

CHROM. 19 001

## Letter to the Editor

### Reply to comment on the observation of enhanced peak responses due to solvent interactions

Sir,

The gist of Dr. J. C. Berridge's letter<sup>1</sup> is that the phenomenon of solvent dependent peak responses of some compounds<sup>2</sup> in high-performance liquid chromatography (HPLC) could not be reproduced by him and that he suggests an instrumental artifact may be responsible for our data.

Most of our studies involved captopril and related compounds chromatographed on Whatman ODS-2 or Waters  $\mu$ Bondapak octadecylsilane columns with a mobile phase of methanol-water-phosphoric acid (50:50:0.05) flowing at 1-2 ml/min. Absorbances were determined at 214 nm using Kratos Models 770 or 773 or Perkin-Elmer Model LC 85 detectors. Solutions were usually at a concentration of 0.1 mg/ml. Linearity was found from 0.05 mg/ml to 1 mg/ml. Since many compounds related to captopril, such as the disulfide and the S-acetyl derivative, do not show the peak response effect that captopril does, an instrument artifact is not likely.

Fortunately, this solvent-dependent peak response effect was observed in another HPLC laboratory. Fig. 1 shows chromatograms of 300  $\mu$ g of the synthetic antimicrobial agent aztreonam and arginine dissolved in 1 ml of either aqueous phosphate buffer mobile phase or water. A silica column was used with detection at 206

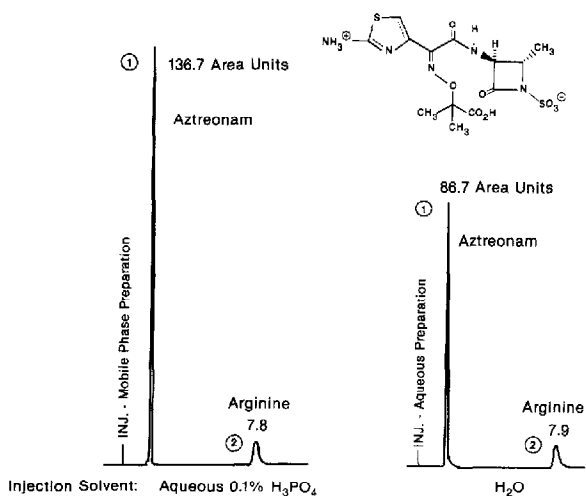


Fig. 1. HPLC of aztreonam and arginine dissolved in either aqueous 0.1% phosphoric acid (mobile phase) or water and chromatographed on a silica ( $\mu$ Bondapak) column. Detection was at 206 nm.

nm. The retention times and the response factors for arginine (peak height or area divided by concentration) were similar. However, the aztreonam peak areas and heights are different, with a response factor in water of 3.5 and in mobile phase of 5.4. When identical solvents were used, the responses for aztreonam were equivalent, thus providing independent confirmation of this effect.

*The Squibb Institute for  
Medical Research, New  
Brunswick, NJ 08903 (U.S.A.)*

J. J. KIRSCHBAUM  
S. PERLMAN

#### REFERENCES

- 1 J. C. Berridge, *J. Chromatogr.*, 369 (1986) 265-268.
- 2 S. Perlman and J. J. Kirschbaum, *J. Chromatogr.*, 357 (1986) 39.

(Received July 29th, 1986)