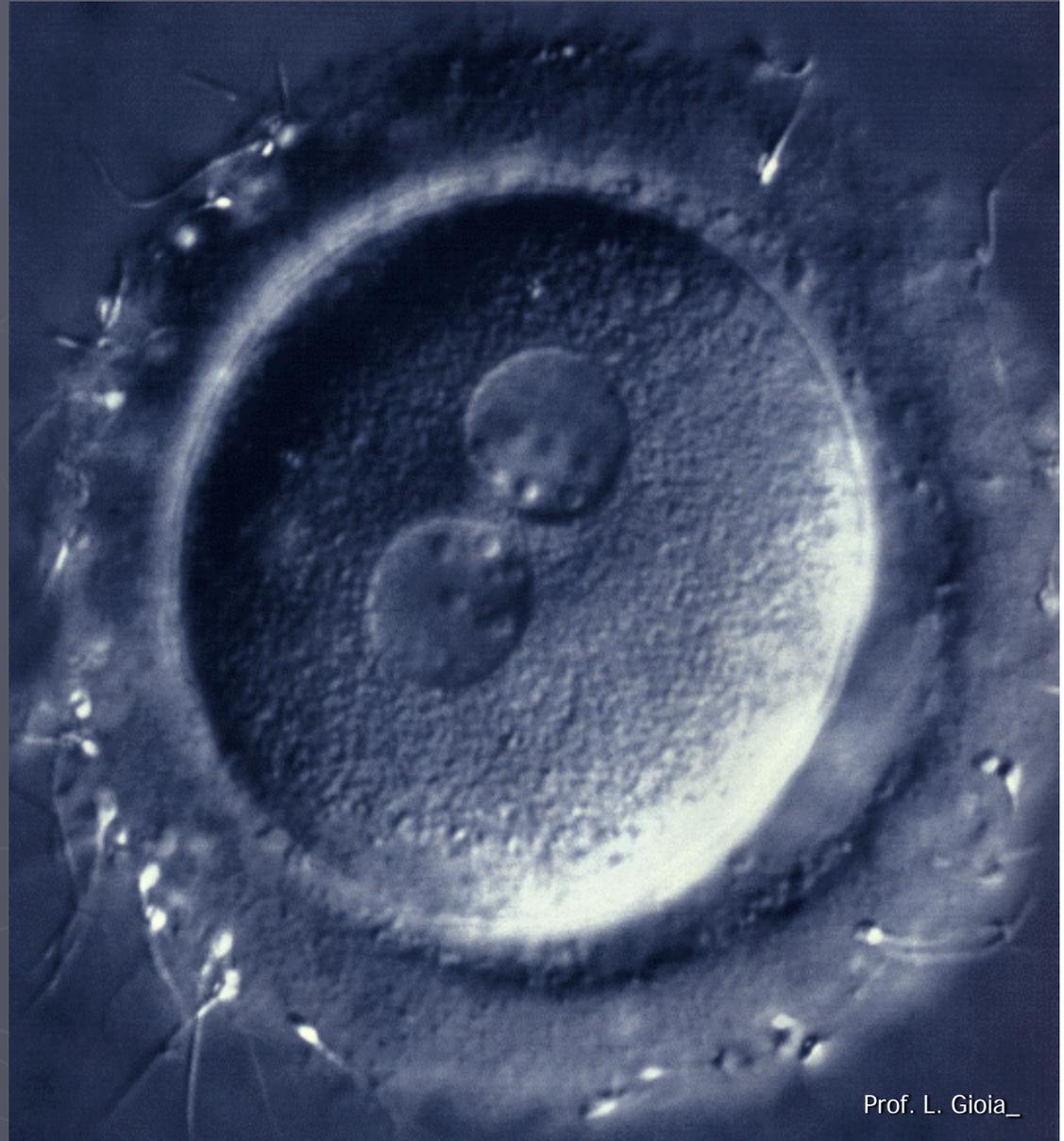


UNIVERSITY of  
TERAMO

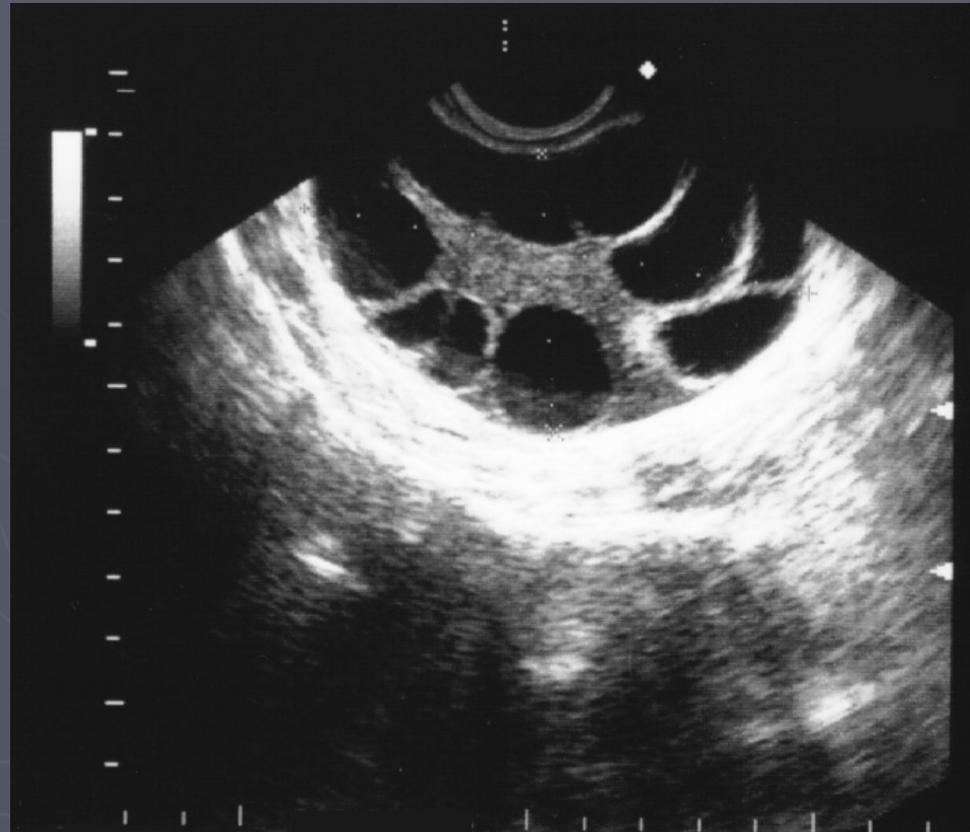
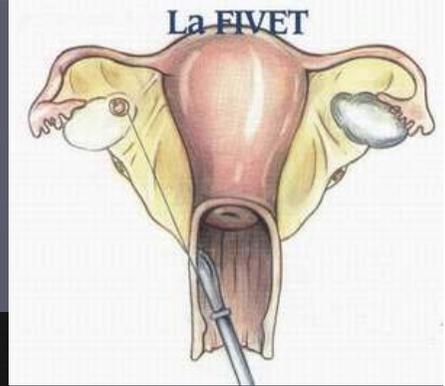
## *Reproductive Biotechnologies*

