Determination of both porcine insulin and rat insulin in a sample, by combined analysis of the sample using both the Porcine Insulin ELISA and the Rat Insulin ELISA

1. Determination of porcine insulin in the sample

Analyze the sample in the Mercodia Porcine Insulin ELISA (10-1200-01) according to the Directions for Use. The Mercodia Porcine Insulin ELISA is specific for porcine insulin and does not crossreact with rat insulin (< 0.2 %).

Obtained result of insulin in the Porcine Insulin ELISA is equal to the actual level of porcine insulin in the sample.

2. Determination of Rat insulin in the sample

The same sample is also analyzed in the Mercodia Rat Insulin ELISA (10-1250-01), Mercodia High Range Rat Insulin ELISA (10-1145-01) or Mercodia Ultrasensitive Rat Insulin ELISA (10-1251-01).

Obtained result of insulin in the Rat Insulin ELISA used does not give the level of rat insulin in the sample directly, as porcine insulin has a 476% crossreactivity in the Rat Insulin ELISA listed above.

The obtained result of insulin in the Rat Insulin ELISA should therefore be subtracted by the determined level of porcine insulin under section (1) above, to get the level of rat insulin in the sample.

3. Example

If equal volumes of both porcine and rat insulin calibrators are mixed.

Porcine insulin	0.5 µg/L
Rat insulin	1 µg/L

The following insulin concentrations are obtained after mixing

Porcine insulin	0.25 µg/L
Rat insulin	0.5 µg/L

Analysis in the Porcine Insulin ELISA would yield the result of 0.25 µg/L, since this assay does not cross-react with the rat insulin in the sample.

The measured result in the Rat Insulin ELISA would be both the porcine and rat insulin, as displayed below (remember that the cross reactivity of porcine insulin in the Rat Insulin ELISA is 476%).

0.25 µg/L (porcine insulin) x 4.76 + 0.5 µg/L (rat insulin) = 1.69 µg/L.

The level of Rat insulin in the sample may then be calculated:

1.69 µg/L – 0.25 µg/L (porcine insulin) x 4.76 = 0.5 µg/L.

3. References

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