

(OPU) 設備功能說明 與荷蘭乳牛活體取卵

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Ultrasonography

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Ultrasound

3



Ultrasound

4

- Aloka – fixed array



Ultrasound

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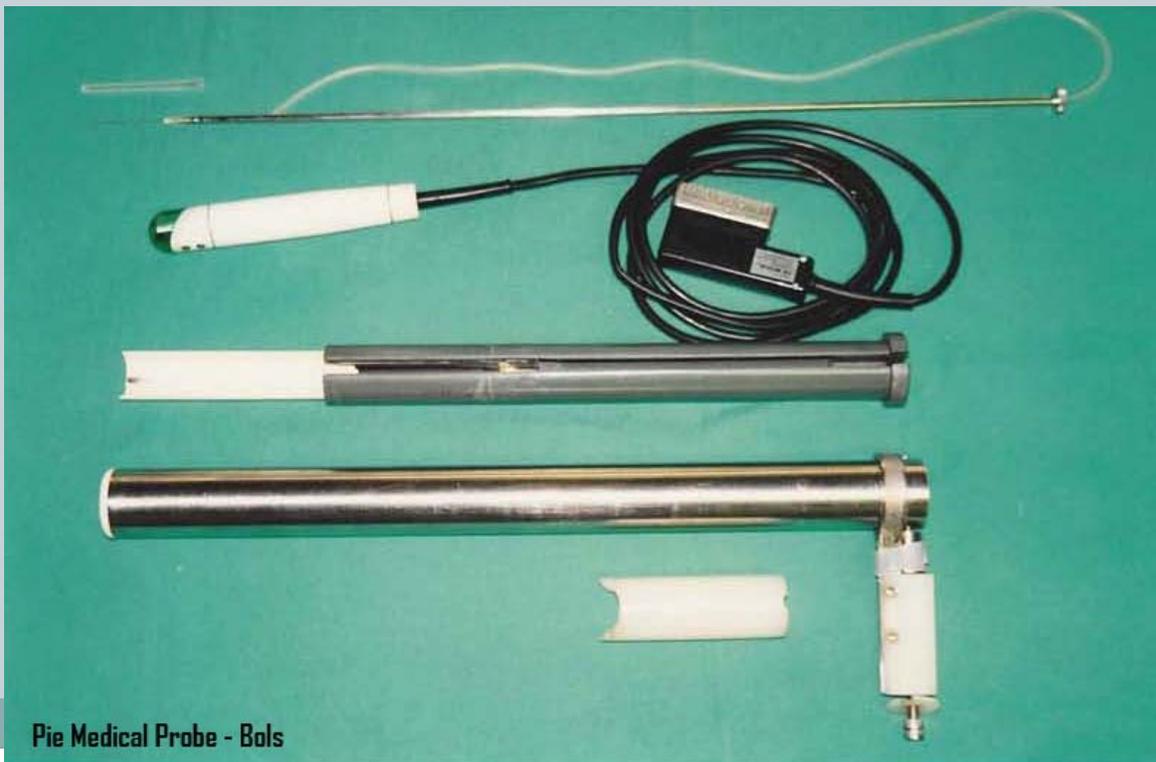
- Aloka – fixed array



OPU probe

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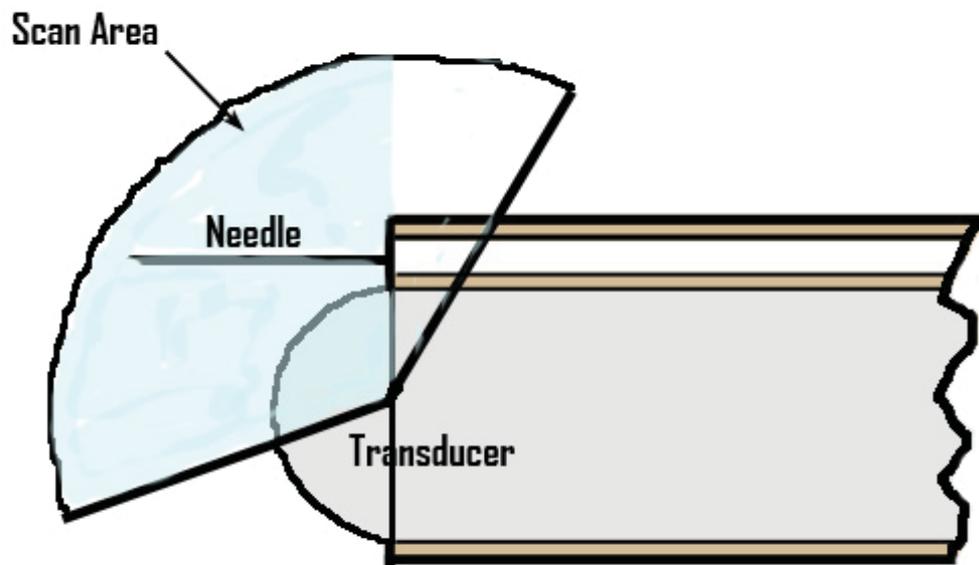
Pie Medical - Scanning



