

EXCITING CREATIVE TECHNIQUES IN BOVINE EMBRYOLOGY
Hands-on Workshop – lectures and practices
St Luke's College, Ji-Paraná, Rondônia, Brasil (just one step from Sao Paulo)
8-13 September, 2025.

MONDAY (8th)

Morning 9-12

Formal Opening and Introduction (30 min)**C**

Keynote lectures (30 min ea)

- Are we on the right track? **GV**
- OPU/IVF in the Amazon Region **CF**
- OPU/IVF in Eastern and Western Europe **AB**
- Application fields of cloning in science, medicine and agriculture **LL**

Afternoon 13-18

- Transvaginal Ovum Pick-up (OPU) in cattle: videos and on-site presentation **CF**
- Bovine in vitro embryo production: step by step procedure **AB**
 - IVM and IVF including sperm preparation
 - Sperm preparation

TUESDAY (9th)

Morning 9 - 12

Alternativ ways for embryo culture **GV**

- The actual situation – full of problems
- Individual vs. group: The Well of the Well (WOW)
- Humidity issues: the Humdish
- The Submarine Incubation System (SIS)
 - The idea and the realization
 - Experiences with exclusive use of SIS in a commercial embryo laboratory **CF**
- Pipetting issues: including the POP

Debate:

- Traditional way vs the above techniques – pro and contra arguments
(comments from LL, AB, CF)

Afternoon 13-18

Practice with the above techniques **GV, AB, CF**

- SIS
- WOW
- Humdish
- Glass capillary preparation and the delicate way of embryo handling by mouth pipetting

WEDNESDAY (10th)

Morning 9 - 12

Slow freezing: principles, protocols, and practical applications **AB**

Vitrification **GV**

- theoretical summary
- If yes, why not? Progress and setbacks
- The original, the best: The Open Pulled Straw (OPS)
- Direct Transfer (DT) – a unique feature of the OPS
- Rapid Rehydration after warming

Debate:

- Traditional freezing vs. vitrification – pro and contra arguments
(comments from LL, AB, CF)

Afternoon

- All aspects of OPS vitrification (equilibration, cooling, storage, warming, direct transfer) **GV, AB**

THURSDAY (11th)

Morning 9 - 12

Somatic Cell Nuclear Transfer (SCNT) **GV**

- Background

- What is it good for?

- Mission unaccomplished?

- Foreseeable breakthroughs

Legalization of cloning in Brazil **LR**

How intellectual property protection can impact the advancement of research in cloning **AM**

Traditional cloning **LL**

Somatic cell preparation **LL**

Afternoon 13 - 19

- Somatic cell preparation (demonstration only) **LL (GV)**
- Zona digestion of IVM oocytes **GV**
- Mouth pipetting practices **GV**
- (- Random bisection of zona-free oocytes by a handheld microblade) *if time allows!* **GV**

FRIDAY (12th)

Morning 9 - 12

Handmade Cloning (HMC) **VG**

- The idea and realization
- Past achievements and future perspectives
- HMC video

Debate:

- Traditional vs. handmade cloning – pro and contra arguments
(comments from LL, AB, CF)

Afternoon 13 - 19

Handmade cloning procedure **(GV)**

- Random bisection of zona-free oocytes by a handheld microblade GV
- Oriented bisection GV
- Pairing with somatic cells
- Fusion (*mostly demonstration, limited practice*)

SATURDAY (13rd)

Morning 9 - 13

Parthenogenetic activation of oocytes and reconstructed embryos **GV**

Perspectives opened by the presented techniques in the Amazon region and worldwide

Discussion about techniques and collaborations **ALL INCLUDING STUDENTS AND GUESTS!!!**

FORMAL CLOSING OF THE WORKSHOP, PROVIDING CERTIFICATES OF ATTENDANCE

Afternoon - as long as required

Practice in the lab again –

- parthenogenetic activation of oocytes
- **repeated practice of all steps of HMC**

INFORMAL FAREWELL – **Kiss** and Bye...