Phospholipase C and Phosphatidylinositol Phospholipase C

To the Editor

The paper by Sykes et al. (1) on the effect of phospholipase C on high-molecular-mass alkaline phosphatase in serum contains nomenclatural errors. In the Abstract, an Enzyme Commission number (EC 3.1.4.3) is given for the phospholipase C of Bacillus cereus; this is not the Enzyme Commission number of the phospholipase C responsible for the effect reported (i.e., the release of liver alkaline phosphatase from the high-Mθ band). The phospholipase C responsible for this effect is a type having phosphatidylinositol specificity and its Enzyme Commission number is 3.1.4.10 (2). The phospholipase C preparation(s) from B. cereus obtained through Sigma are a mixture of phospholipases C, one being specific for phosphatidylinositol (EC 3.1.4.10), the other (EC 3.1.4.3) not (3, 4).

In the introduction of the paper, the correct designation for the enzyme in question is EC 3.1.4.10, for which the recommended name is 1-phosphatidylinositol phosphodiesterase, the systematic name is 1-phosphatidyl-d-myo-inositol inositolphosphohydrolase (cyclic phosphate-forming), and an "other" name is "phosphatidylinositol phospholipase C" (2).

References


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The authors of the paper in question respond:

To the Editor:

We appreciate the comments of Hawrylak and Stinson concerning errors in enzyme nomenclature in our recent paper (1). Phosphatidylinositol-specific phospholipase C having been found to release alkaline phosphatase from a variety of animal tissues (2), our objective was to determine whether phosphatidylinositol-specific phospholipase C had a similar effect on high-molecular-mass bands in human serum. Commercial preparations of phosphatidylinositol-specific phospholipase C are not available; however, the enzyme has been isolated experimentally from a number of organisms, including Bacillus cereus. Therefore, Dr. Martin Low suggested (personal communication) that we use a commercially available impure form of B. cereus phospholipase C, because any phosphatidylinositol specificity that may be present is lost during purification procedures. The Enzyme Commission number we referred to, EC 3.1.4.3, was that given in the Sigma catalog listing for all phospholipases C, including the preparation from B. cereus (Type III) that we used. However, phospholipase C (EC 3.1.4.3) catalyzes a reaction involving hydrolysis of phosphatidylcholine and not phosphatidylinositol. Therefore, as pointed out by Hawrylak and Stinson, we should have used the new Enzyme Commission number for phosphatidylinositol-specific phospholipase C (EC 3.1.4.10), because this was the enzyme activity under investigation.

References


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Effect of Albumin on Results of an "Improved" Analog-Type Assay for Free Thyroxin

To the Editor:

Wilkins (1) urges continued development of analog-type methods for free thyroxin (FT₄), in order to eliminate interferences by albumin (1).

Lately, an "improved" FT₄ assay has been introduced commercially: The "Coat-A-Count" one-step (analog) solid-phase RIA (Diagnostic Products Corp., Los Angeles, CA). The company claims: "The assay has been optimized to prevent binding of the analog tracer to albumin. This eliminates the artifacts so often seen with other commercially available analog methods..."

We assessed the effect of albumin concentration on results obtained in this assay.

Blood was collected from 265 subjects including volunteers, patients suspected or known to have thyroid disease, critically ill patients, and patients in the immediate postoperative period. Statistically, we used the polynomial regression of the fourth degree (2, 3).

Our results (Figure 1) show a statistically significant effect of albumin concentration on FT₄ (g/dl) and FT₄ results by Coat-A-Count.

Fig. 1. Relation between albumin concentration (g/dl) and FT₄ results by Coat-A-Count