simple Bayesian form of analysis, 69% accuracy overall was achieved in predicting survival time (with 80% accuracy in those patients who survived over 2 months) and accuracy in predicting an objective response was 82%, and 72% for a subjective response.

These results suggest that: (i) it is possible in most patients to predict response using simple clinical parameters and analysis; (ii) this can be done in routine practice quickly and easily; and (iii) such a system—if implemented widely—might be of significant benefit to individual women suffering from breast cancer.

**p-FLUOROPHENYLALANINE (pFPhe) AND MITOSIS: INHIBITION AND RECOVERY OF DIVISION IN HELA CELLS. D. N. Wheatley and J. Y. Henderson. Department of Pathology, University of Aberdeen.**

pFPhe inhibits the entry of HeLa cells into division; this effect is known to require incorporation of the amino-acid analogue into protein (Wheatley and Henderson, *Nature, Lond.*, 1974, **247**, 281). Analysis of the proteins containing pFPhe made by HeLa cells on polyacrylamide disc gel electrophoresis systems showed excellent agreement with the Phe proteins. The turnover of pFPhe proteins also compared closely with that of the Phe proteins both at 37°C and 40°C.

When pFPhe is removed from the culture medium, cells recover their normal G2→M progression in a cycle related manner after a delay period which depends on both the concentration and length of pFPhe exposure. After careful analysis of conditions permitting recovery, it would appear that a highly labile protein or group of proteins is involved which can only suppress mitosis when pFPhe is maintained at "physiological" levels. At slightly elevated temperature the inhibitory action is accentuated.

**A COMPARISON OF CHEMICAL AND MICROBIOLOGICAL METHODS FOR ESTIMATING ALKYLATING AGENT CONCENTRATION. S. M. Toogood, P. Workman, C. R. Ball and R. C. Garner. Department of Cancer Research, University of Leeds.**

Three methods of estimating alkylating agent concentration have been compared, initially using aniline mustard as a model compound: (i) inactivation of *E. coli* B; (ii) reaction with 4-p-nitrobenzyl pyridine (Epstein *et al.*, *Anal. Chem.*, 1955, **27**, 1435) and (iii) formation of a 35S-thiyan derivative (Connors, *et al.*, *Biochem. Pharmac.*, 1972, **21**, 1309).

Quantitation of the latter in a reproducible manner has proved difficult and sensitivity is not as great as expected. Greatest biological sensitivity amongst DNA repair deficient strains of *E. coli* B was shown by uvrA exrA and uvrA recA mutants. Surprisingly, a triple mutant polAuvrAexrA was less sensitive to both aniline and nitrogen mustards, the reverse being true for methyl methane sulphonate.

The microbiological method is more sensitive than either chemical method, particularly for the more reactive drugs such as p-hydroxyaniline mustard and nitrogen mustard, and more readily applied in some instances. The method has enabled drug adsorption to albumin to be studied. Identification and estimation of alkylating agents and their metabolites in biological fluids should be made possible using this technique.

**PREDICTION OF RESPONSE TO ANTIHORMONE TREATMENT USING AN IN VITRO TEST FOR DEPENDENCE OF HORMONES. H. Salih, I. de Souza, H. Flax, K. Newton and J. R. Hobb. Tumour Biology Group, Westminster Hospital Medical School.**

*In vitro* hormone dependence has been defined by detecting enhanced pentose shunt activity in 24 h cultures of freshly biopsied human breast cancers after known hormones have been added to the culture medium. Four hormones (oestrogen, androgen, prolactin, growth hormone) have been implicated in half of the 300 breast cancers, and these could not be assessed adequately by the previous methods of studying urinary patterns of androgen excretion or measuring binding to receptors in homogenates. The clinical response of 40 patients to antihormonal treatments revealed: (1) 9/9 oestrogen dependent tumours responding to antioestrogens; (2) 6/7 androgen dependent tumours responding to antiandrogenic measures; (3) 5/6 prolactin - growth hormone dependent tumours responding to satisfactory hypophysectomy; (4) 3/3 prolactin dependent