Pie Medical Probe - Bols

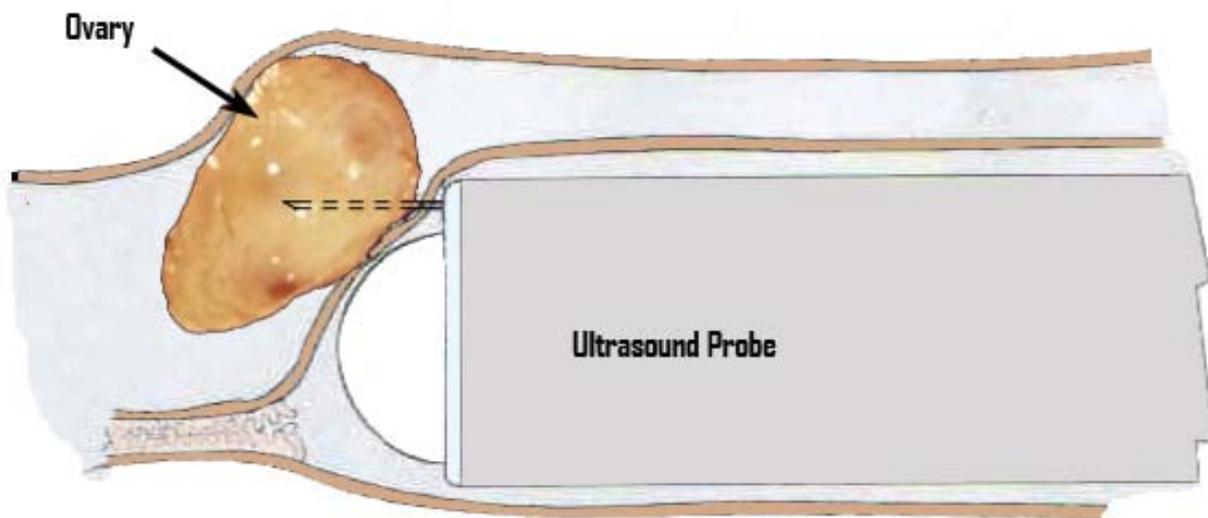
OPU

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OPU

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Basics of Technique

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座式超音波主機

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HS 2200V



- ◆ **Resolution** visualizes delicate tissue structure in shallower region.
- ◆ **Penetration** visualizes good resolution in deeper organs.
- ◆ **Boundary** visualizes bones for observation.
- ◆ **Clarity** reduces the noise in blood vessel.
- ◆ **Mild** reduces the image enhancement effect.
- ◆ **OFF** has direct ultrasound image.

攜帶式超音波主機

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HS 1600V

- ◆ Compact body, easy to carry
- ◆ Highest ultrasound image quality by H-res technology
- ◆ Both battery and AC power usable
- ◆ High performance LCD usable outdoors
- ◆ Easy key operation
- ◆ Variety of measurement functions
- ◆ Easy operation of image storage
- ◆ Convenient shoulder belt

