配偶子、受精胚に関連する事項の理解のために

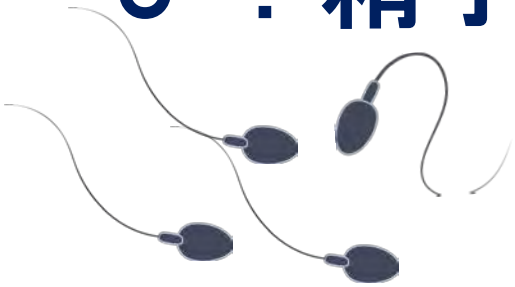
スライド＃

- 2-3 ： 受精から着床前期胚発生の理解
- 4-8 ： 配偶子、受精胚に対する胚操作技術の応用

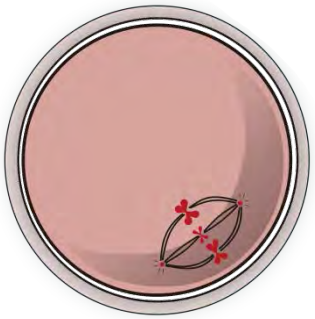
平成28年12月5日
国立成育医療研究センター研究所
阿久津英憲

受精から着床前期胚発生の理解　1

♂：精子

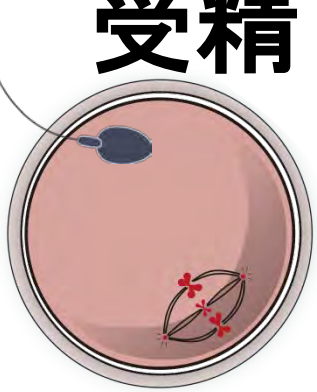


配偶子



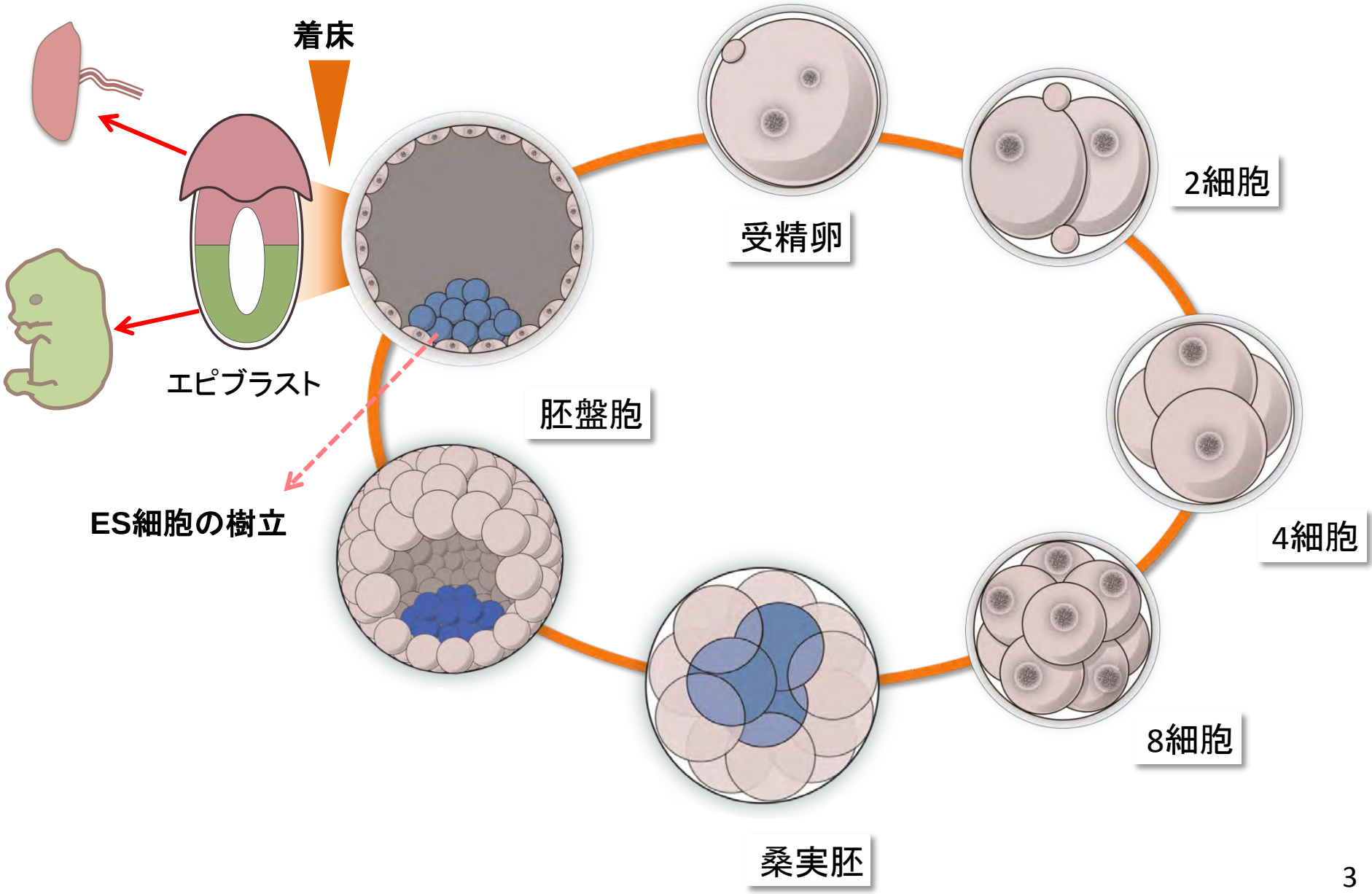
♀：卵子

受精



受精卵
受精胚

