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Increased Detection of Prolylaminopeptidase in *Neisseria meningitidis* by Identicult-Neisseria

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Identicult-Neisseria (Scott Laboratories, Inc., Fiskeville, R.I.), a rapid enzymatic method with chromogenic substrates, was tested in our laboratories for the identification of *Neisseria gonorrhoeae*, *Neisseria meningitidis*, and *Neisseria lactamica*. The test correlated very highly in its identification of pathogenic *Neisseria* spp. with modified New York City fermentation medium. Identicult-Neisseria appeared to be more sensitive in its detection of prolylaminopeptidase activity in *N. meningitidis* than most of the currently available systems.

The use of chromogenic substrates to detect preformed enzymes for the identification of pathogenic *Neisseria* species was first described by D'Amato et al. (1). Commercial tests with these enzymatic substrates have been shown to be simple, accurate, and rapid (3, 4, 6). Most systems rely on the detection of three preformed enzymes, prolylaminopeptidase (PAP), γ-glutamylaminopeptidase (GAP), and β-D-galactosidase (BDG), which are associated with *Neisseria gonorrhoeae*, *Neisseria meningitidis*, and *Neisseria lactamica*, respectively. It has been reported (1, 3, 4, 6, 7) that the detection of these enzymes approaches 100% specificity for each of the organisms.

When an isolate is removed directly from selective medium, detection of PAP alone identifies *N. gonorrhoeae*, detection of GAP identifies *N. meningitidis*, and detection of BDG identifies *N. lactamica*. However, exceptions have been noted. For example, using the Gonocheck II^R system (Du Pont Co., Wilmington, Del.), Philip and Garton (4) found that 1 of 22 strains of *N. meningitidis* that they tested was negative for GAP, while Janda et al. (3) found 5 of 172 *N. meningitidis* isolates negative for GAP. PAP-positive *N. meningitidis* isolates have also been reported by Yajko et al. (7), who found 3 of 7 isolates positive, and by D'Amato et al. (1), who reported 1 of 15 isolates positive.

A new product for the identification of pathogenic *Neisseria* spp. was recently developed by M.A.C. This product, Identicult-Neisseria (Scott Laboratories, Inc., Fiskeville, R.I.), consists of filter paper strips containing substrates, buffer, and a chromogenic reagent. The test is performed by applying samples from colonies grown on a selective medium (Martin-Lewis or Thayer-Martin) or a nonselective medium (chocolate agar) to each of three test areas (PAP, GAP, BDG). Buffer is added, and the strips are incubated at room temperature for 20 min. If the BDG area is positive (blue), the isolate is identified as *N. lactamica*. If the area is negative, the chromogenic reagents are added to the PAP and GAP test areas. If a blue color develops within 60 s, the GAP enzyme is present, and if a red color develops within 60 s, the PAP enzyme is present.

Premarket evaluations of 54 strains of *N. gonorrhoeae*, 40 strains of *N. meningitidis* (including serotypes A, B, C, X, Y, Z, W135, and nontypable strains), 8 strains of *N. lactamica*, and 2 strains of *Branhamella catarrhalis* indicated that the Identicult-Neisseria correlated almost 100% with modified New York City fermentation medium (2, 5). All 54 isolates of *N. gonorrhoeae* were positive for PAP and negative for GAP and BDG. Of 40 *N. meningitidis* isolates, 37 proved positive for GAP and PAP. Two strains of *N. meningitidis* were positive for PAP and weakly positive for GAP (4 of 4 times tested), and one strain of *N. meningitidis* was positive for PAP and negative for GAP (3 of 3 times tested). *B. catarrhalis* strains were negative for all three enzymes. The incidence of detection of PAP was found to be much higher in *N. meningitidis* than previously reported (1, 7). We attribute this increased percentage of PAP detection to the greater sensitivity of the filter paper methodology. Based on the above observations, we recommend that *N. meningitidis* be recognized as PAP positive.

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