

Determination of both Human insulin and Mouse insulin in a sample, by combined analysis of the sample using both the Human Insulin ELISA and the Mouse Insulin ELISA

Determination of Human insulin in the sample

Analyze the samples in the Mercodia Human Insulin ELISA (10-1113-01) according to the Directions for Use.

The Mercodia Human Insulin ELISA is specific for human insulin and does not cross-react with mouse insulin (< 0.3 %). Therefore the result is not be effected by the level of mouse insulin in the sample.

Determination of Mouse insulin in the sample

Analyze the same samples is in the Mercodia Mouse Insulin ELISA (10-1247-01) according to the Directions for Use. Convert the calibrator concentrations to pmol/L (1 µg/L = 174 pmol/L) in order to get the calculated concentrations in this unit.

The level of insulin measured in the Mouse Insulin ELISA is not the level of mouse insulin in the samples. This is because of the 195% cross-reactivity of human insulin in the Mouse Insulin ELISA. To get the mouse insulin concentration a subtraction of the human insulin level needs to be done.

To do the subtraction first the measured concentration of human insulin need to be converted to pmol/L (1 mU/L = 6.0 pmol/L) and multiplied by 1.95 to compensate for the 195% cross-reactivity

Example

A sample is analyzed in both the Human Insulin ELISA and the Mouse Insulin ELISA. The obtained concentration in each assay is the following:

- Human insulin ELISA 15 mU/L
- Mouse insulin ELISA 263 pmol/L

The level of human insulin in the sample is thereby 15 mU/L.
This is equal to 90 pmol/L (1 mU/L = 6 pmol/L).

The level of mouse insulin in the sample is then calculated as follows:
 $263 \text{ pmol/L} - 90 \text{ pmol/L} \times 1.95 = 88 \text{ pmol/L}$

REFERENCES

1. Mercodia AB Research and Development Laboratory, Uppsala, Sweden