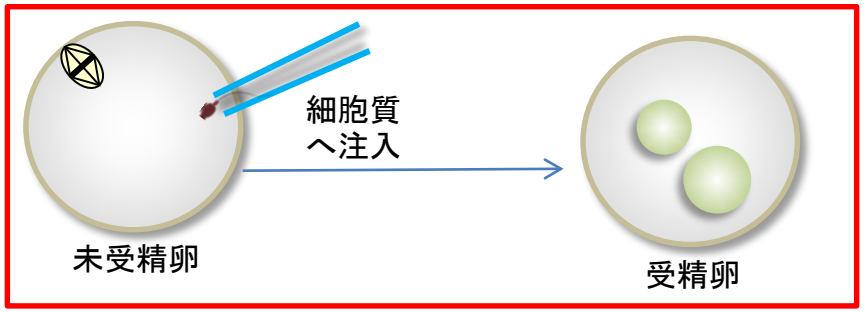
受精から着床前期胚発生の理解　2



配偶子、受精胚に対する胚操作技術の臨床応用

1. 生殖補助医療（顕微授精：ICSI）

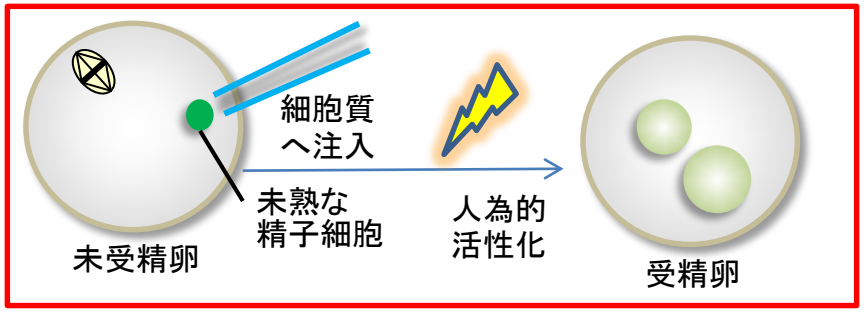
代表的な生殖医療手技の一つ



Palermo G, Joris H, Devroey P, Van Steirteghem AC. “Pregnancies after intracytoplasmic injection of single spermatozoon into an oocyte.” Lancet. 1992; 340(8810): 17-18.