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懷孕診斷及卵巢觀察探頭



Model	HLV-575M、HLV-475M
Frequency	10.0/7.5/5.0MHz
Width	50mm

OPU 探頭



Model	HCV-4710MV
Frequency	9.0/7.5/5.0MHz
Radius	10R

OPU設備組裝

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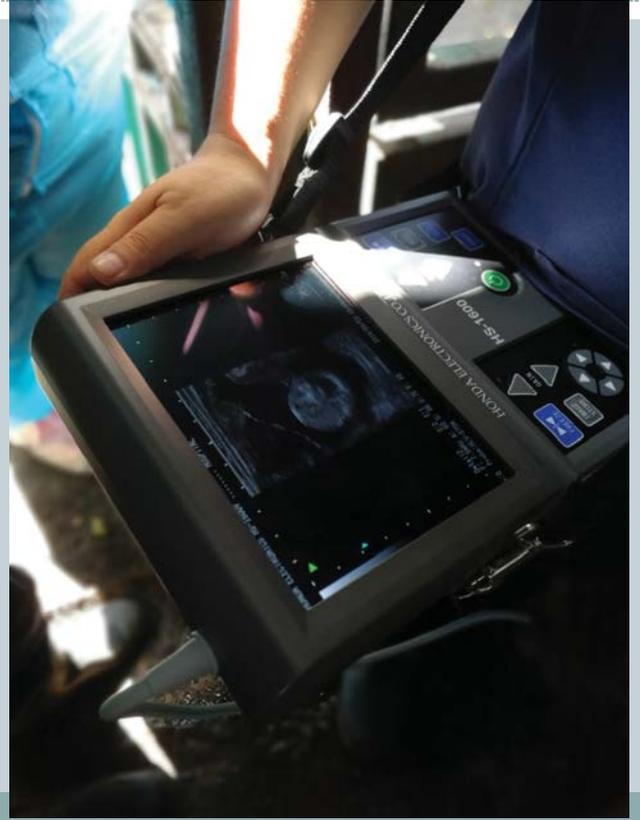
OPU活體取卵現場操作狀況

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超音波懷孕檢測

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擬解決問題

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目的：在建立一項簡單而有效之活體取卵（OPU）的技術，應用此技術重複收集優質母牛的卵子，生產體外胚。

材料與方法

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- 乾乳牛8頭分成對照組與試驗組，每組4頭。試驗期程：連續進行8週。
- 對照組：每週OPU一次，不注射FSH。每次OPU，抽取超音波掃瞄可見的濾泡（OPU 1/w, no FSH）。
- 試驗組：本組優勢濾泡抽除後的36小時注射20 units之FSH。每週注射一次，20 units FSH其中12 units 採皮下注射；8 units採肌肉注射。注射後48小時後操作OPU（DFR-FSH-OPU 1/w）。

試驗結果

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- 試驗組：牛隻經激濾泡素處理，計抽取的濾泡數284個及回收的卵母細胞87個。培養後發育情形之卵裂率為41/87（47.13%），發育至囊胚情形5/41（12.20%）。
- 對照組：牛隻未經激濾泡素處理，計抽取的濾泡數105個及回收的卵母細胞23個。培養後發育之情形，卵裂率為11/23（47.83%）；發育至囊胚情形0/11（0%）。

Table 1. Average performance for two transvaginal ovum pick-up protocols in dry cow

Treatment	Follicles aspirated	Oocytes retrieved
OPU 1/w	2.8 ± 1.4 ^a	1.4 ± 2.0 ^a
DFR-FSH-OPU 1/w	8.6 ± 3.6 ^b	2.7 ± 1.8 ^b

Values with different letters within columns are different (P < 0.05). All deviations are S.E.M.

