

Calculating & Analyzing ELISA DATA

OVER 16,000 ELISA KITS
FOR OVER 20 SPECIES

ASPIRE
TO CURE

ELISAGenie 

CALCULATING & ANALYZING ELISA DATA

About ELISA Genie

ELISA Genie is a proprietary range of ELISA kits developed by Reagent Genie, a global life science reagents company based in London and Dublin.

Founded by **Colm Ryan PhD** and **Sean Mac Fhearraigh PhD**, our goal is to provide you with premium quality ELISA kits along with excellent technical and logistics support so you can maximise your success.



COLM RYAN PhD
CEO & co-founder of
Reagent Genie



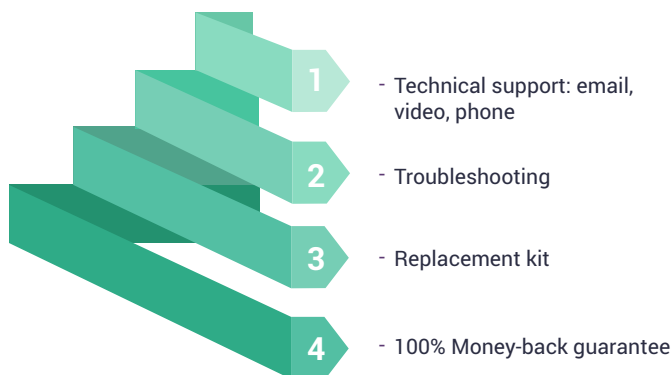
SEÁN MAC FHEARRAIGH PhD CTO & co-founder of
Reagent Genie

Maximum Support & Guarantee

Antibody Genie provides excellence in support to all our customers!

Not only do we provide you with application based support before, during and after your experiments, but on those rare occasions when problems arise, we have a defined series of customer-centric steps to ensure that you are happy with our products.

So, don't worry, we also offer a 100% money-back guarantee should our products not perform as specified .



Rapid Global Delivery

Whether you are served by one of our trusted local distributors or are part of our direct sales network, we endeavour to ship your products to you on-time, every time!

Contact us 24/7 on hello@antibodygenie.com to find our shipping times to your laboratory.



Key features & data provided with our **ELISA kits** :

1



Standard Curve



Spike & Recovery



%CV



Linearity



Range

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Recommended guidelines on calculating results from ELISA data and statistical assay validation.

When performing an ELISA assays it is good practice to run samples in duplicate or triplicate to ensure statistical validation of results.

Include positive and negative controls when setting up your ELISA plates.

- Negative controls: Samples with no presence of your analyte
- Positive controls: Samples with a known presence or quantity of your analyte

Depending on the type of ELISA used (qualitative, semi-quantitative or quantitative) data output will vary. Therefore you choose the specific ELISA you want to use based on the data that you want to analyse. Data is presented as a plot of optical density (OD) vs the log concentration of sample. Standards with known concentrations are used to generate a standard curve from which the concentration of an unknown analyte can be determined.

Preparing an ELISA Standard Curve

Once you have completed your ELISA protocol and analysed your samples & standards using a plate reader, you can plot your standard curve. In order to plot your standard curve for your analyte you plot the mean absorbance (Y axis) versus the known protein concentration of your standards (X axis). Use a computer to draw a best fit curve to plot your data.

Standards must be used on every ELISA plate to ensure consistency between data

Below to provide representative data from a sandwich ELISA and a competitive ELISA assay.

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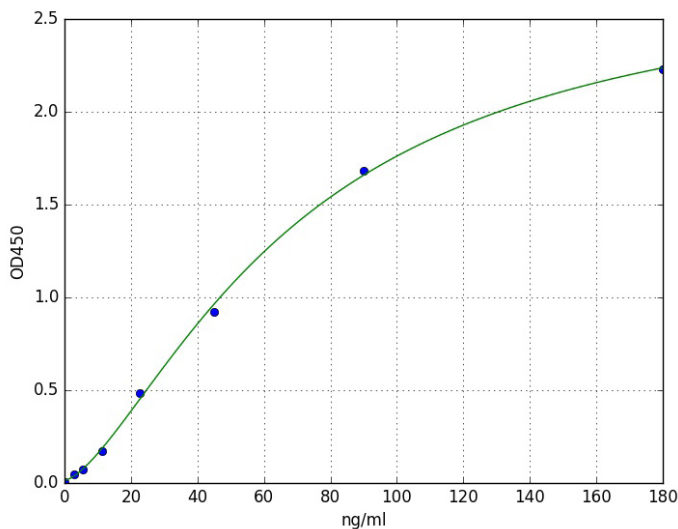