参考-1
＊円形精子細胞卵子内注入（ROSI）

日本で臨床応用有り

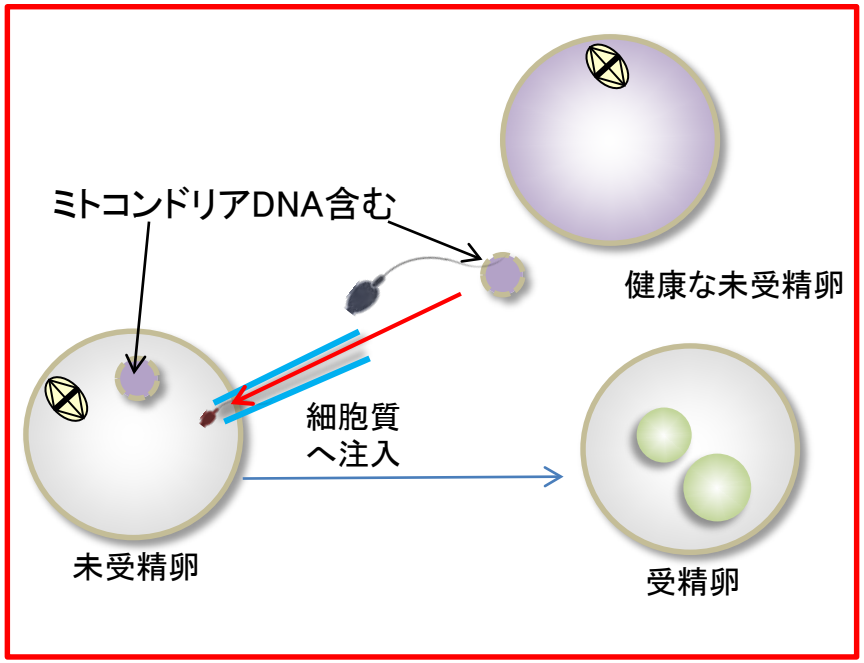


Tanaka A, Nagayoshi M, Takemoto Y, Tanaka I, Kusunoki H, Watanabe S, Kuroda K, Takeda S, Ito M, Yanagimachi R. “Fourteen babies born after round spermatid injection into human oocytes.” Proc Natl Acad Sci U S A. 2015; 112(47): 14629-14634.

参考-2

臨床応用有り

＊ドナー細胞質注入+ICSI

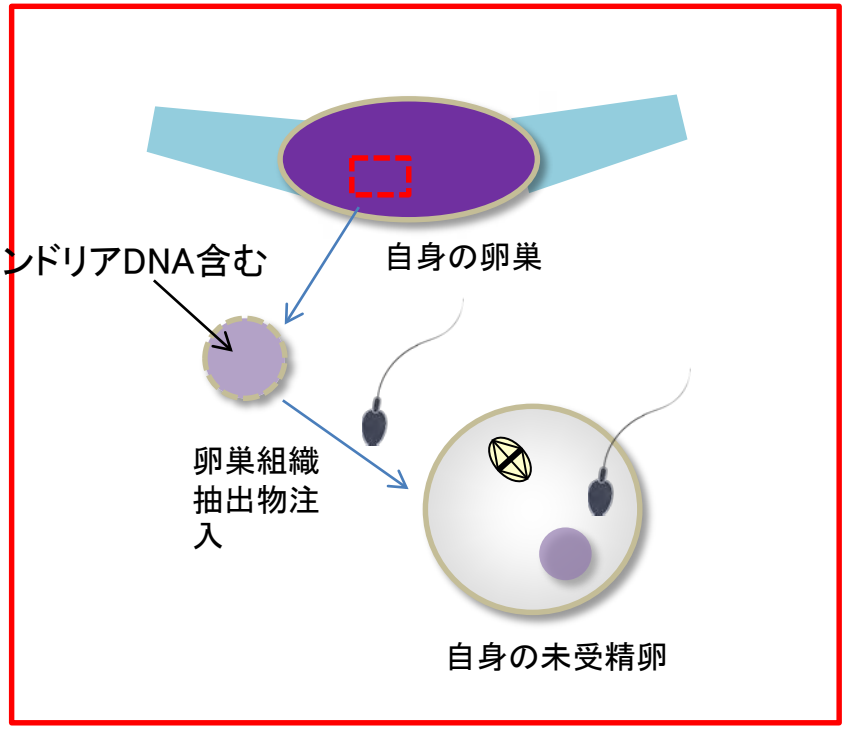


Cohen J, Scott R, Schimmel T, Levron J, Willadsen S. “Birth of infant after transfer of anucleate donor oocyte cytoplasm into recipient eggs.”
Lancet. 1997 Jul 19;350(9072):186-7.