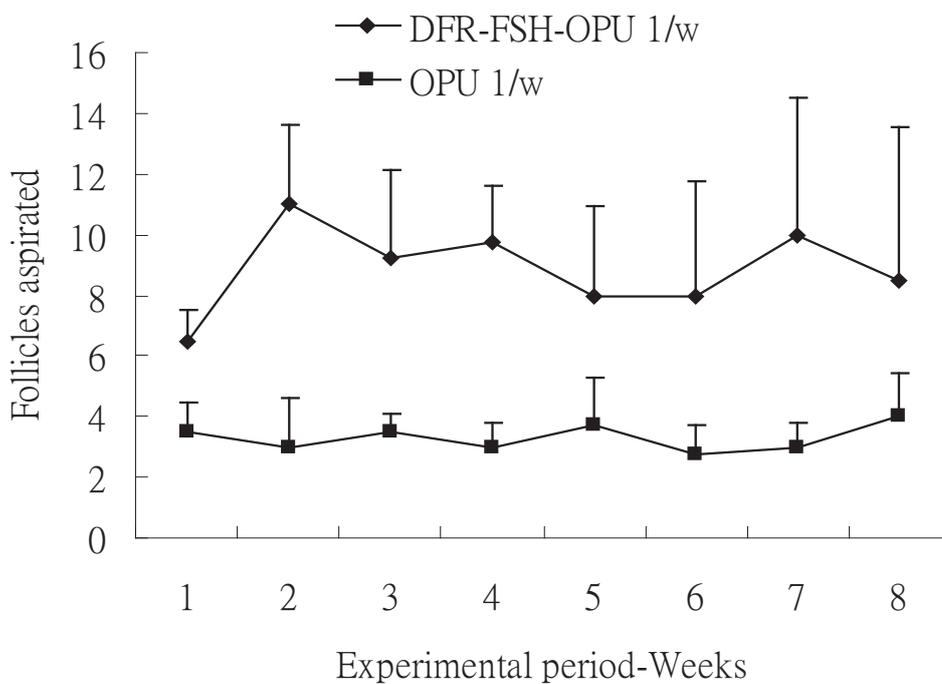


Fig. 1. Week-wise per cow per session follicles aspirated under two treatment protocols for transvaginal ovum pick-up protocols in dry cow

