Our results indicate that the mechanisms of R-1818 mediated ultraviolet resistance is not involved in excision repair or in reinitiation recovery. It appears to be mediated by an inducible gene product, dependent on a functional host *rec*A gene, but which can act independently of recombination repair.

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Trimethoprim resistance in *Escherichia coli*

ANTHONY S. BREEZE*
School of Biological Sciences, University of Sussex

Trimethoprim (TM) is a synthetic antimicrobial compound which is administered clinically in combination with sulphamethoxazole as Septrin (Burroughs Wellcome) or Bactrim (Roche). TM is an inhibitor of dihydrofolate (FH_2) reductase with a marked affinity for bacterial enzyme when compared to mammalian enzyme (Burchall & Hitchings, 1965). Bacteria resistant to this and other anti-folates have been isolated, most of them either synthesize more enzyme or synthesize enzyme with altered properties (Burchall, 1970; Albrecht, Palmer & Hutchison, 1966; Sirotnak, Donati & Hutchison, 1964).

Mutants of *E. coli* K12 resistant to high levels (up to 1024 $\mu g\ ml^{-1}$) of TM were isolated by serial subculture in minimal salts medium containing increasing concentrations of TM. The genetic properties of these mutants are being reported elsewhere.

The biochemical properties of FH_2 reductase from a series of TM-resistant mutants were investigated; the protein fractions obtained by precipitation of sonicates with 55 to 90% $(NH_4)_2SO_4$ saturation were assayed by the method of Burchall & Hitchings (1965).

The series showed a progressive increase in specific activity of FH_2 reductase which could be related in part to an increase in V_{max}, as revealed by kinetic analysis, and in part to increased enzyme synthesis, demonstrable as an increase in methotrexate binding. The enzyme from the most resistant strains also differs from that of the wild-type in its response to heat, urea and TM. The response to TM is most surprising in that the enzyme appears to have become more sensitive.

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* Present address: Department of Pharmacy, Heriot-Watt University, 79 Grassmarket, Edinburgh EH1 2HJ, U.K.