参考-3

日本で臨床応用有り

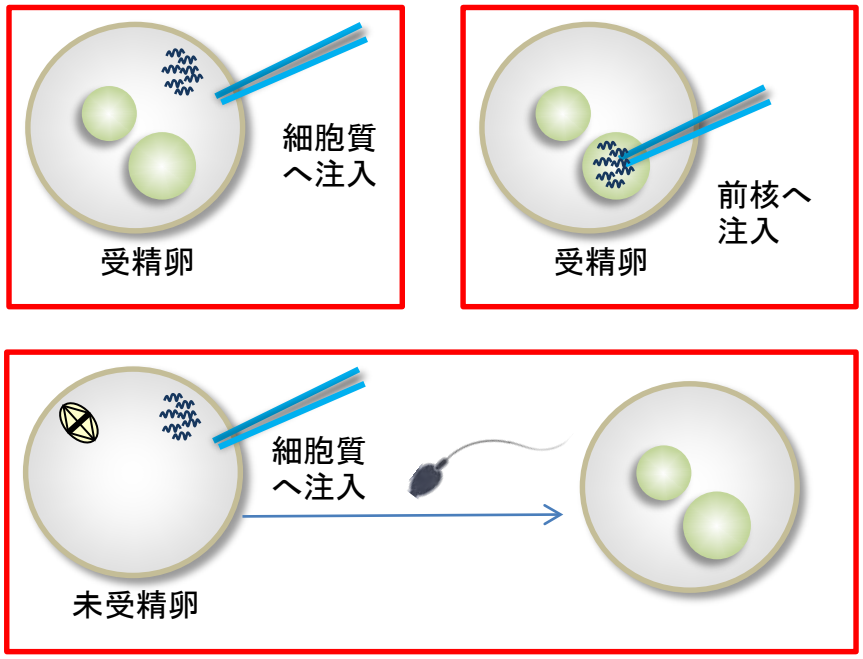
＊Augment treatment



Nayot D, Fakih M, Cohen G. Live Birth Rates Following a Single Cycle of the AUGMENT Treatment. Poster presented at: 24th Annual World Congress on Controversies in Obstetrics, Gynecology & Infertility; November 10-13, 2016; Amsterdam, Netherlands.