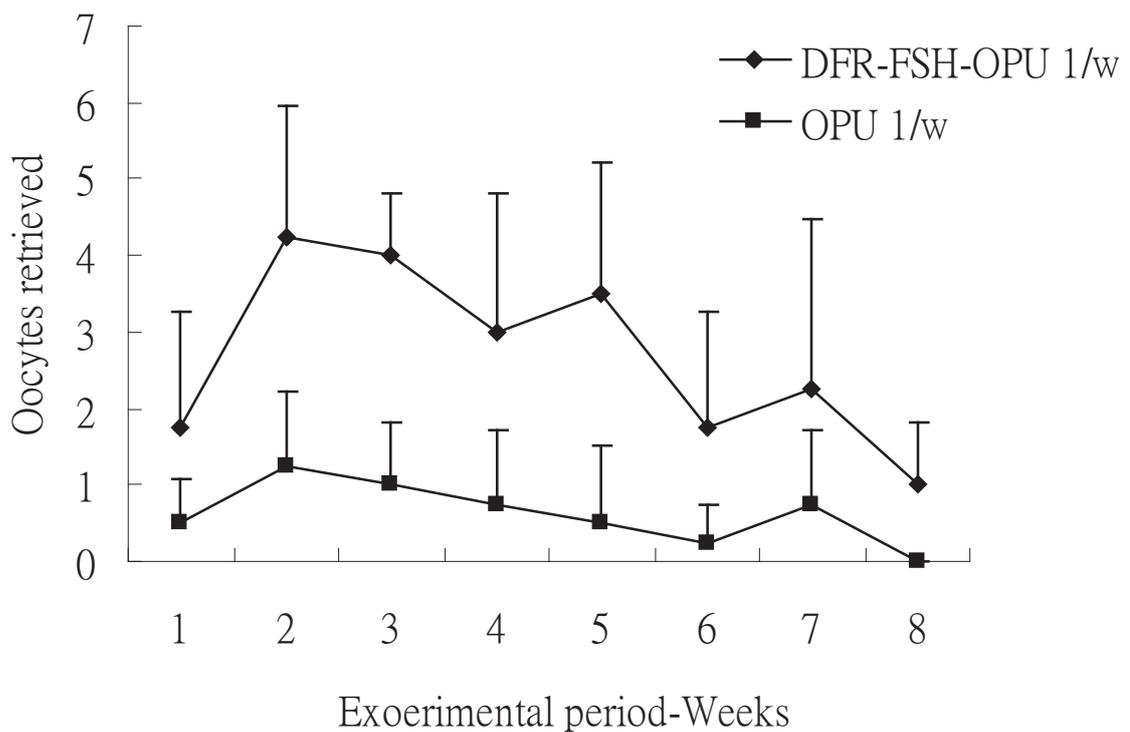


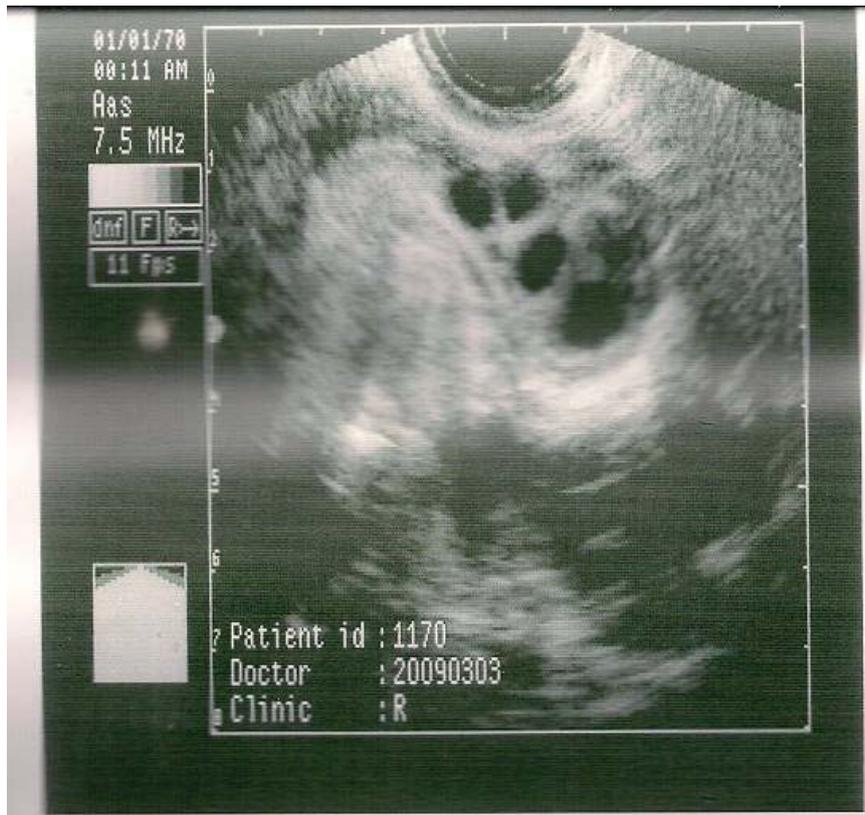
Fig. 2. Week-wise per cow per session oocytes retrieved under two treatment protocols for transvaginal ovum pick-up protocols in dry cow

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結論與建議

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- 試驗牛隻低劑量（20 units）施打FSH，每週施打一次（FSH 12 units 採皮下注射；8 units採肌肉注射）由試驗結果顯示，具有增加卵巢濾泡發育的效果。在為期8週的試驗期程，雖每週重複施打FSH，亦足以誘發卵巢濾泡發育。
- 超音波掃描儀（100S Vet., Pie Medical, USA.）暨取卵相關之器材，購置迄今已八、九年。期間改良之機型陸續研發問世，以致本試驗使用之機型，遇到故障，有維修不易的難題。
- 以活體取得之卵母細胞有改進其培養條件、方式之必要，以求提高其發育效率。



