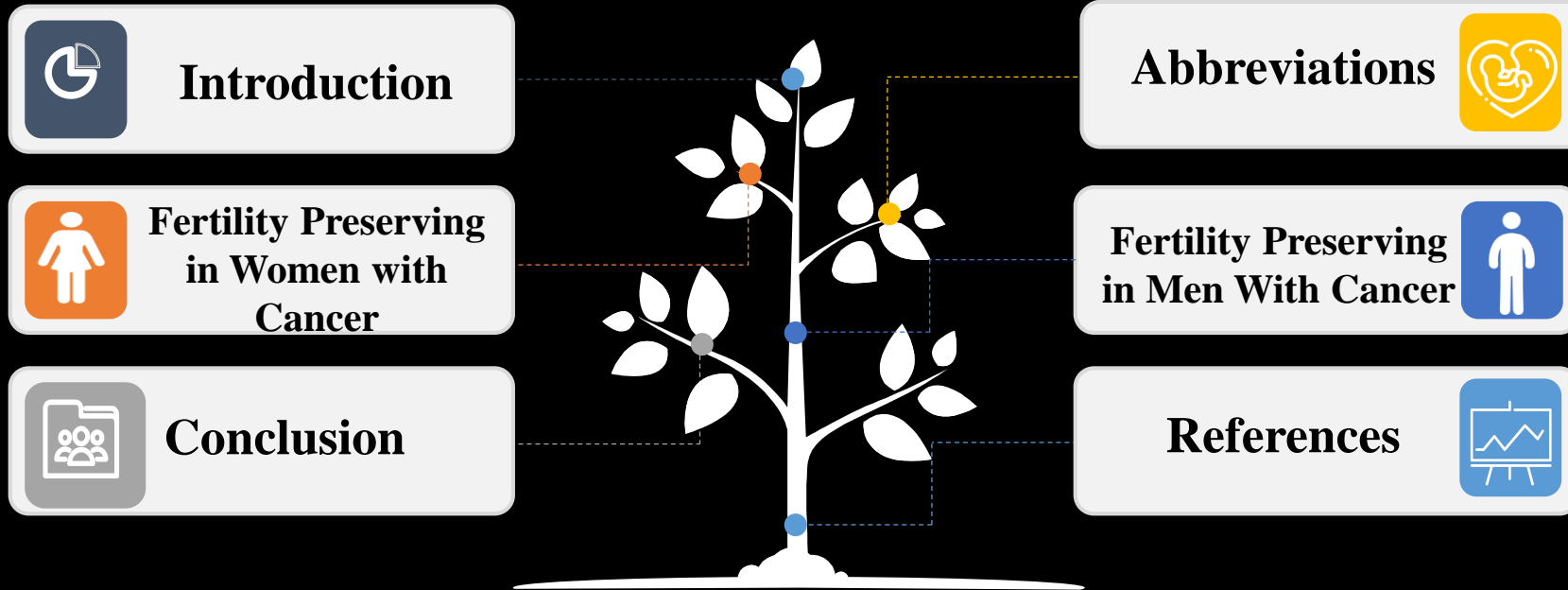
**Mr. Ali Toloue**



13 December 2018



# Contents



# Abbreviations

**IVM** : In Vitro Maturation

**POF**: Premature Ovarian Failure



**Pcos**: Polycystic Ovary Syndrome

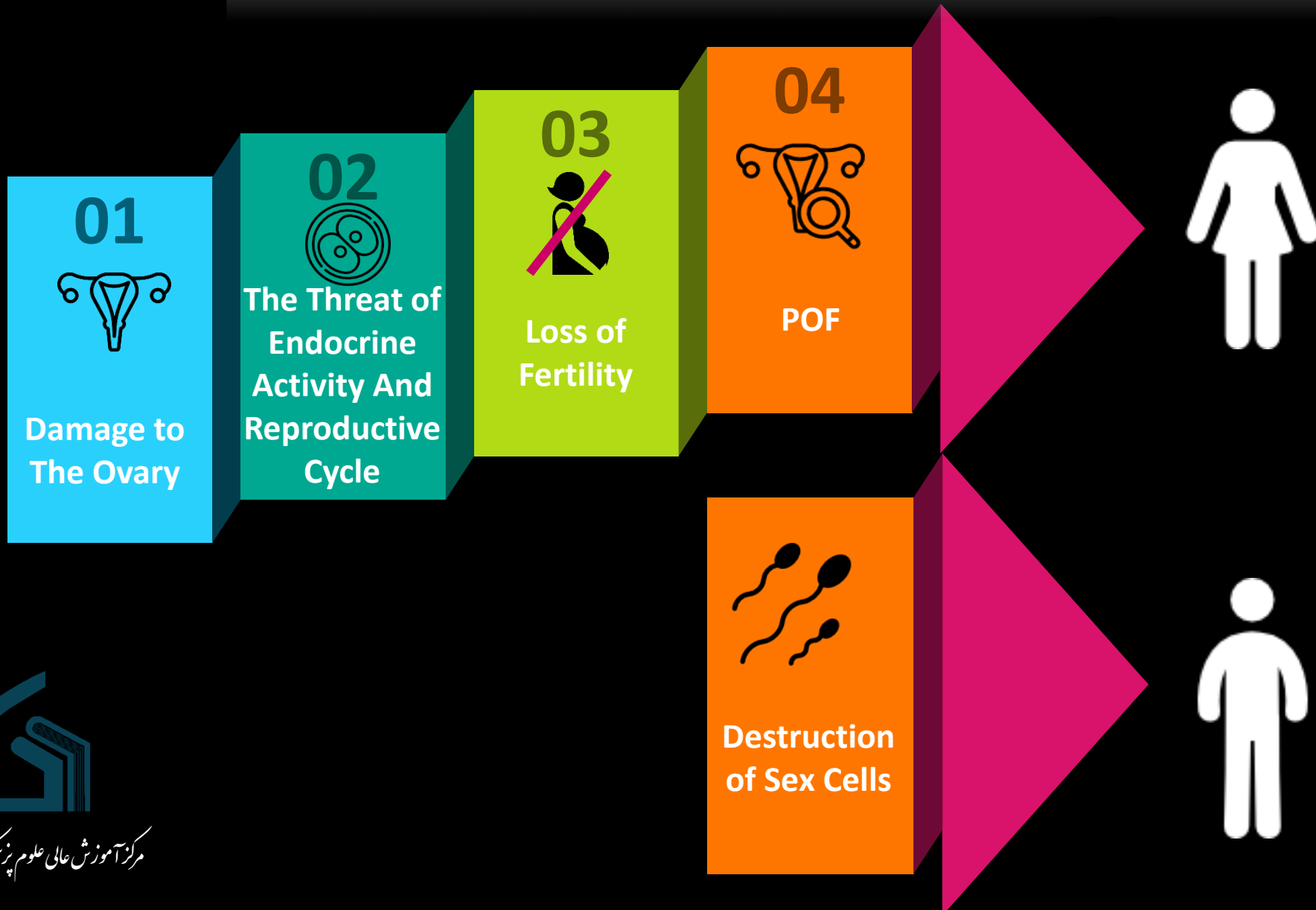