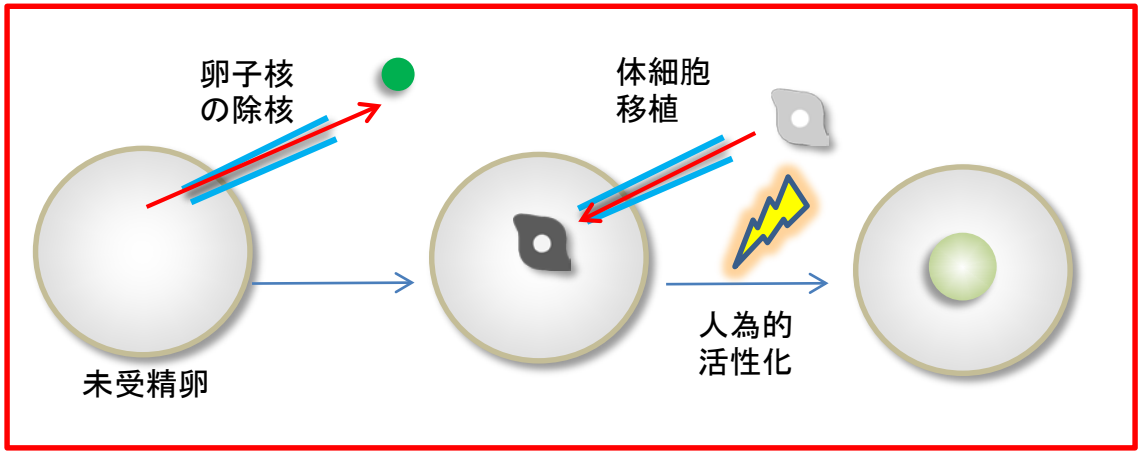
2. マイクロインジェクション法（ゲノム編集技術への応用）

臨床応用無し



・CRISPR Cas9によるゲノム編集
・CRISPR dCas9による遺伝子発現制御、ゲノム可視化

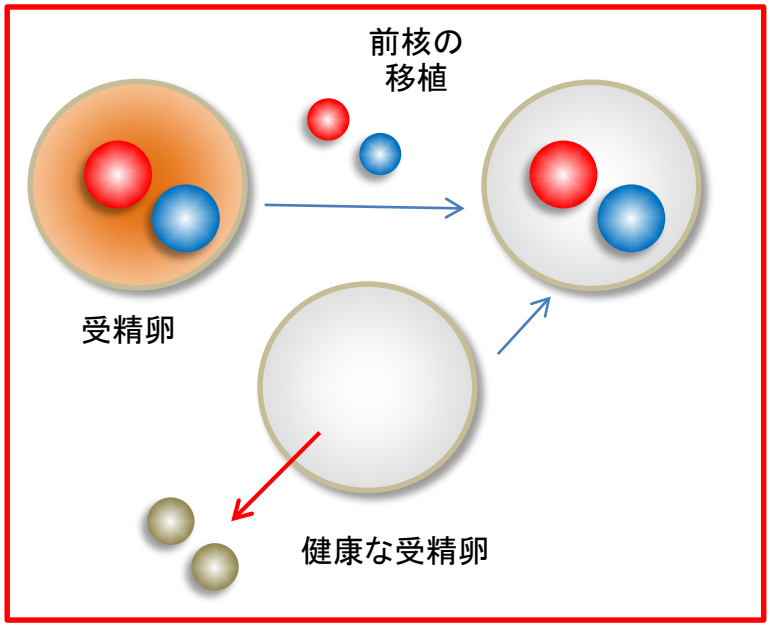
3. 体細胞クローン



臨床応用無し

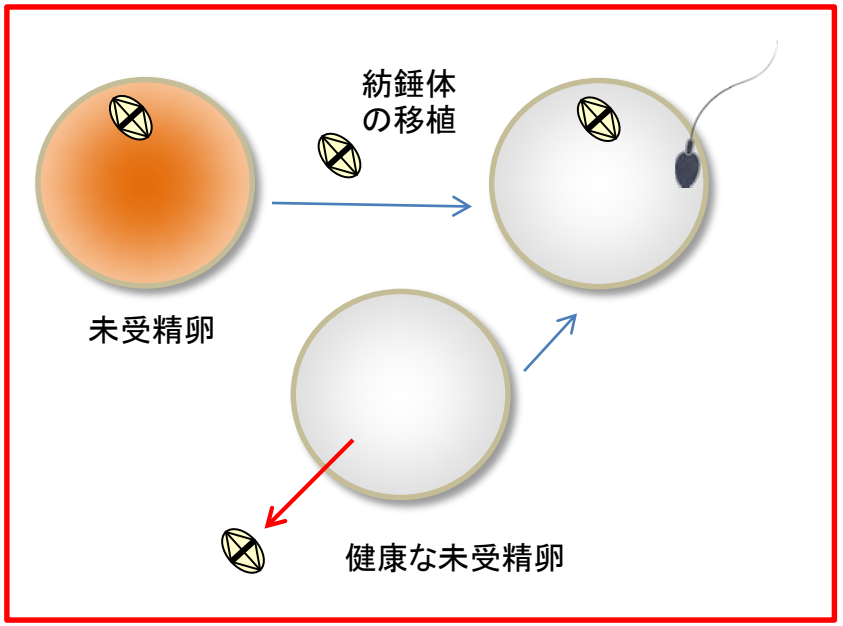
4. 核置換法－前核置換（PNT）

臨床応用有り



5. 核置換法－紡錘体置換（ST）

臨床応用有り

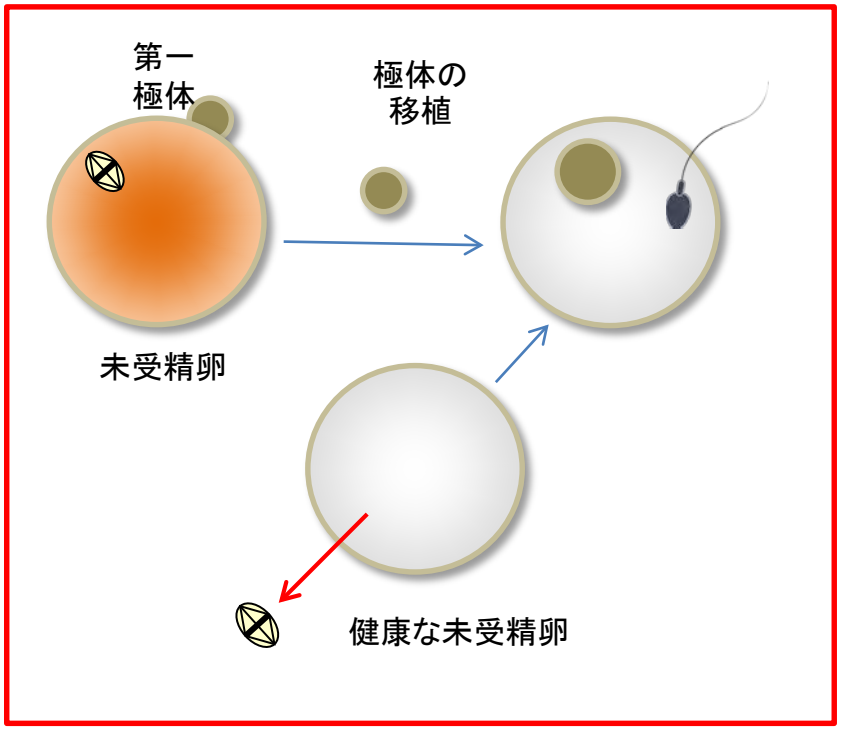


4. Pregnancy derived from human zygote pronuclear transfer in a patient who had arrested embryos after IVF. Zhang J, Zhuang G, Zeng Y, Grifo J, Acosta C, Shu Y, Liu H. Reprod Biomed Online. 2016 Oct;33(4):529-533.

