

Agonist and Antagonist Response Comparison

Experiment 9 - 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 compare supplied agonist curves with and without an antagonist.

Principle

An antagonist can change an agonist concentration-response curve. A parallel shift without loss of maximum may be consistent with surmountable antagonism in the stated model, but mechanism requires adequate evidence.

Requirements

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

Procedure

1. Plot matched datasets

Use common axes, units and response basis for control and antagonist datasets.

2. Compare potency

Estimate EC50 for each dataset and compute a concentration ratio.

3. Compare maximum

Check whether the maximum response and slope remain comparable.

4. Conclude cautiously

Describe the observed pattern and model limitations; do not assign mechanism from an incomplete curve.

Observations and Record

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

Pharmacology II

Worked Example

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

- Concentration ratio = EC50 with antagonist / EC50 without antagonist.
- Illustration: $8 / 2 = 4$; the curve needs four times the agonist concentration for the compared 50% response.

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 a rightward shift indicate?

More agonist is needed for the compared effect in that dataset.

2. Why inspect Emax as well?

A changed maximum can indicate a different response pattern or limitation.

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