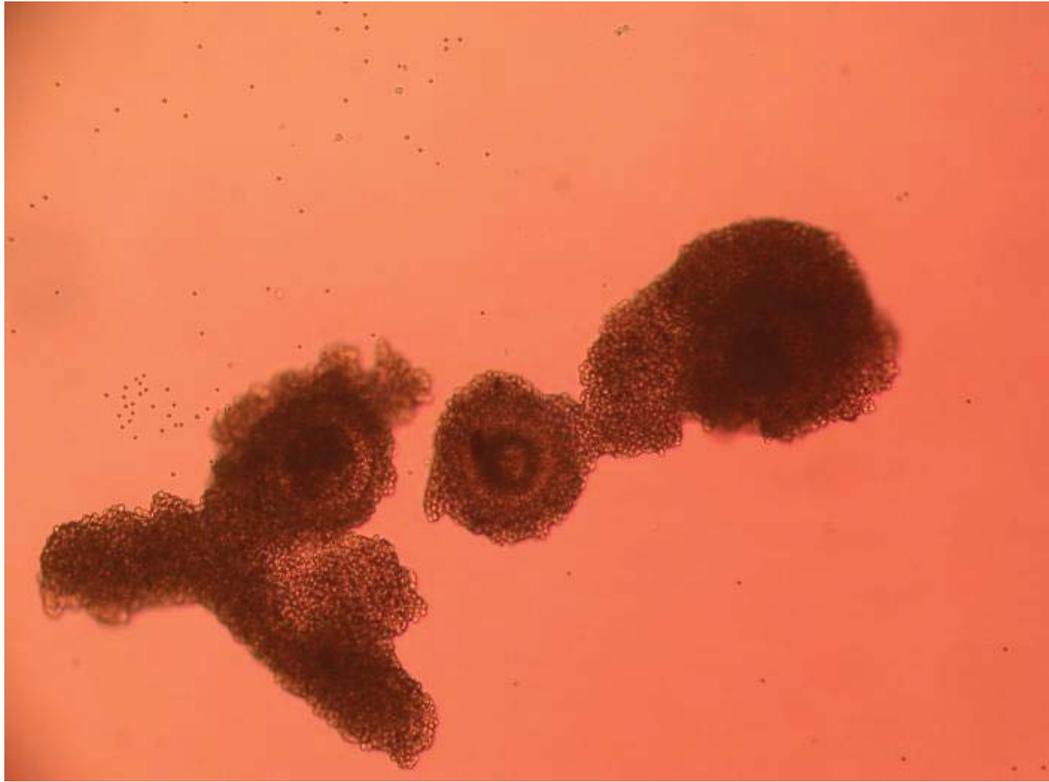
試驗組編號1170牛隻OPU之前

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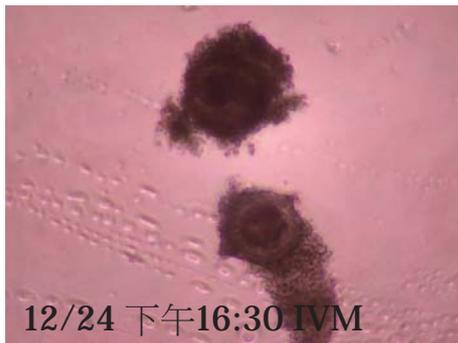
OPU之後

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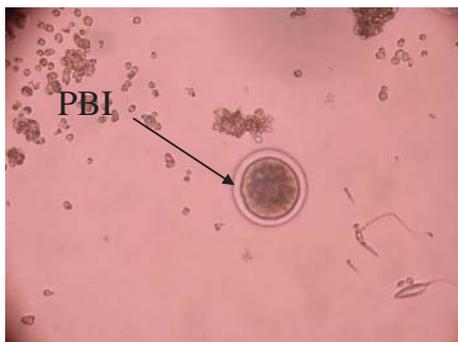


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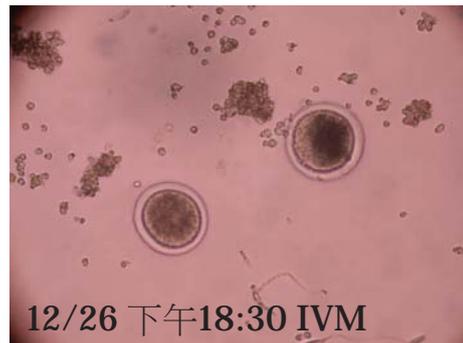
OPU- bovine oocytes