### **IVF in Humans**

*Prof. Luisa Gioia*

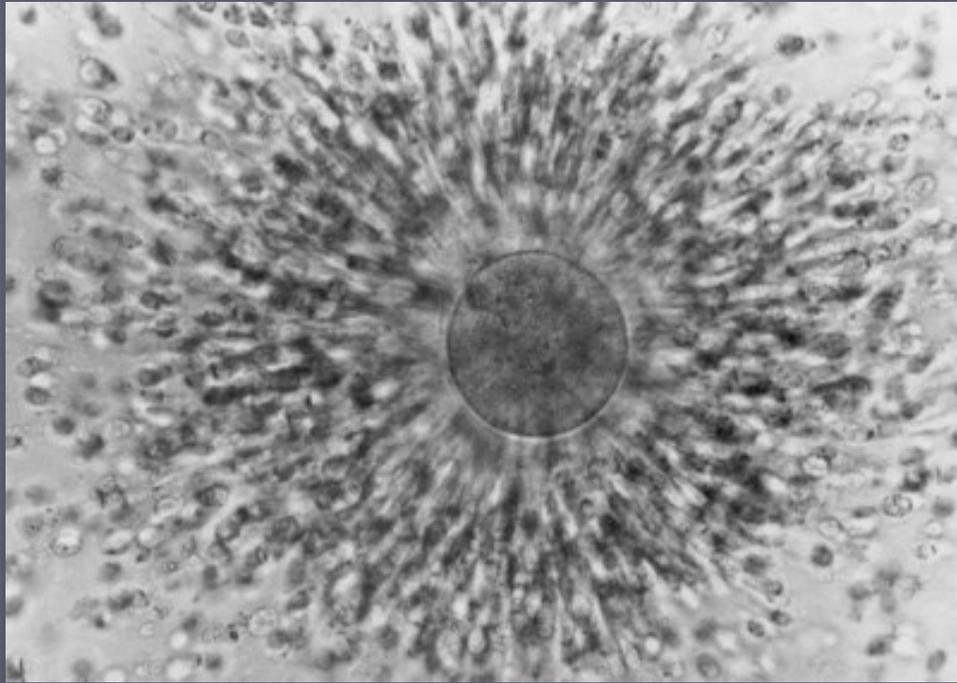


# In vivo maturation: Ovum Pick Up (OPU)



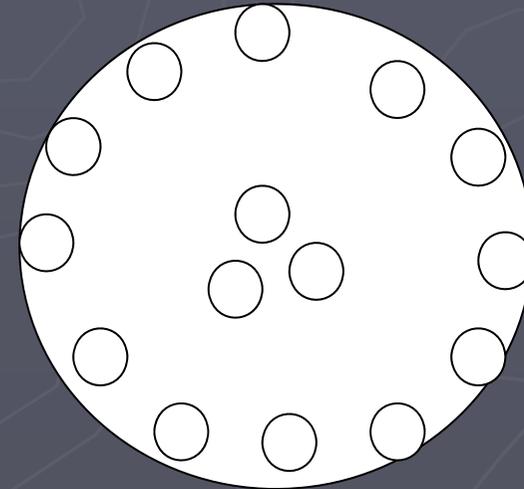
COCs collection

day 0



# OVUM PICK UP

36h after hCG



Microdrops

# Human IVM

## ► Culture system

-37°C, 5% CO<sub>2</sub> in air

-microdrops under embryo-tested mineral oil



## ► Some culture media: TCM 199, HTF, Ham's F10, EMEM, B2

### Supplementation

#### -Serum

animal: FBS 10%, FCS 20%

