

• 系統編號	RB8307-1231		
• 計畫中文名稱	著床前早期胚胎分別與人類輸卵管壺部細胞子宮、內膜細胞及卵巢 N		
• 計畫英文名稱	Establishment of Coculture System of Early Preimplantation Embryo with Human Tubal Ampullary Endometrial and Cells Respectively Study.		
• 主管機關	行政院國家科學委員會	• 計畫編號	NSC82-0412-B038-010
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• 中文關鍵字	顆粒細胞；共同培養；小白鼠胚胎；體外受精		
• 英文關鍵字	Granulosa cell；Coculture；Mouse embryo；In vitro fertilization		
• 中文摘要	<p>我們取下小白鼠輸卵管內的兩細胞期胚胎和小白鼠顆粒細胞進行共同培養,發現形成囊胚的比例(75%)明顯較沒有進行共同培養的(58%)高,顯示顆粒細胞的共同培養對早期胚胎的生長發育有益。在小白鼠體外受精的實驗方面,我們發現在 3% BSA 溶液中的受精率(52%)比在 15% FCS 溶液中的受精率(22%)為高,這可能是血清中含有較多不利精卵體外受精的物質。更進一步發現,使用 Microdrop in oil 處理 BSA 溶液,受精率可顯著提高(70%)。但體外受精所形成的早期胚胎,則不像取自受精於輸卵管的早期胚胎般可在體外發展至桑葚胚及囊胚。由本實驗我們可以歸納出幾點結論:顆粒細胞的共同培養系統確可在體外協助早期胚胎的發展。另外,在進行體外受精時,使用無血清培養液比使用含血清培養液有較高的受精率,而 Microdrop in oil 可提供比一般培養皿好的體外受精環境,使受精率更為提高。但這些體外受精所形成的受精卵,其胚胎品質比在輸卵管內受精的早期胚胎為差。</p>		
• 英文摘要	<p>To evaluate: (1) the development of mouse embryos from the 2-cell stage to the blastocyst stage by the use of GCs in coculture; and (2) the optimal environment for fertilization in a mouse IVF system. (1) A total of 478 2-cell stage embryos from the oviduct of female mice were collected and cultured in BSA (group A), FCS media (group B), or cocultured with murine GCs (group C). The number of embryos reaching blastocyst stage were compared. (2) sperm and cumulus mass were mixed for IVF in BSA or FCS, using either organ dishes or microdrop in oil. The fertilization rate in the different environment were compared. The early embryos produced in this in vitro experiment were then cocultured with GCs to evaluate further development. (1) The rate of 2-cell mouse embryos developing into blastocysts was 65%, 58%, and 75% for group A, B, and C, respectively. The percentage of blastocyst formation was significantly higher in the coculture group (<math>p &lt; 0.005</math>). (2) The fertilization rate in mouse IVF was much higher in BSA (53%) than in FCS (22%), but the best fertilization rate (70%) was observed when the process take place in BSA medium in microdrop in oil. However, further growth of embryos derived from IVF</p>		

did not occur as well as for embryos fertilized in oviducts, and most of the IVF embryos were arrested at the 2-cell stage. The supplementation of GCs in coculture did not seem to improve the IVF-derived embryos' growth and development. (1) Coculture with GCs may facilitate the development of mouse 2-cell embryos fertilized in vivo to the blastocyst stage; (2) The IVF fertilization rate was higher in serum-free medium than in serum-supplemented medium; (3) Microdrop in oil may provide a better environment for fertilization in vitro; (4) embryo quality is better if fertilized in oviducts rather than in vitro.