Histamine Dose-response Curve

Experiment 8 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Teaching mode: use approved simulation, prepared demonstration records or supplied experimental data. No live-animal dosing, surgery or challenge is prescribed in these notes.

Aim

To plot the supplied histamine concentration-response data and estimate EC50.

Principle

A graded concentration-response curve describes effect as a function of concentration under a defined model. Maximum response and EC50 describe different aspects of the curve.

Requirements

- Instructor-provided labelled diagrams, traces or data for this activity.
- Calculator, graph paper or spreadsheet, and the activity record.

Procedure

1. Prepare the table

Enter supplied concentration, response and baseline-corrected response in the same units.

2. Normalise

Express each response as a percentage of the maximum where the dataset supports a plateau.

3. Plot

Plot response against log10 concentration and mark the response range and plateau.

4. Estimate EC50

Locate the concentration at 50% of the fitted maximum. State whether the observed range supports the estimate.

Observations and Record

Record item	Entry
Activity / material identifier	_____
Measurement or visible feature	_____
Comparison / calculated outcome	_____
Interpretation and limitation	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Response (%) = response / fitted maximum × 100. EC50 is the concentration producing 50% of the fitted maximum.
- Illustration: a fitted maximum of 40 units gives a 50% response of 20 units. The corresponding concentration is read from the supplied fitted curve, not assumed from the maximum.

Result

The recorded finding is ____; the supporting observation or calculation is ____. The main limitation is ____.

Precautions

- Use the supplied teaching material; distinguish a measured observation from an assumed value.
- Keep units, axes, labels and measurement conditions consistent.
- Record limitations and seek instructor review before applying a conclusion to a live case.

Viva Questions and Answers

1. What does EC50 describe?

Potency within the stated response model.

2. What does Emax describe?

The maximum response supported by that model and dataset.

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