synthetic: SSS 3-10%

human: HSA 0.1-0.4%, serum from woman 10%, FF 50%

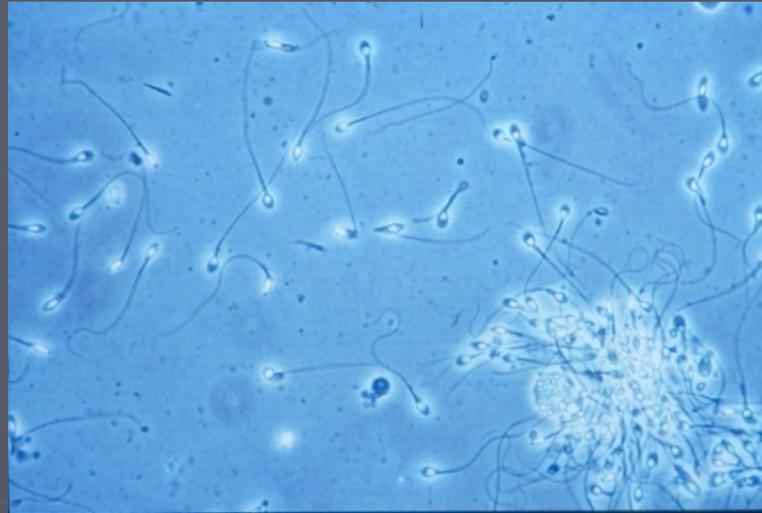
#### -Gonadotropins: FSH + LH

- *others*

# Evaluation of semen

Burker

Concentration



Makler

Motility  
and  
concentration



# Morphological evaluation of human spermatozoa

## Type

Normal forms



Amorphous



Megalo



Small



Elongated



