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Lab Highlights

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Competitive Amino Acid Analysis Claims: The Pico•Tag® Method vs. the Competition

Beckman Instruments, the leading producer of dedicated ion-exchange amino acid analyzers, has made several recent attempts to penetrate the fast-growing LC-based amino acid market. Beckman's latest effort to enter this field is an ad campaign touting the supposed benefits of dabsyl chloride ("DABS"). Faced with conflicting claims, how can the analyst decide the true merits of different amino acid analysis procedures? Here are a few important points to consider:

Claim: DABS is more accurate than PITC (i.e. the Pico•Tag Method).

Fact: Major protein sequence laboratories have performed extensive evaluations of PITC (e.g. references 1 and 2). There are hundreds of references reporting the use of PITC for amino acid analysis³. The wide-spread use of PITC can be largely attributed to the quality of the results. There are only a few laboratories reporting analysis with DABS.

Claim: DABS is stable for weeks, PITC for one hour.

Fact: PITC derivatives are stable one week in a refrigerated WISP™. And there are reports that DABS derivatives are not completely stable at room temperature⁴. Storage for lengthy periods should be at -20°C, the same as PITC.

Claim: Price is comparable.

Fact: Beckman charges up to \$7 per sample for hydrolysis tubes, HCl, calibration standard, derivatization buffer and reagent, and sample diluent alone! Pico•Tag is less than one-third this cost for the same items.

What they don't tell you:

- DABS can form two different derivatives with Tyr and His⁴, the ratio of which can vary. Of course, this can compromise quantitation of these amino acids. PITC forms single derivatives with all amino acids.

What Beckman can't give you:

- Over seven years experience with derivatization, chromatography, and sample preparation.
- A complete method including guaranteed eluents.

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- Methods and separations for all your samples, many of these published in the scientific literature, including collagens, glycoproteins, biological fluids, phosphoproteins, sulfoproteins, enzymatic digests, methyllysines, γ -carboxyglutamic acid and much more.
- A complete manual, The Pico•Tag Method (Literature #WM02), for basic operation as well as advanced procedures.
- Waters™ dedication to our customers. We're not going to abandon one method just because something new comes along. Has Beckman been able to support its PITC sales? What does a Beckman PITC user do now?

Add it all up, and there is only one logical conclusion - Pico•Tag remains the state-of-the-art in amino acid analysis.

References

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2. Titani, K., Kumar, S., Takio, K., Ericsson, L.H., Wade, R.D., Ashida, K., Walsh, K.A., Chopek, M.W., Sadler, J.E., and Fujikawa, K., *Biochemistry* **25**, (1986) 3171-3184.
3. LAH 0388 2/89.
4. Vendrell, J. and Aviles, F.X., *J. Chromatogr.*, **358** (1986) 401-413.

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