

Additions and Corrections

A Rationally Designed, Chiral Lewis Acid for the Asymmetric Induction of Some Diels–Alder Reactions [*J. Am. Chem. Soc.* **1986**, *108*, 3510–3512]. T. ROSS KELLY,* ANDREW WHITING, and NIZAL S. CHANDRAKUMAR

Stereostructure **16**, which is obtained by using (*S*)-**5**, is that of the (+)- rather than the (–)-antipode of bostrycin. The sign of rotation (+) for the enantiomer of **15** depicted remains correct as originally reported in footnote 17.

The above correction does not alter any of the conclusions drawn and does not affect the asymmetric model proposed. We note that the recent unequivocal establishment (Beagley, B.; Larsen, D. S.; Pritchard, R. G.; Stoodley, R. J. *J. Chem. Soc., Chem. Commun.* **1989**, 17–19) of the absolute stereochemistry of (+)-bostrycin, when taken with this correction, provides additional support for the validity of the asymmetric model presented.

We thank Professor Stoodley for informing us of his results prior to publication. Additionally, we thank Dr. P. Meghani for repeating the syntheses (separately) of both (+)-**16** and (–)-**16** from (*S*)-**5** and (*R*)-**5**, respectively. We also acknowledge the contributions of Drs. B. Ramani and V. Bhushan.

Computer Software Reviews

MultiStat. BIOSOFT: PO Box 580, Milltown, NJ 08850; 22 Hills Road, Cambridge, CB2 1JP, United Kingdom.

The Macintosh personal computer has become a popular platform for statistical analysis. MultiStat is one of a number of statistical analysis applications for the Macintosh to appear recently. (For reviews of several others, see: *J. Am. Chem. Soc.* **1988**, *110*, 324 (TrueSTAT), 1652–1653 (StatWorks), 5238 (Data Desk Professional), and 7260 (WormStat). A more extensive listing of statistical programs for the Macintosh can be found in *MACWORLD*, April, 1989, pp 138–143.) Although not as comprehensive as several other programs that are available, MultiStat has a well-designed interface, making it exceedingly easy to use, and offers most of the features that chemists need.

Data can be entered directly by typing or can be imported from another application via either the clipboard or text files. Thus data generated in a spreadsheet, such as Excel, or downloaded from a mainframe can be readily accessed. Similarly, data can be exported to other programs by saving files in the text format.

An extensive array of functions is available to transform data or implement data-base functions—including linear, logarithmic (base 2, 10, or *e*), exponential, square and cube root, raising to any power, trigonometric (sin, cos, or tan), reciprocal, modulo, and absolute value transformations. Data can also be ranked or arranged in ascending or descending order. Two or more sets of data can be combined arithmetically (addition, subtraction, multiplication, and division) or appended. MultiStat also has the facility to generate samples of pseudorandom numbers with uniform, normal, Poisson, or exponential distributions.

A full set of descriptive statistics can be calculated for any selected column of data—including the sum, mean, maximum, minimum, median,

variance, skewness, kurtosis, and standard and average deviations. Parametric tests for comparing two or more columns of data include paired and unpaired two-group Student *t* tests, simple and multiple linear regression, one- or two-way ANOVA, and proportion-and-population or two-proportions tests. The available contingency table tests are χ^2 , with 2 × 2 and larger table options, Fisher exact, and McNemar. Two-group nonparametric tests (Wilcoxon, Mann–Whitney *U*, and Kolmogorov–Smirnov), along with Spearman and Kendall rank correlations, are also provided, but there are no nonparametric tests for three or more groups.

Quick visual appreciation of data can be obtained by generating pie charts, clustered or stacked histograms, and bar, line, or scatter graphs. However, MultiStat does not offer many of the useful features found in advanced graphics packages or a number of other statistical analysis applications. Particularly bothersome is the lack of any direct control over the wording of labels or the choice, size, and style of font used. Supposedly, graphics windows can be saved as MacPaint documents, which can then be edited using any one of a number of paint-type programs, but this feature did not function on the review copy.

MultiStat follows the Macintosh user interface faithfully, is compatible with MultiFinder, and can be used with a Mac Plus, SE, or II. A 105-page manual is provided which is superbly organized, has a brief introductory chapter on statistics, and discusses the meaning and proper use of each type of statistical analysis. Where appropriate, the method of calculation is provided. In summary, MultiStat is a convenient, easy-to-use statistics program which offers the capabilities needed by most chemists, except for the easy preparation of graphics suitable for presentation. For some, this will be a serious drawback.

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