

## **The Autocorrelation Coefficient as a Tool for Assessing Goodness of Fit Between Bioassay Predictions and Measurement Data**

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Project IDEAS has produced guidelines for internal dose assessment. An integral part of this process is assessing the goodness of fit of biokinetic models to bioassay data. It is recommended that a fit should only be accepted if (a) it is close enough to the data not to be rejected by a  $\chi^2$  test and (b) if it looks acceptable to 'the eye'. The latter criterion was added to enable the assessor to reject fits which seemed to display some sort of systematic bias. However, there are problems with both of these tests: (a) the  $\chi^2$  test is dependent on the assumed uncertainties which are often unknown, (b) 'by eye' assessment is subjective. In this paper, another statistic, the autocorrelation coefficient of the residuals,  $\rho$ , is investigated. The main advantages of the  $\rho$  statistic are that it is objective, very sensitive to biasing and independent of the assumed errors.

USTUR-0459A-17