O-267 First Live Birth Using Human Oocytes Reconstituted by Spindle Nuclear Transfer for Mitochondrial DNA Mutation Causing Leigh Syndrome, Zhang, et al. The American Society for Reproductive Medicine's 2016 meeting

6. 核置換法－極体移植（PBNT）

臨床応用無し



Ma H, et al. “Functional Human Oocytes Generated by Transfer of Polar Body Genomes” Cell Stem Cell 2016.

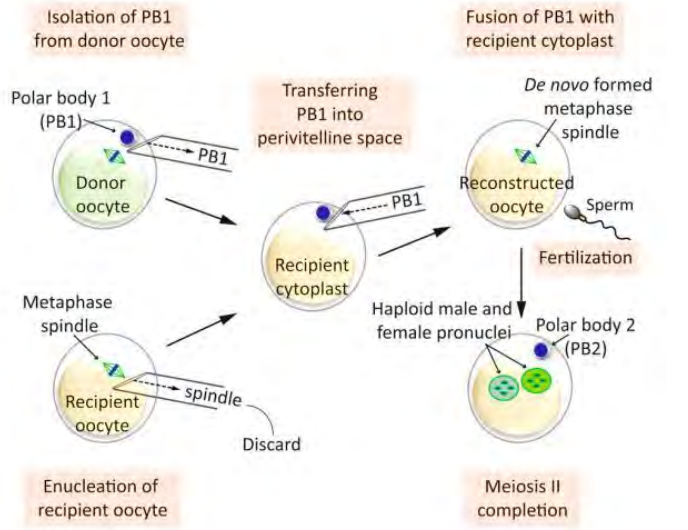


Fig. 1

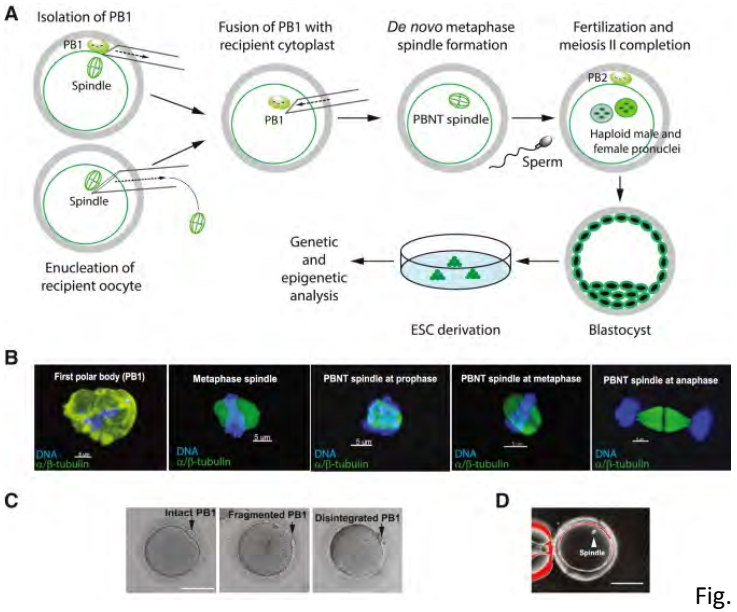


Fig. 2