

BOOK REVIEW

Editors: Hsie A. W., O'Neill J. P. and McElheny V. K. — **MAMMALIAN CELL MUTAGENESIS: THE MATURATION OF TEST SYSTEMS.** Banbury Report 2. Cold Spring Harbor Lab., Cold Spring Harbor, 1979, 504pp.

Technical conferences measuring risks of cancer from environmental sources have been organized yearly since 1978 by Banbury Center at Cold Spring Harbor Laboratory. The second of the Banbury Center Conferences, held in 1979, was devoted to the assessment of test systems based on mammalian cell mutagenesis. The far-distance aim of these conferences was to find approaches for prevention of cancer. The reviewed publication was partially supported by a contract with the National Cancer Institute.

In the first session of this conference "Gene mutation" the relevance of the basic distinction between genetic and epigenetic changes for in vitro tests of mutagenesis in somatic cells was discussed. The next session "Quantitative mutagenesis with rodent cells" presented tests using rodent cell lines as targets of the action of agents suspected for the action the induction genetic changes; the subjects discussed were: screening for 6-thioguanosine resistance mutation in CHO cells (O'Neill and Hsie), advantages of using hemizygous target cells TK^{-/-} (Moore-Brown and Clive) and the use of V79 cells for studying promotion effects (Chang et al.)

During the third session ("Criteria for mutagen screening system") the problems involved in the studies of mutagens in foods, standardization of procedures of mammalian cell assays and advantages of battery approach as compared to the tier system in mutagen screening were discussed. Waters pointed out to the fact that available methods of screening are not always fitting available information about components of a studied sample. Different legislature mandates for mutagenesis screening by Environmental Protection Agency were shown to lead to a wide range of research needs and goals.

The value of the analysis of mechanisms of the chosen screening methods presented in session on "Genetic, biochemical and molecular analysis of mutation" rests mainly in practical hints and conclusions and is not much affected by omission of recent developments of molecular biology. The discussion covered studies of membrane transport mutants (Adelberg and Dantzig), use of temperature-sensitive mutants (Thomson), titration of gene products (Chasin and Urlaub) and specific aspects of expression of some mutations, including the problem of dominance and recessivity (Ts'o). As the symposium took place before the discovery of "one" — genes problem of expression of these genes is not discussed.

The next session was devoted to the choice of optimal methods of mutagen screening for particular samples of the environment. Two papers and the round table discussion were devoted to crucial problems of activation system. The assets of the systems based on hepatocyte cultures seem, however, to be underestimated.

The sixth session — "Quantitative mitogenesis of human cells" covered both the retrospective studies in humans in vivo (assessing mutations at apt locus — Demars) and in vitro (using peripheral blood lymphocytes — Albertini), as well as prospective studies with both tests in animals. Two other papers dealt with tests in vitro using cell lines of human origin.

Nearly four years after the publication of the book the discussed experimental results are already published in journals in most cases. The unique and more lasting value of this publication consists, however, in presenting discussions of particular papers as well as, round table

discussions, which together constitute nearly half of the volume. This material provides a combination of unique technical details and some personal views on the strategy of research related to the methods of screening for mutagen activity. Some granting institutions consider that standardization of accepted tests is more useful than development of new ones. For a person working on assesment and measurement of mutagenic effects this book is still stimulating and provides many practical ideas.

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