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MEM- α

*

)

(

NMARI

MEM- α , hCG, rFSH, % FCS

rFSH hCG MEM- α % hHFF

% hHFF

(% /) (% /) (% /) :

(P < /) (P < /)

(% /) (% /) (% /)

(P < /) (P < / P < /)

:

:

(PCOS)

()

IVM

(In Vitro Maturation IVM)

Enzman Pincus

(Germinal Vesicle GV)

(GVBD) Germinal Vesicle Breakdown

Large offspring syndrome

()

()

(Assisted ART Reproductive Technology)

IVM

()

IVM

()

()

()

()

IVM

GV

In vitro

()

II

()

IVF IVF-ET

()

GnRH-a

HCG

(MEM- α)

NMRI

()

$\times g$

(°C)

()

IVF-ET

•

CO₂

MEM- α (sigma) mg/ml :

(sigma) rFSH mg/ml FCS(sigma) 20%

. HCG(sigma) mg/ml

:

GV

.(Heated Human Follicular Fluid 100%) %

GVBD

MEM- α (sigma) :

mg rFSH(sigma) mg/ml hHFF20%

MII

. HCG(sigma)

IVF (in vitro fertilization)

•

•

:

MII (P < /) . I
 % / % /

(P < /) NMARI . II

hHFF 100%

(P < /) /

(P < /) ° C

MII Two Cell . III

% / hHFF 100% (× ml)

% hHFF 20% . IV

% / MEM- α . V

(P < /) . IVF

(P < /)

()

Two cell	MII	GVBD	GV	
(%)	(%)	(%)	(%)	
c	a		a	FCS 20% MEM- α
(/)	(/)	(/)	(/)	(N =)
(/)	(/)	(/)	(/)	hHFF%100
				(N =)
d	b		b	MEM- α ,hHFF20%
(/)	()	(/)	(/)	(N =)
P < /	P < /	P < /	P < /	

GV:Germinal vesicle

GVBD: Germinal vesicle break down

MII:Metaphase 2

hHFF :Heated Human Follicular Fluid

a: (P < /)

b: (P < /)

c: (P < /)

d: (P < /)

MEM- α

hHFF 100%

hHFF 20%

GV

hHFF 100% % / MEM- α

% / hHFF 20% % /

(P < /)

(P < /)

GVBD

(Heat treatment) IVF

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%

REFERENCES

1. Leibfried ML, Bavister BD. Fertilizability of in vitro matured oocytes from goldenhamsters. *J Exp Zool* 1983; 226: 481-5.
2. Shalgi R, Phillips DM. Mechanics of in vitro fertilization in the hamster. *Biol Reprod* 1980; 23: 433-44.
3. Wani A. In vitro maturation and in vitro fertilization of sheep oocytes. *small ruminant research. Biol Reprod* 2002; 44: 89- 95.
4. Smith GD. In vitro maturation of oocyte. *Curr Womens Health Rep.* 2001; 1(2): 143-51.
5. Trounson A, Anderiesz C, Jones G. Maturation of human oocytes in vitro and their developmental competence. *Reproduction* 2001; 121: 51-75.
6. McGovern PG, Legro RS, Myers ER, Barnhart HX, Carson SA, Diamond MP, et al. Utility of screening for other causes of infertility in women with "known" polycystic ovary syndrome. *Fertil Steril* 2007; 87: 442-4.
7. Ruth R, Franks S, Hardy K. Culture environment modulates maturation and metabolism of human oocytes. *Hum Reprod* 2002; 17: 2950-6.

-
8. Van Steirteghem AC, Nagy Z, Joris H, Liu J, Staessen C, Smits J, et al. High fertilization and implantation rates after intracytoplasmic sperm injection. *Hum Reprod* 1993; 8: 1061-6.
 9. Mc Evoy, Robinson TG, Sinclair KD. Developmental consequence of embryo and cell manipulation in mice and farm animals. *Reproduction* 2001; 122: 507-18.
 10. Young LE, Sinclair KD, Wilmut I. Large offspring syndrome in cattle and sheep. *Reproduction* 1998; 3: 155-63.
 11. Bongso A, Ng SC, Ratnam S. Co-cultures: their relevance to assisted reproduction. *Hum Reprod* 1990; 5: 893-900.
 12. Caravaglios R, Cilotti R. A study of the proteins in the follicular fluid of the cow. *J Endocrinol* 1957; 15(3): 273-8.

14. Derahorad J, Cechva D, Tesarik J. Activation of proacrosin by a locally produced component of human follicular fluid. *J Reprod Fertil* 1988; 83: 599-603.
15. Feichtinger W, Kemeter P. Organization and computerized analysis of in vitro fertilization and embryo transfer programs. *J In Vitro Fert Embryo Transf* 1984; 1: 34-41.
16. Wales RG, Edirisinghe WR. Volume of fluid and concentration of cations and energy substrates in the uteri of mice during early pseudopregnancy. *Reprod Fertil Dev* 1989; 1: 171-8.

Co Culture

18. Liu HC, He Z, Rosenwaks Z. In vitro culture and in vitro maturation of mouse preantral follicles with recombinant gonadotropins. *Fertil Steril* 2002; 77: 373-83.
19. Marques MG, Nicacio AC, de Oliveira VP, Nascimento AB, Caetano HV, Mendes CM, et al. In vitro maturation of pig oocytes with different media, hormone and meiosis inhibitors. *Anim Reprod Sci* 2007; 97: 375-81.
20. Yanagimachi R. In vitro capacitation of hamster spermatozoa by follicular fluid. *J Reprod Fert* 1969; 18: 275-81.
21. Faerge I, Strojcek F, Laurincik J, Rath D, Niemann H, Schellander K, et al. The effect of FF-MAS on porcine cumulus-oocyte complex maturation, fertilization and pronucleus formation in vitro. *Zygote* 2006; 14: 189-99.
22. Laurineik J, Pivko J, Krosiak P. Cumulus oophorus expansion of bovine oocytes cultured in vitro: a SEM and TEM study. *Reprod dom Anim* 1992; 27: 217-28.
23. Bøgh IB, Bézard J, Duchamp G, Baltzen M, Gérard N, Daels P, et al. Pure preovulatory follicular fluid promotes in vitro maturation of in vivo aspirated equine oocytes. *Theriogenology* 2002; 57(7): 1765-79.
24. Armstrong DT, Zhang X, Vanderhyden BC, Khamsi F. Hormonal actions during oocyte maturation influence fertilization and early embryonic development. *Ann N Y Acad Sci* 1991; 626: 137-58.

-
25. Lobo RA, Dizerega GS, Marrs RP. Follicular fluid steroid levels in dysmature and mature follicles from spontaneous and hyperstimulated cycles in normal and anovulatory women. *J Clin Endocrinol Metabol* 1985; 60: 81-7.
 26. Okolski A, Bezard J, Magistrini M, Palmer E. Maturation of oocytes from normal and atretic equine ovarian follicles as affected by steroid concentration. *J Reprod Fertil Supp* 1991; 1: 385-92.
 27. Gerer N, Duchamp G, Goudet G, Bezard J, Magistrini M, Palmer E. A high-molecular-weight preovulatory-stage related protein in equine follicular fluid and granulosa cells. *Biol Reprod* 1998; 58(2): 551-7.
 28. Romero A, Nauta W, Seidel GE. A meiotic stimulator in bovine follicular fluid is retained in a fraction larger than 100 KD. *Theriogenology* 1992; 37(1): 286.