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A note on the matrices X and G

Both X and G are based on standard samples. They do not involve the test samples.

Suppose on one micro-plate, there are unique standard samples with known concentrations denoted by , , …, , respectively. For the *l*th () standard sample, there are replicate measurements. Then the total number of replicated standard samples is .

The matrix is an gradient matrix with columns being , and rows corresponding to each of the standard samples. The first rows of the gradient matrix are identical, each row being with , thus denoted by being . The rows () to are also identical, each row being , and so on.

The matrix is a diagonal matrix with the first diagonal elements equal to , the ()th to th diagonal element equal to , and so on.

For example, on one plate, there are 20 standard samples with unique known concentrations, each with two replicates. In this example, and for all . Therefore, the total number of replicated standard samples is The matrix is a matrix in the following form

where to are the parameters of the four-parameter logistic model that .

And the matrix is a diagonal matrix in the following form

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