Linearity

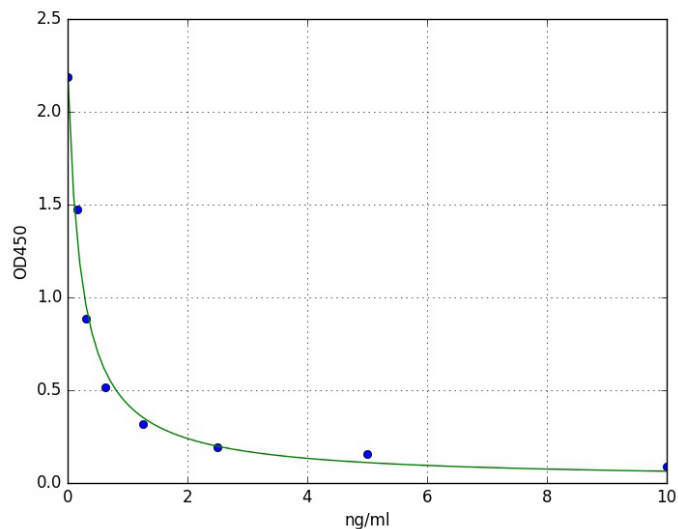


Range

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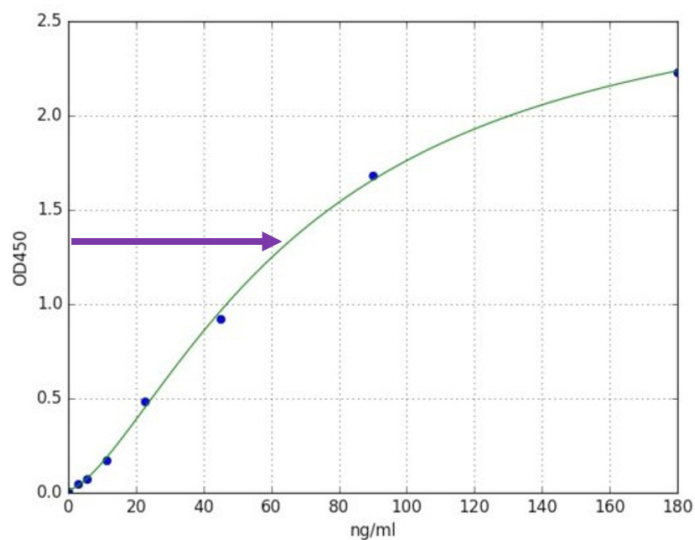
Sandwich ELISA Standard Curve: Human CD8 alpha / CD8A
ELISA Kit general standard curve for a sandwich ELISA assay. OD450 correlates with the amount of analyte (CD8A) present in the sample.



Competitive ELISA Standard Curve: Human Prepronociceptin / PNO
ELISA Kit general standard curve for a competitive ELISA assay. Reduction in OD450 value correlates with the amount of prepronociceptin in the sample.

1. Calculating the absorbance

1. Calculate the average absorbance from duplicate/triplicate standards and samples. These should be within 20% of the mean.
2. Create a standard curve as described below.
3. Plot the mean absorbance (y axis) against the protein concentration (x axis) using excel or a similar suitable computer programme for standard samples.
4. Draw a best fit curve through the points on the graph.
5. From the standard curve graph extend a horizontal line from the absorbance plotted on the y axis to the standard curve.