**AML**: Acute Myeloid Leukemia



# Introduction



# Toxic Substances and Ionizing Radiation

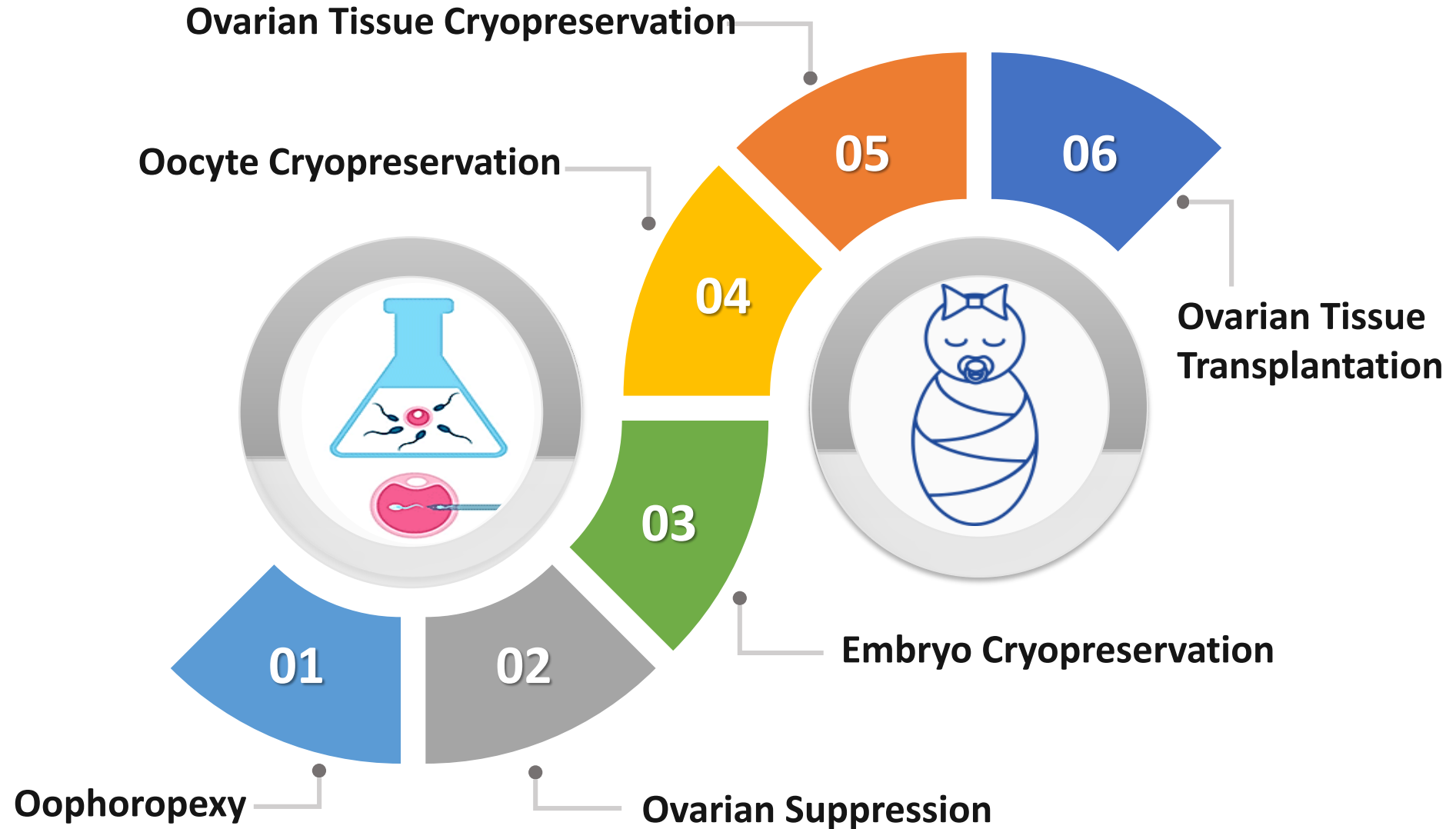


# Fertility Preservation in Women with Cancer

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# Methods of fertility preservation in women with cancer

