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J. W. Beams

Article/Paper: Thermodynamic and
hydrodynamic volume properties of proteins by
magnetic suspension

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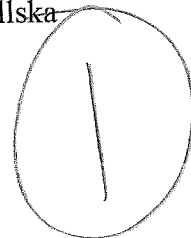
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Section 2: Communications

2u 39 A NEW AND RAPID METHOD FOR THE QUANTITATIVE DETERMINATION OF AMINOACIDS WITHIN THE RANGE OF nMOLES. K. Beaucamp and H. E.

Walter, Boehringer Mannheim GmbH, Biochemica-Werk Tutzing, Germany.

Aminoacids may be determined quantitatively by a rapid technique within the range of n moles, using a highly specific isotop dilution method. The basic principle consists in loading of the crude tRNA's with aminoacids in the praesence of an enriched mixture of aminoacyl-tRNA-synthetases. The high specificity is archived by adding a defined amount of the radioactive labelled aminoacid to be determined and by measuring the dilution of radioactivity after loading of the tRNA.

2u 40 THERMODYNAMIC AND HYDRODYNAMIC VOLUME PROPERTIES OF PROTEINS BY MAGNETIC SUSPENSION. D. W. Kupke, M. G. Hodgins and J. W. Beams. The University of Virginia, Charlottesville, Virginia, U.S.A.

By stably supporting a tiny ferromagnetic object at a given height in solutions, highly precise densities ($\pm 10^{-6}$ g/ml) can be obtained rapidly and easily on small volumes (~ 0.2 ml); changes in density can be monitored continuously during reactions. Total volume changes, partial volumes of components and preferential interaction of macromolecules in multicomponent systems are conveniently determined. If, in addition to the vertical support field, a suitably rotating magnetic field is also applied, the torque on the suspended object can be utilized to obtain the viscosity accurately at very low shear stresses ($\sim 10^{-3}$ dynes cm^{-2}). Hence, hydrodynamic and thermodynamic volume parameters of proteins can be determined simultaneously, and the changes in each with time are recorded if the solution is not at equilibrium. Data relating to protein hydration, associations and conformational changes will be presented.

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