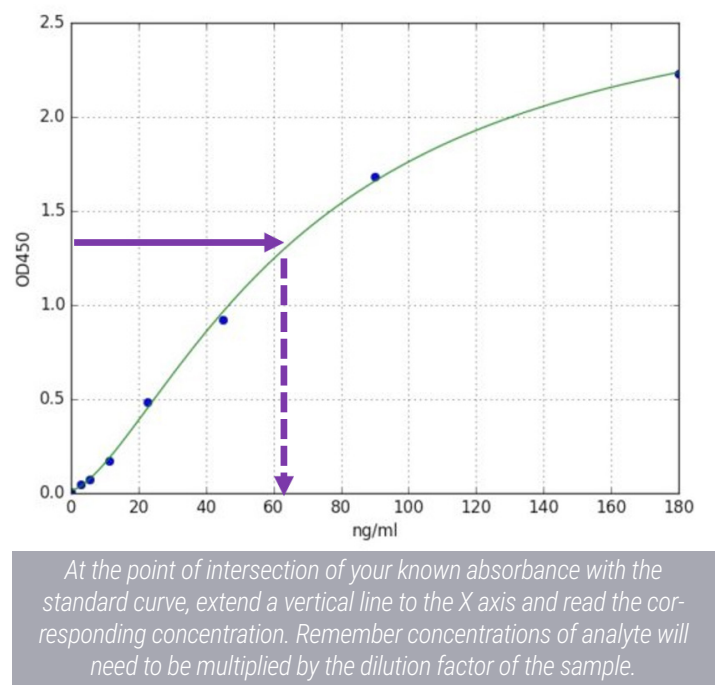
To determine the concentration of target analyte in each sample, first find the mean absorbance value of the sample. From the Y axis of the standard curve graph, extend a horizontal line from this absorbance value to the standard curve.

Key features & data provided with our **ELISA kits** :



CALCULATING & ANALYZING ELISA DATA

6. Upon reaching the standard curve drop a vertical line down to read off the protein concentration.



7. To obtain an accurate result, these samples should be diluted before proceeding with the ELISA protocol. For these samples, the concentration obtained from the standard curve when analysing the results must be multiplied by the dilution factor.

2. Coefficient of variation

The coefficient of variation helps identify any inconsistencies and inaccuracies in the results. It is expressed as a percentage of variance to the mean. The larger the variance the greater the inconsistency and error.

The coefficient variation (CV) is the ratio of the standard deviation σ to the mean μ :

$$Cv= \frac{\sigma}{\mu}$$

A High CV can be attributed to some or all of the following:

- Pipetting inaccuracies
- Sample contamination with bacteria/fungi or other reagents

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- Temperature variation- plates should be incubated at a stable temperature away from drafts.
- Drying out of wells – plates should be covered during all incubation steps

At ELISA Genie each kit we produce is analysed to determine the sensitivity, range and inter/ intra assay CV(%). This will ensure you know the full capabilities of our ELISA Kits including variability in advance of purchasing.

3. Spike recovery

Spike-recovery determines if any components in the sample interfere in antibody-antigen binding. The sample matrix is spiked with a known concentration of recombinant target protein. The ELISA is performed and the concentrations of protein determined from the standard curve. Recovery is typically presented as a percentage. Anything less than 80% generally means that components in the matrix are interfering in the ELISA and a different kit should be chosen

At ELISA genie we understand the need to show the accuracy of our ELISA kits but we also know how important it is to see if anything in the sample matrix interferes with antibody-antigen binding, a key step in ELISA. That is why we painstakingly do linearity and spike recovery analysis on every ELISA kit batch we produce.

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Standard Curve



Spike & Recovery



%CV



Linearity



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Horse ELISA kit assays



Goat ELISA kit assays



Cat ELISA kit assays



Rabbit ELISA kit assays



Dog ELISA kit assays



Sheep ELISA kit assays



Hamster ELISA kit assays



Mouse ELISA kit assays



Guinea Pig ELISA kit assays



Monkey ELISA kit assays



Bird ELISA kit assays



Porcine ELISA kit assays



Fish ELISA kit assays



Plant ELISA kit assays



Bovine ELISA kit assays



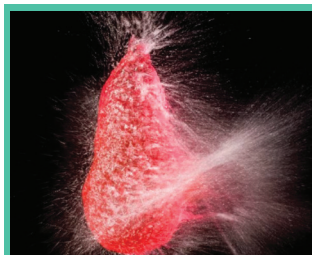
Rat ELISA kit assays



Chicken ELISA kit assays



Human ELISA kit assays



*Vitamins, Hormones
and Signalling
molecules ELISA
kit assays*

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