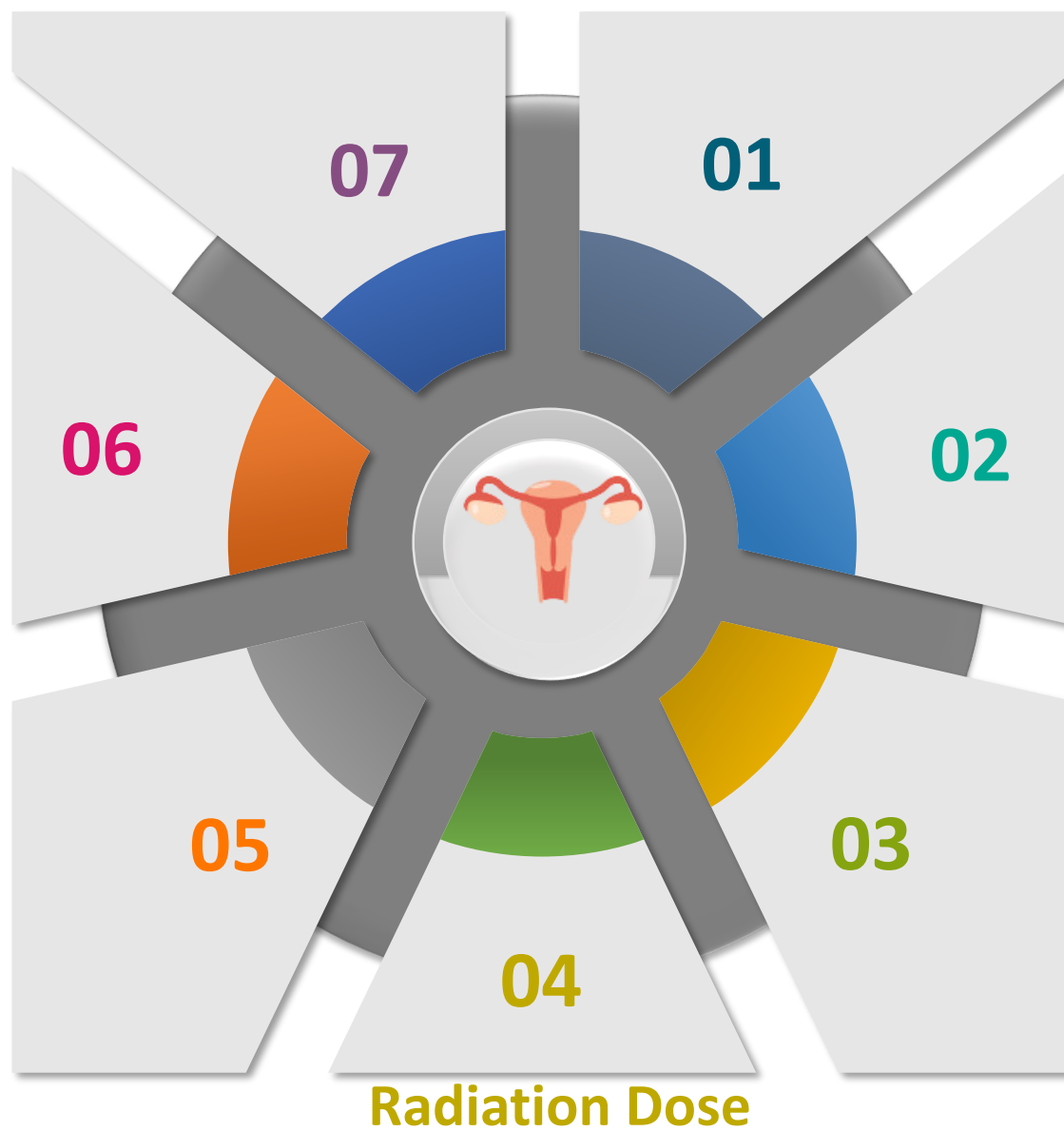


# Oophoropexy

Vaginal  
Brachytherapy  
with Pelvic  
Radiation  
Therapy

Chemotherapy  
with Radiation  
Therapy

Protecting the  
Ovaries During  
Chemotherapy



Degree of  
Radiation  
Dispersion

Condition of the Veins

Age of Patients

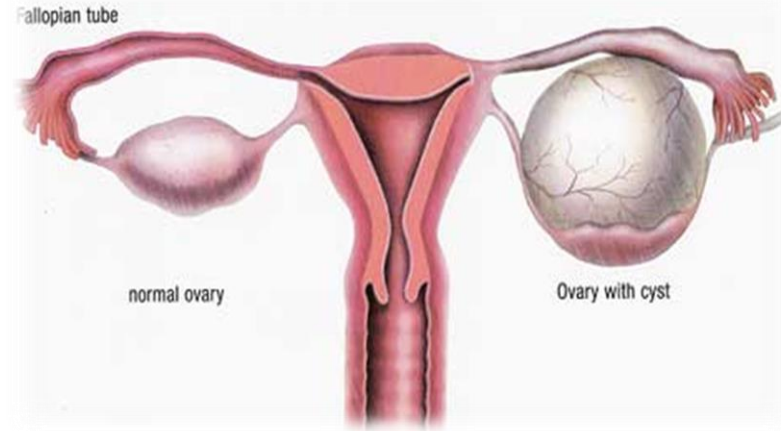
Radiation Dose



# Complications



Falupin Tube Infarction