Duplicated



Immature



Loose



Midpiece abnormality



Cytoplasmic droplets



Coiled tails



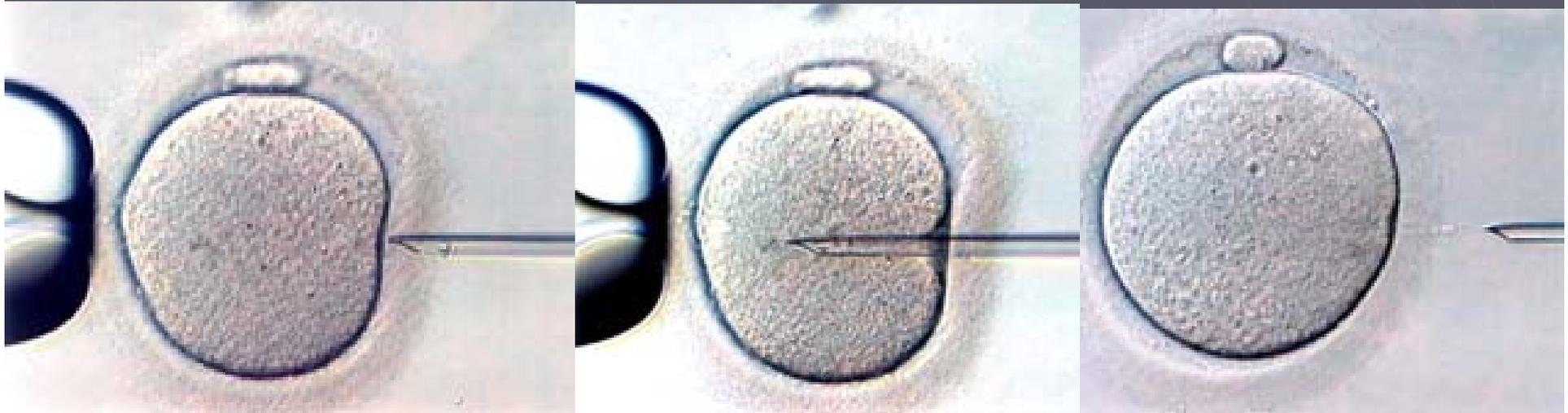
Multiple tails



*Human IVF:  
FIVET or ICSI?*

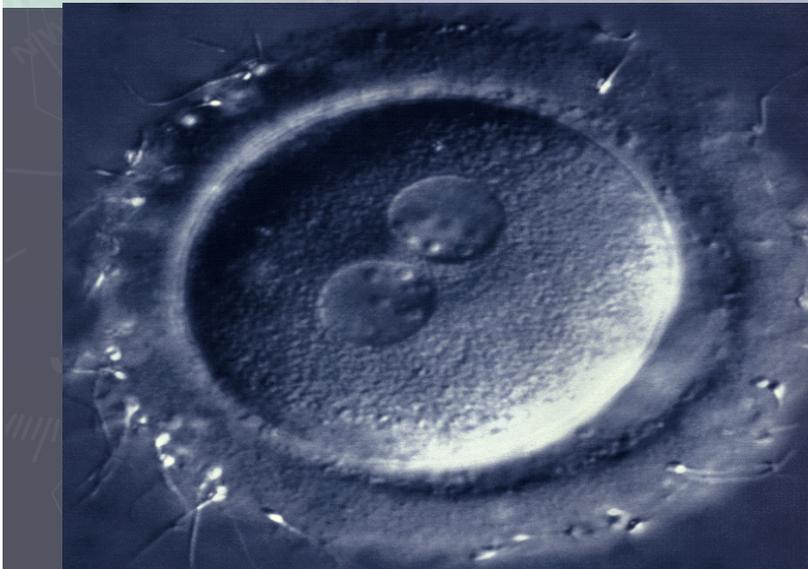


# ICSI

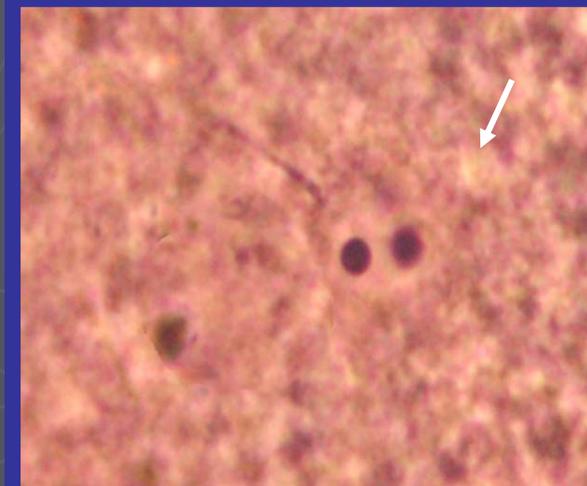


# Control of fertilization

## Human zygotes



## Pig zygotes

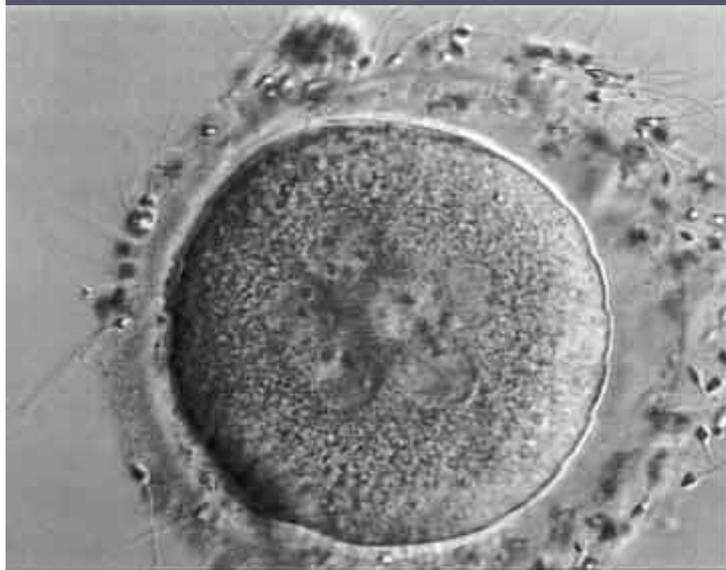
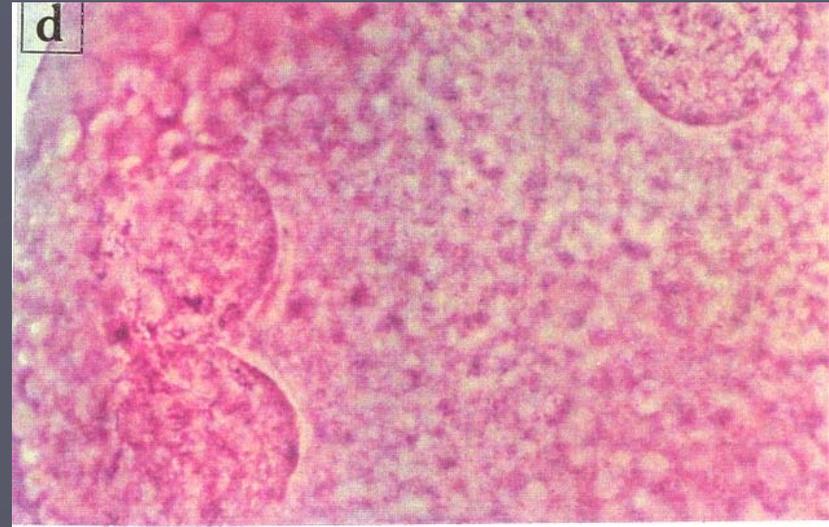


