

MICROMANIPULATOR SETUP

THE PRE-USE READINESS MAP

A supervised framework for ICSI and embryo-biopsy workstations

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BEGINNER
LEVEL

Embryology &
IVF
Laboratory
Science

1. INTRODUCTION

Micromanipulator setup is the controlled preparation of optics, movement, pressure and environmental conditions before supervised micromanipulation. It establishes technical readiness; it does not decide whether ICSI or embryo biopsy is clinically indicated.

2. LEARNING POINTS

- ✓ Name the main workstation components.
- ✓ Explain vision, motion, pressure and environment.
- ✓ Follow a supervised pre-use sequence.
- ✓ Recognise stop-use signals and readiness limits.

4. FOUR INTERFACES

- 1 VISION**
Focus and focal plane
- 2 MOTION**
Fine travel without drift
- 3 PRESSURE**
Predictable response
- 4 ENVIRONMENT**
Temperature and stability

5. TWO ARM ROLES

H HOLDING
Stabilises the target with gentle controlled negative pressure.

W WORKING
Performs the validated, procedure-specific micromanipulation step.

3. WORKSTATION ANATOMY



1 Inverted microscope • 2 Manipulators • 3 Microinjectors
4 Heated stage • 5 Anti-vibration support • 6 Holding and working pipettes

Educational illustration; not a clinical photograph.

6. ALIGNMENT CHECK

- ✓ Both tips sharply focused
 - ✓ Shared working axis
 - ✓ Smooth centred travel
 - ✓ Stable mounts and clearance
- If focus, axis or travel changes: STOP and realign.**

7. PRESSURE RESPONSE

- NEGATIVE**
Controlled inward flow
- NEUTRAL**
No spontaneous drift
- POSITIVE**
Controlled outward flow

Test acellularly. Use the validated local SOP—never a universal memorised setting.

8. EIGHT-STEP READINESS PATH



Any critical failure stops the sequence until correction, recheck and documentation.

9. STOP-USE SIGNALS

- ⚠ Tip drift or vibration
- ⚠ Bubble, leak or delayed response
- ⚠ Damaged or blocked pipette
- ⚠ Temperature outside validated range
- ⚠ Identity or documentation uncertainty

10. READINESS MEANS

CAN SHOW

Alignment, controlled movement, predictable pressure, validated environment and a complete record.

CANNOT GUARANTEE

Fertilisation, chromosome status, pregnancy or live birth.



SCAN TO
CONTINUE
LEARNING

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TAKE-HOME: A ready station is validated, aligned, responsive, environmentally stable and documented—before reproductive material is introduced.

Educational use only. This poster does not replace supervised training, institutional SOPs, professional guidance or patient-specific medical advice.

References: 1 ESHRE Good Practice in the IVF Laboratory (2026). 2 ESHRE PGT Biopsy GPR (2020). 3 International Glossary on Infertility and Fertility Care, 2025. 4 ESHRE Clinical Embryologist Training (2023).