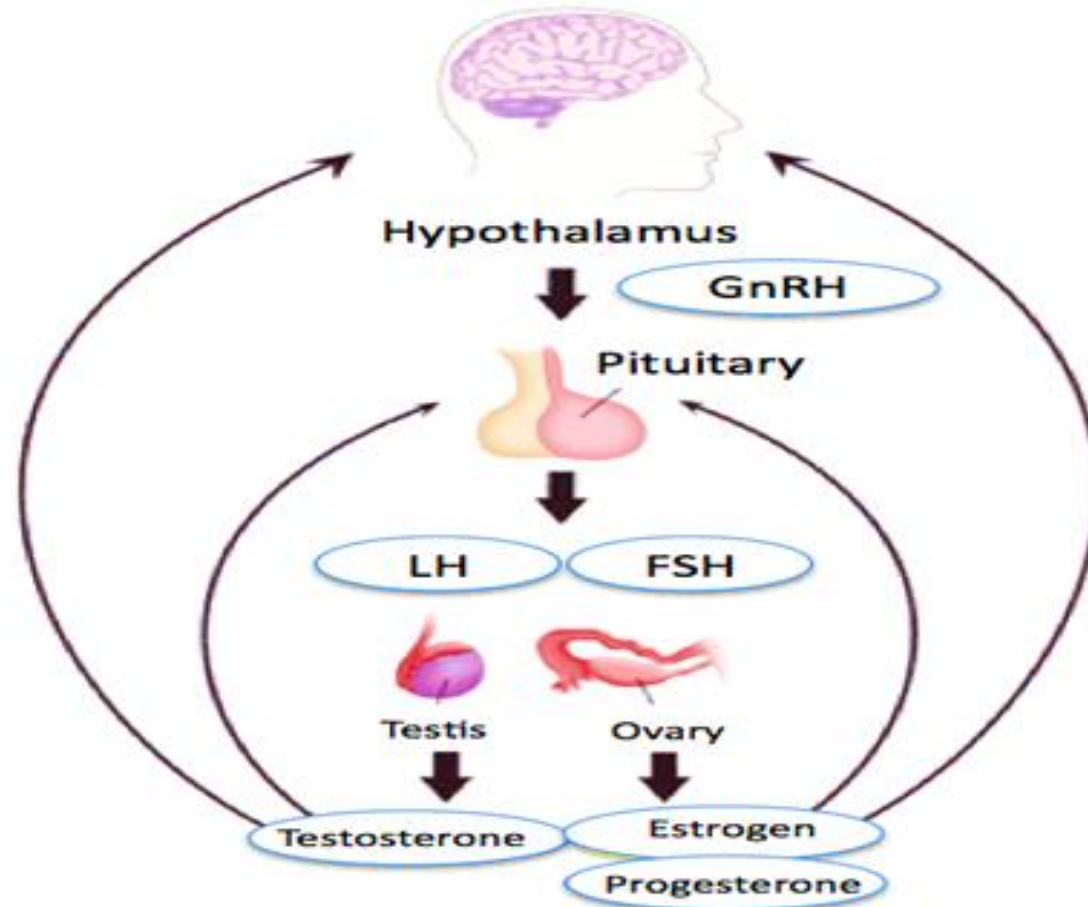


The Formation of Ovarian Cysts

Chronic Ovarian Pain



# Ovarian suppression



Impact on The Hypothalamus  
Pituitary Axis

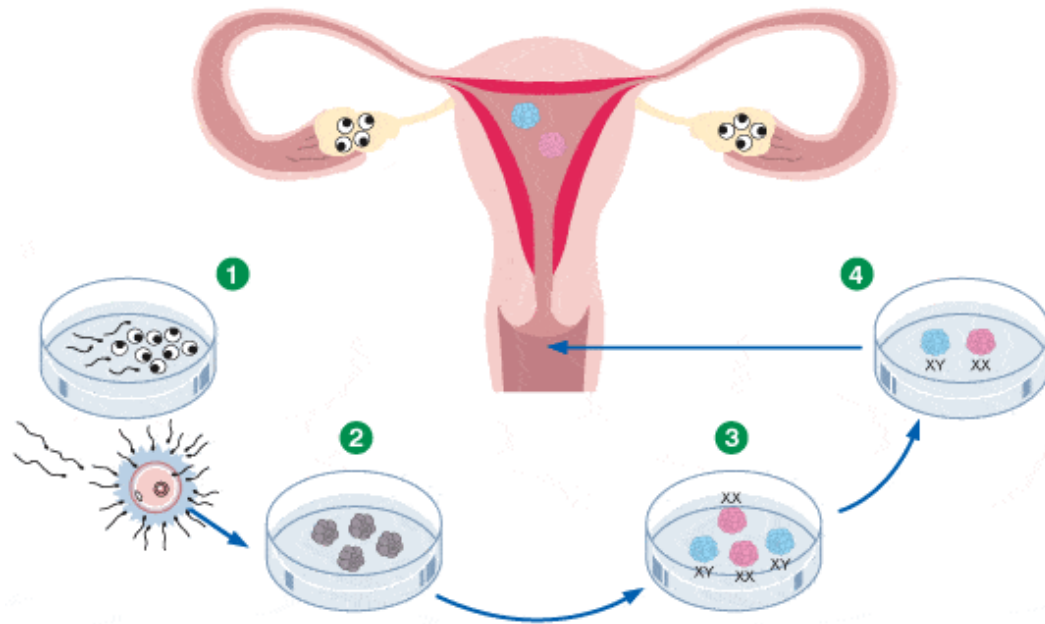
Suppress Ovarian Gonadotropin  
Levels to Pre-pubertal Levels

Inhibition of Ovarian Activity

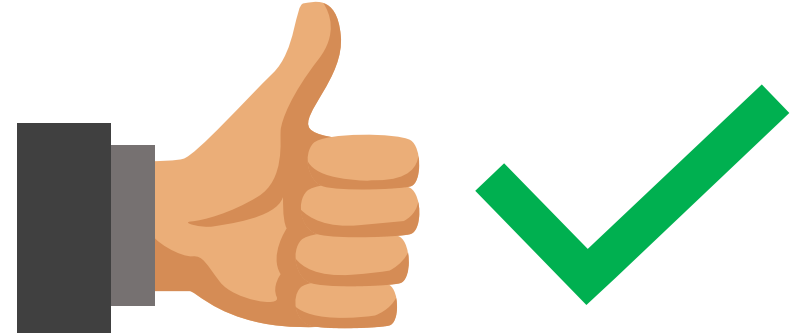
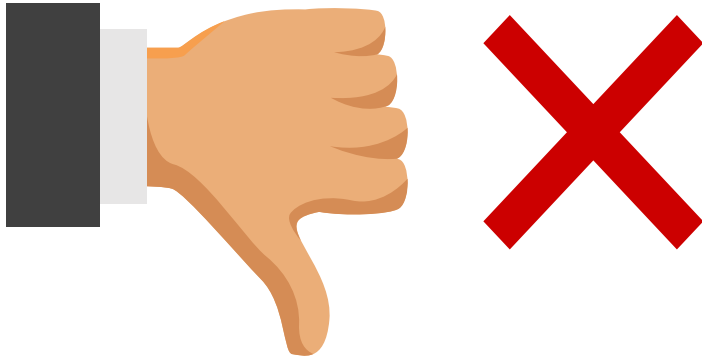