# POLISPERMIC fertilization

Human



Pig

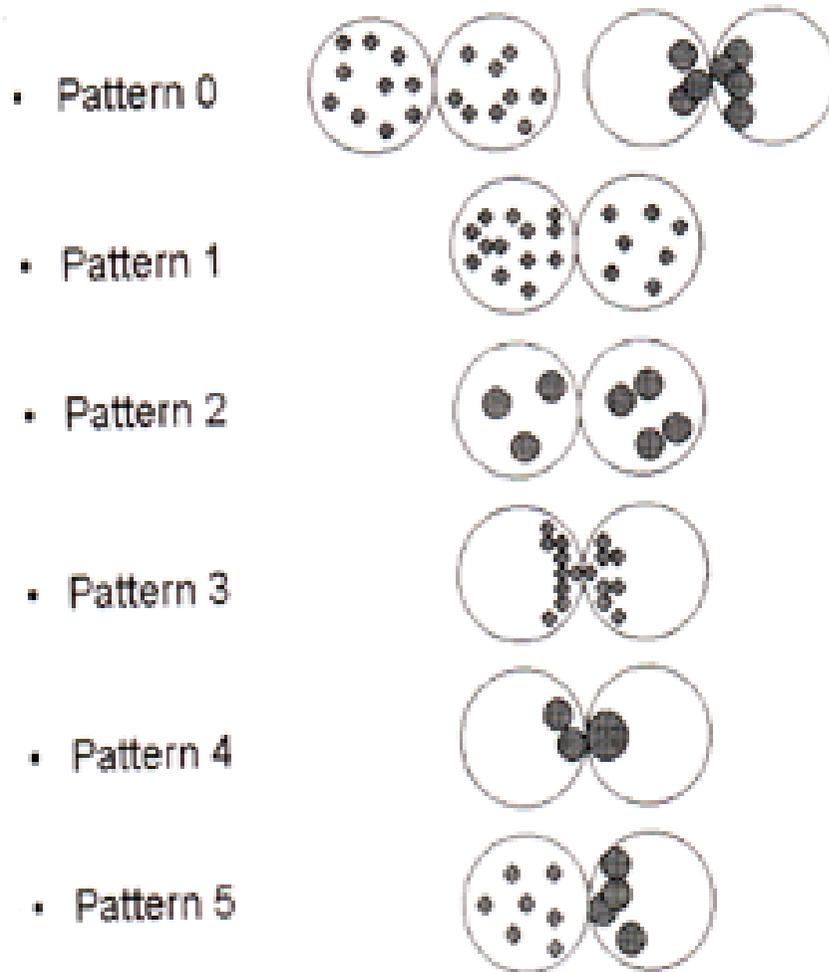


ADVANCED FERTILITY CENTER OF CHICAGO

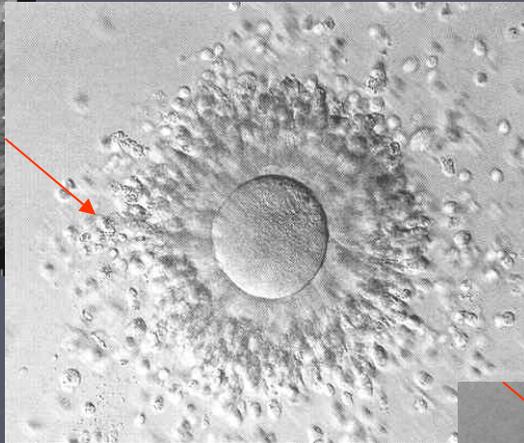
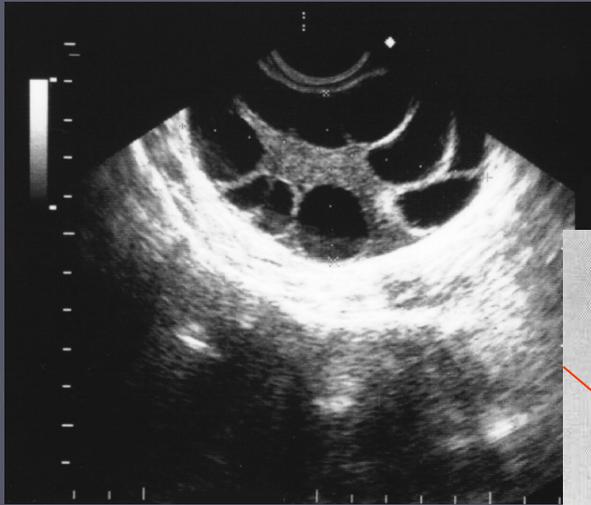


# (Human) Scoring

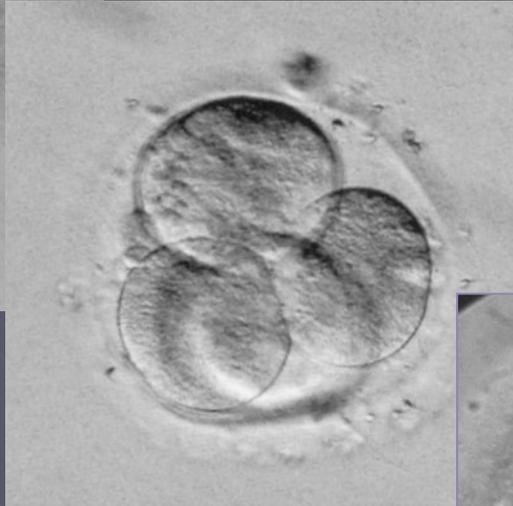
Evaluation of the **number of nucleolar bodies (NPB)** and their **distribution** in each PN (polarized versus non-polarized)



*Tesarik et al., 2000*



(human embryo)  
pre-implantation development





day +5

## Embryo transfer

