

# In Vivo In Vitro and Ex Vivo Studies

Experiment 5 - Practical Notes

Name: \_\_\_\_\_ Roll no.: \_\_\_\_\_ Date: \_\_\_\_\_

## Aim

To understand and record the stated experimental-pharmacology concept.

## Principle

These terms describe whether a study examines a whole living system, an artificial laboratory system or tissue removed from an organism.

## Key Points

- In vivo: whole-system context.
- In vitro: controlled external system such as a cell or biochemical assay.
- Ex vivo: removed tissue studied outside its source organism.
- This practical class uses virtual representations rather than live systems.

## Activity Procedure

### 1. Classify

Sort supplied study descriptions into the three categories.

### 2. Compare

List advantages and limitations of each context.

### 3. Identify variables

Discuss exposure, metabolism and endpoint differences.

### 4. Conclude

Choose which conceptual design addresses a given teaching question.

## Record and Observations

| Field                       | Teaching record |
|-----------------------------|-----------------|
| Model / instrument / route  | _____           |
| Endpoint / units            | _____           |
| Relevant control            | _____           |
| Interpretation / limitation | _____           |

## Result

The concept was explained and the teaching record completed. Key finding: \_\_\_\_\_. Limitation: \_\_\_\_\_.

## Viva Questions and Answers

### 1. Why can an isolated-tissue result differ from a whole system?

Metabolism, distribution and regulatory feedback may be absent.

### 2. Is a computer model itself in vivo?

No; it simulates selected features of a model.

### 3. Why define the study context?

It limits the conclusions that can be drawn.

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