# Embryo cryopreservation

Since the 1980s  
Survival rate 90%  
Linkage survival of 30%



# Embryo cryopreservation



**Women with Aggressive Cancer**



**Women with Estrogen-sensitive  
Breast Cancer**



**Teenage Girls**



**Unmarried Women Who Can Not  
Receive Sperm**



**Married women**

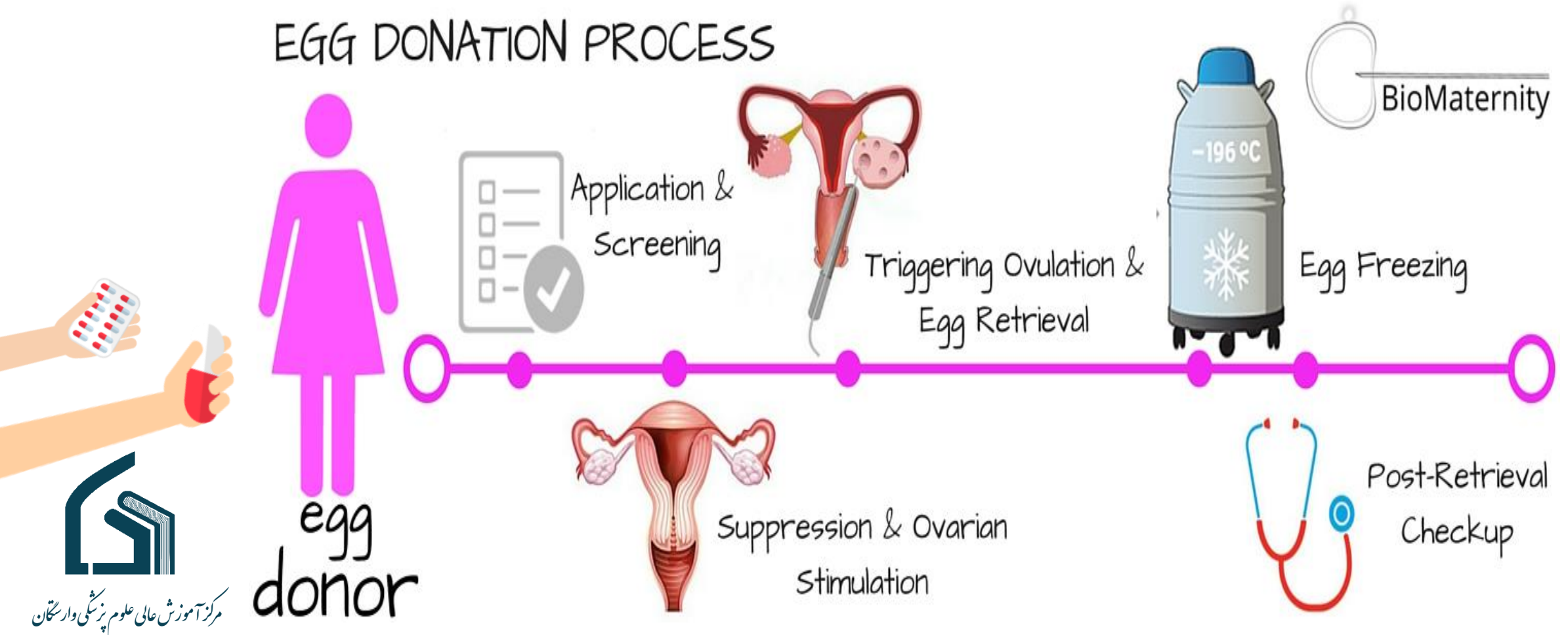


**Women with cancer who can  
not start their treatment**



# Oocyte cryopreservation

## EGG DONATION PROCESS



# Oocyte cryopreservation

## Oocyte



## Immature Oocyte

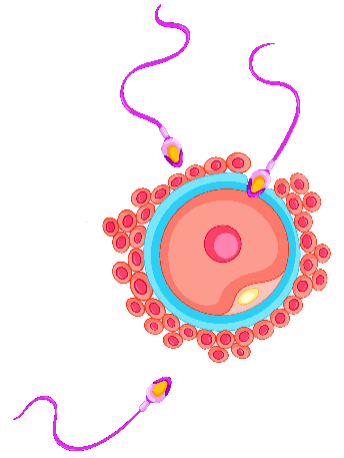
- 1) Cancer treatment is possible
- 2) immediately Suitable for people with Pcos

## Mature Oocyte

- 1) Survival rate higher than 90%
- 2) Pregnancy rate is 40-50%
- 3) There is no difference between the fresh oocyte and the frozen oocyte