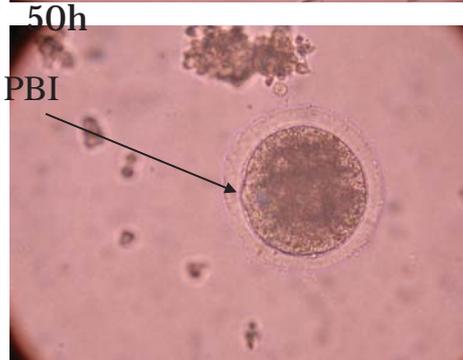
12/24 下午16:30 IVM



PBI

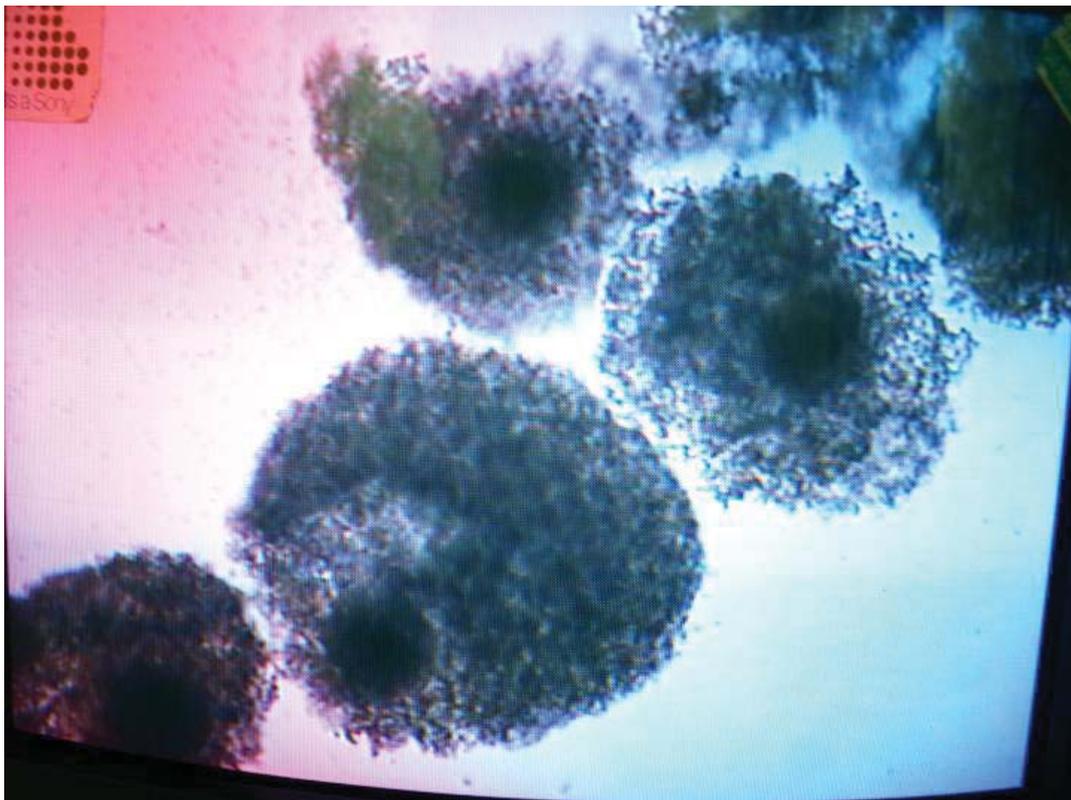
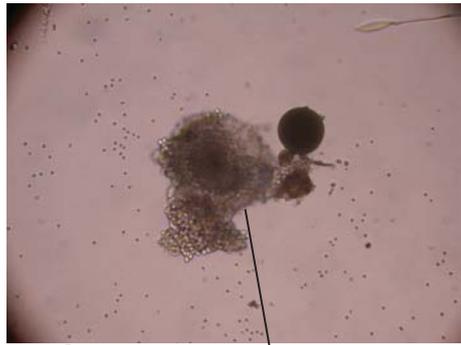
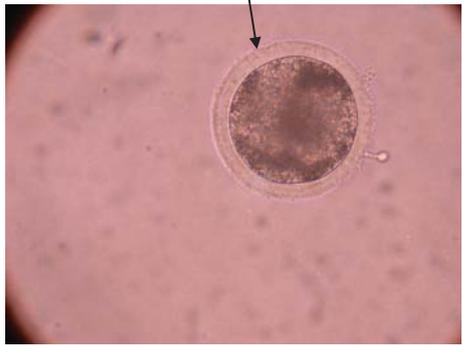
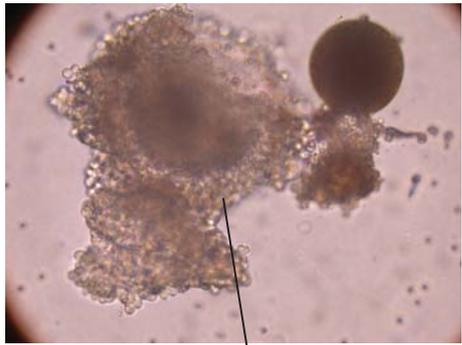


12/26 下午18:30 IVM



50h
PBI

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報告完畢
敬請指教