

# EFFECT OF THE CUTTING METHOD AND TRANSPORT TEMPERATURE ON THE QUALITY OF OVARIAN TISSUE

Marta Gargallo-Alonso<sup>1</sup>, Paula Chueca<sup>2</sup>, Lara Pancorbo<sup>3</sup>, María Royo-Cañas<sup>4</sup>, Alejandro Ibáñez-Deler<sup>4</sup>, Clara Malo<sup>1,5</sup>

<sup>1</sup>Tissue Microenvironment (TME) Lab, Aragón Engineering Research Institute (I3A), University of Zaragoza, Mariano Esquillor s/n, 50018, Zaragoza, Spain  
e-mail: mgargallo@unizar.es

<sup>2</sup>Biotechnology Undergraduate Student, University of Zaragoza, 50009 Zaragoza, Spain  
<sup>3</sup>BEONChip, CEMINEM, 50018, Zaragoza, Spain

<sup>4</sup>Aragón Biomedical Research Center (CIBA), Aragon Institute of Health Sciences (IACS), Zaragoza, 50009, Spain  
<sup>5</sup>Tissue Microenvironment (TME) Lab, Aragon Health Research Institute (IIS Aragon), 50009, Zaragoza, Spain

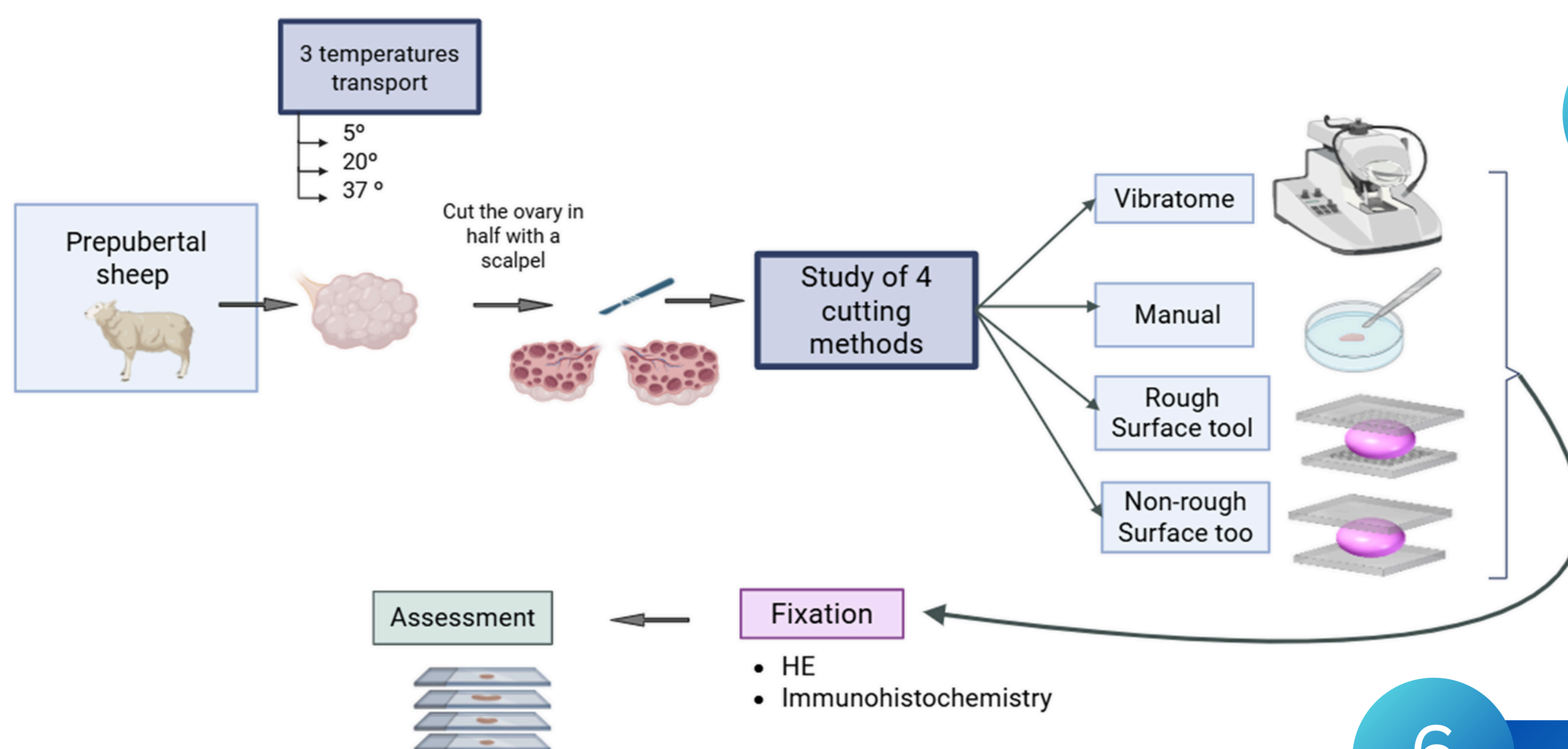
## 1 INTRODUCTION

Ovarian tissue preservation is essential in reproductive biology and fertility strategies, especially for women and girls facing gonadotoxic treatments. Cryopreservation followed by transplantation restores hormonal and reproductive functions and is the only option for prepubertal patients or those needing urgent care [1-3]. Tissue viability depends on factors like sectioning technique and transport temperature, making their optimization critical for improving clinical and experimental outcomes [1,4].

## 2 OBJECTIVES

- To compare how different tissue cutting methods affect the structure and cell integrity of porcine ovarian tissue.
- To study how transport temperatures (5 °C, 20 °C, and 37 °C) impact tissue
- To identify the best cutting and transport conditions to preserve tissue and reduce cell death, helping to standardize processing protocols.

## 3 METHODOLOGY



## 4 RESULTS

The study showed that both sectioning method and transport temperature significantly affected ovarian tissue quality. Vibratome use led to the highest apoptosis rate (62% of primordial follicles), while other methods preserved 100% viability. Similarly, transport at 37 °C caused more tissue damage than lower temperatures. These findings demonstrate that specific handling conditions directly influence tissue preservation outcomes.

RESULTS					
% of Marked Primordial Follicles					
	Manual	Non-Rough Surface Tool	Rough Surface Tool	Vibratome	Total
5	0 L (0/658)	0 L (0/320)	0 L (0/372)	4,2 H (10/229)	0,6 (10/1589)
20	0 L (0/434)	12,5 H (3/24)	0 L (0/320)	2,4 H (10/412)	1,1 (13/1190)
37	6 L (11/182)	0 L (0/434)	0 L (0/371)	97,4 H (1054/1082)	51,5 (1065/2069)
Total	0,9 (11/1274)	0,4 (3/778)	0 (0/1063)	62 (1074/1733)	
p=<0,001					

Results are presented as X (n/N), where X is the percentage of marked primordial follicles and n/N is the number of marked follicles over the total counted. A green "L" indicates that the error is within  $\pm 1.5$ , suggesting the value is not statistically significant. A red "H" indicates the value is higher than expected and statistically significant. For both temperature and section type,  $p < 0.001$ .

## 5 CONCLUSIONS

- Vibratome sectioning and transport at 37 °C greatly reduce ovarian tissue viability by increasing cell damage and apoptosis.
- Using gentler cutting methods and cooler transport temperatures is key to maintaining ovarian tissue structure and function in clinical and research settings.

## 6 FUNDING

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