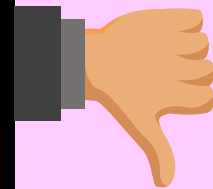


# Oocyte cryopreservation



1) Single women

2) Unmarried women who can not receive sperm



1) Women with advanced cancer require rapid treatment

2) Hormone-sensitive cancers

3) Teenage girls



# Ovarian Tissue Cryopreservation

**past**



**The Absence of Effective Protective Materials**



**The Absence of Automatic Machines**



**The Absence of Effective Freezing Methods**

**Now**



**Propandhile**



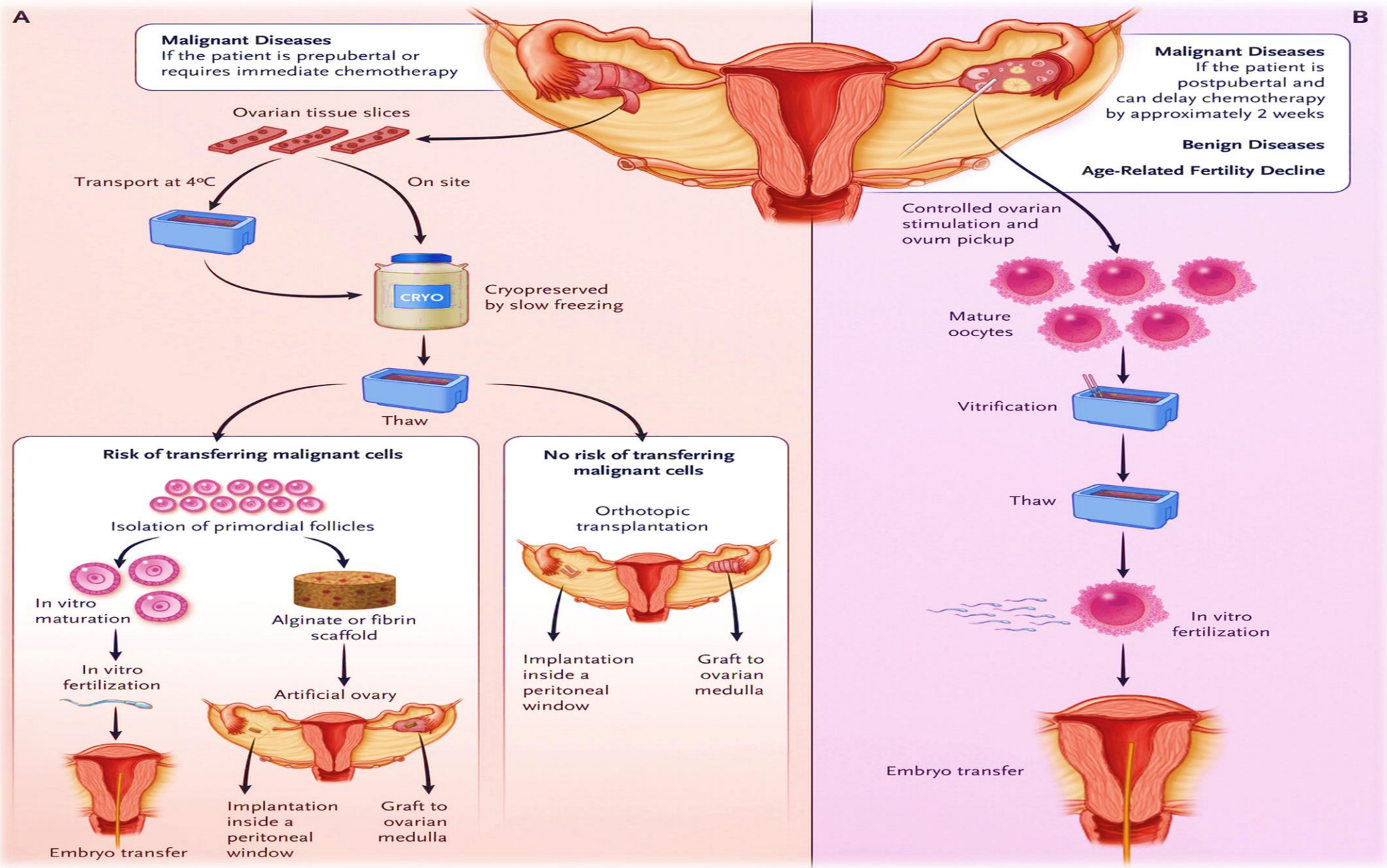
**Ethylene Glycol**



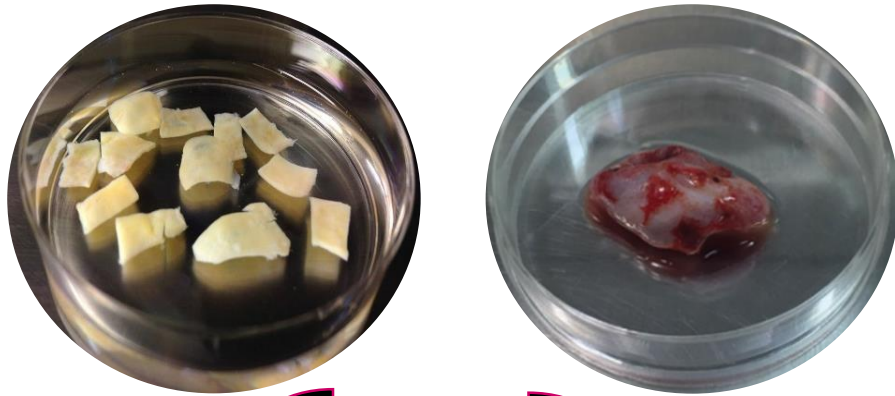
**DMSO**







# ovarian tissue cryopreservation



1) No need to stimulate the ovary



2) It is not necessary to delay the onset of treatment

The best option is to maintain fertility for ages before puberty and single

ovarian tissue cryopreservation is done for two reasons:

1) Tissue rebound



2) Isolation of follicles from tissue



# Different Theories for Ovarian Tissue Cryopreservation



**Freezing Whole  
Ovarian Tissue With  
Blood Vessels**



**Introducing Cryogenic  
Substances Into Ovarian**



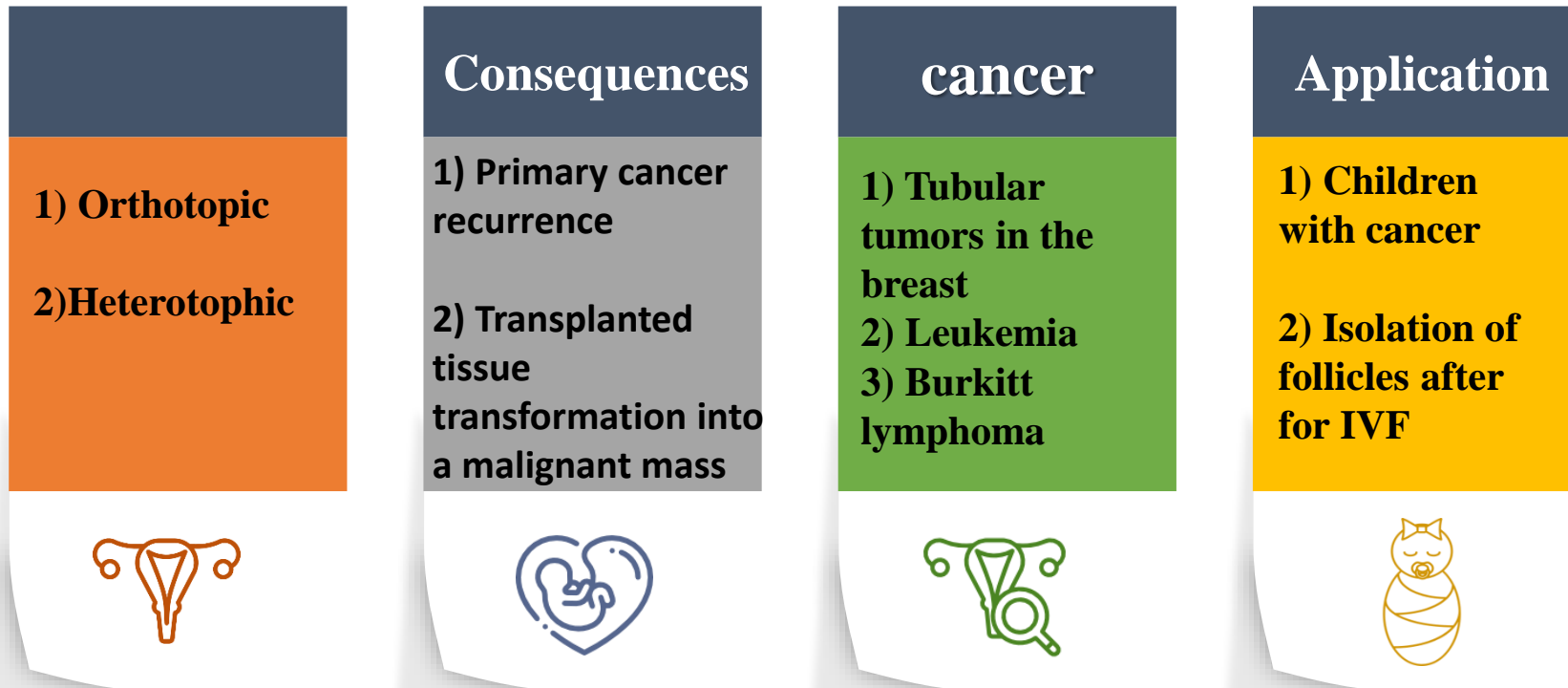
**Substances Due to  
Their High Volume**



**Creation Of Ice Crystals  
In Blood Vessels**



# Ovarian tissue transplantation

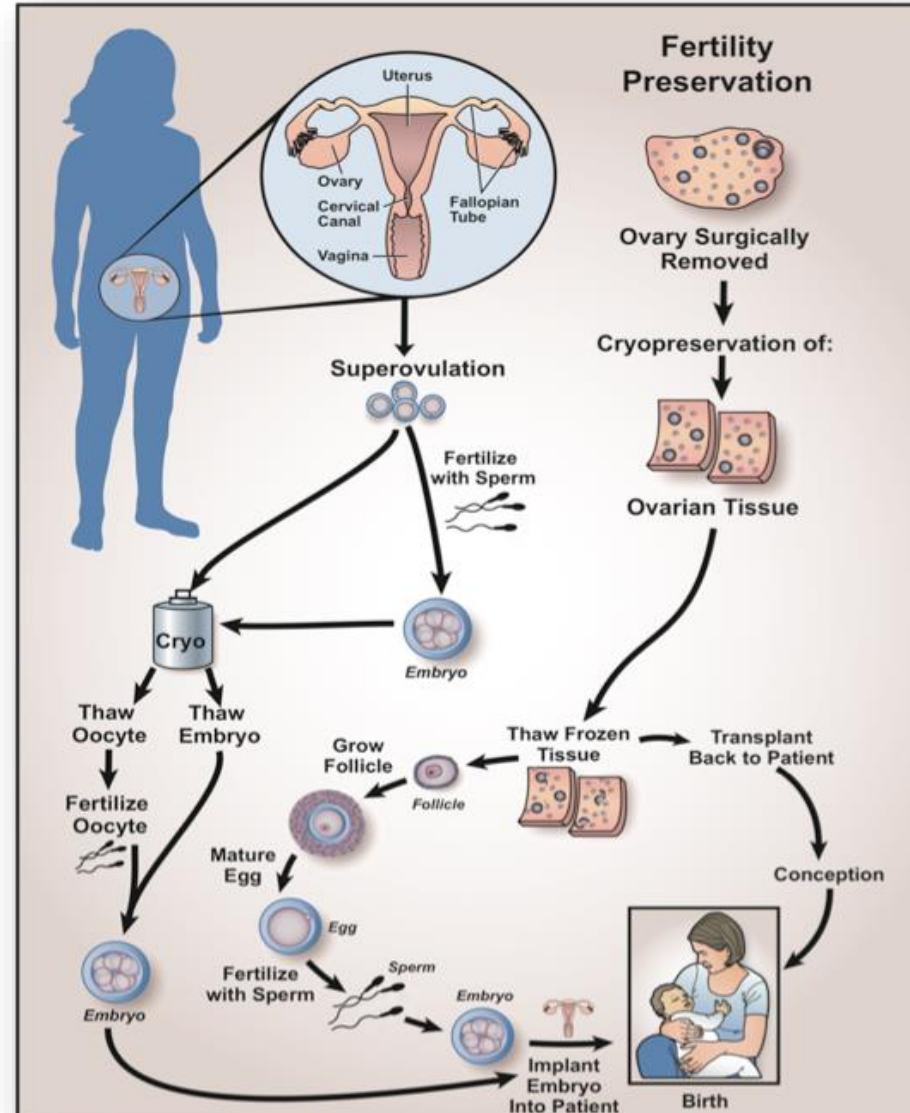


# Ovary Follicle Culture in The Laboratory

In patients with **AML**:



- 1) Oocyte cryopreservation
- 2) Embryo cryopreservation
- 3) Ovarian tissue transplantation

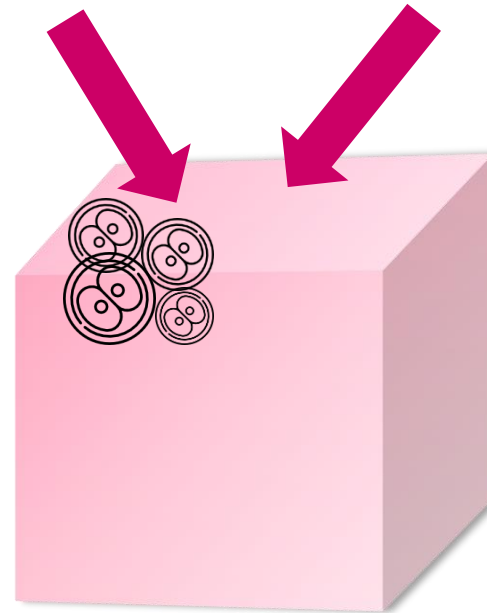


# Ovarian follicular transplantation( Artificial ovary)

Follicles isolated from frozen tissue

Other ovarian cells

- 1) Pregnancy
- 2) Endocrine function



The predetermined matrix is similar to the ovary



# Fertility Preservation in Men with Cancer

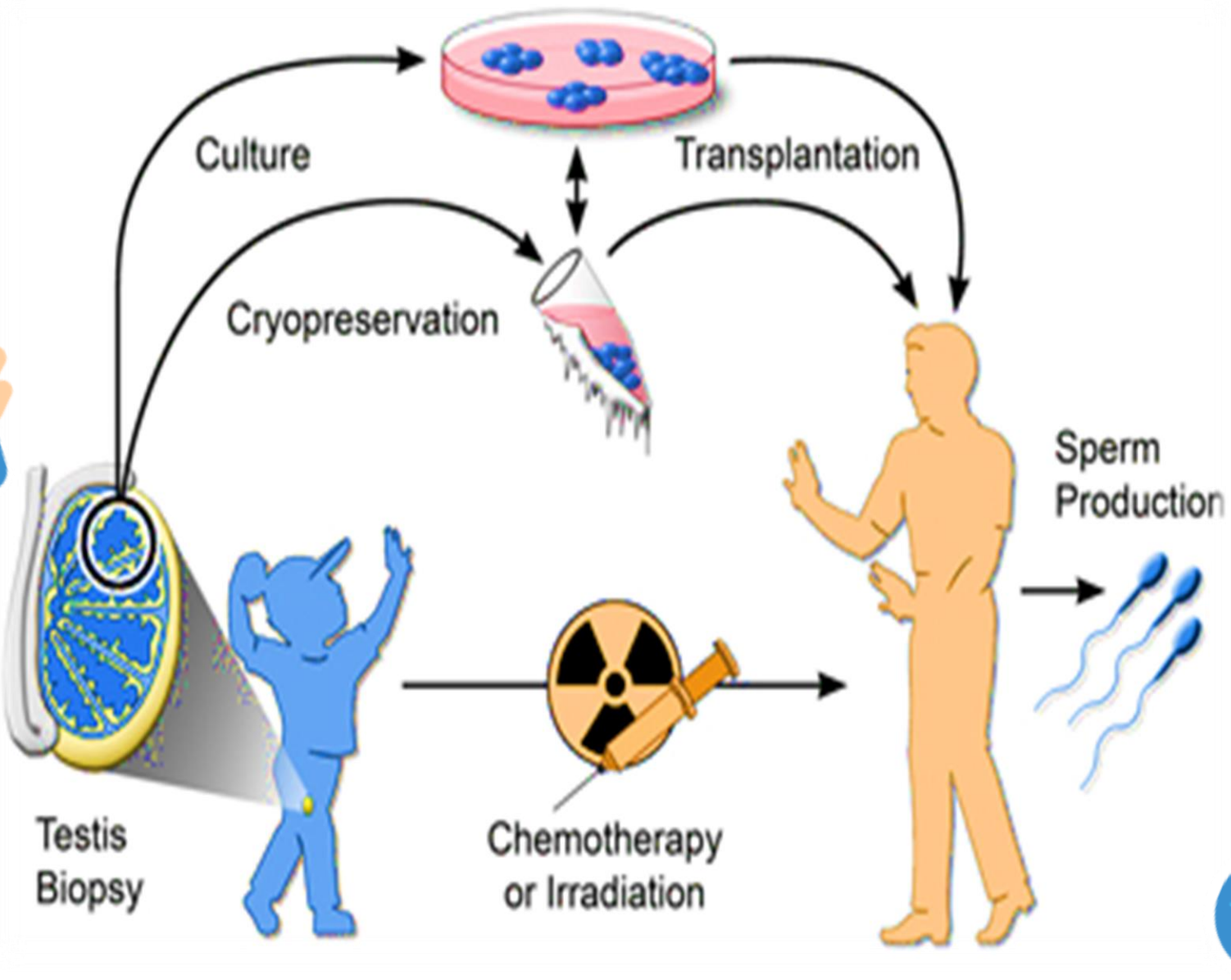
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- Cyclophosphamide
- Busulfan
- chlorambucil







# Freezing testicular tissue and reuniting

## Testicular tissue transplantation

- 1) Orthotopic
- 2) Heterotopic



Fertility Preservation in Children



# Conclusion



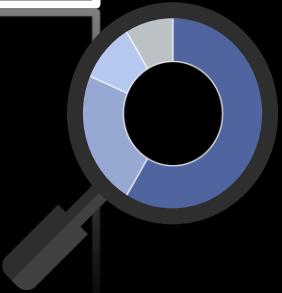
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*Thank you*  
*For your attention*



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