1986 SURVEY OF GENETIC TOXICOLOGY TESTING IN INDUSTRY, GOVERNMENT CONTRACT, AND ACADEMIC LABORATORIES

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SUMMARY

Results of the 1986 Genetic Toxicology Association’s survey of industrial, government, contract, and academic laboratories on the status of several assays in genetic toxicology are presented below.

1. The most commonly used assay was the Salmonella typhimurium/mammalian microsomal (Ames) assay, which was used by 83% of all respondents.

2. The next five (5) most commonly used assays were \textit{in vitro} cytogenetics (72%), \textit{in vivo} cytogenetics (59%), CHO HGPRT gene mutation (55%), the micronucleus assay (53%), and L5178Y gene mutation (45%).

3. The assay showing the greatest percentage increase in routine use was the micronucleus assay which went from 14% in 1984 to 34% in 1986, an increase of 20%.

4. Other assays which increased in routine use were CHO HGPRT mutation (+18%); \textit{in vitro} cytogenetics (+14%); L5178Y gene mutation (+9%), and the Ames assay (+5%).

5. Routine use of \textit{in vitro} UDS assays declined by 6%; use of \textit{in vitro} SCE assays declined by 12%.

6. There was no change in the rate of routine use of \textit{in vivo} cytogenetics or \textit{in vivo} SCE assays.

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8. Four assays were being developed by five or more laboratories. These included *in vitro* SCE (8); the micronucleus assay (7); *in vivo* SCE (6); and DNA adduct formation (5).

9. A total of 17 assays had been abandoned by one or more laboratories. However, since no assay had been given up by more than three laboratories no conclusions can be drawn about the overall robustness of any of the assays on the survey form.

**INTRODUCTION**

The Genetic Toxicology Association (GTA) is composed of individuals from industry, government, contract laboratories, and academia who are interested in the advancement of genetic toxicology. In 1978, GTA initiated a biennial survey of the extent and amount of genetic toxicology testing in the United States. The results of the survey have been used to assess general availability and development progress of various assays in the field and for predicting economic potential, regulatory trends, technical development and sales.

The 1978 and 1980 surveys were limited in scope. Questionnaires were distributed primarily to the industrial members of the GTA (pharmaceutical and chemical companies), most of whom were concentrated in the eastern half of the United States. The survey was expanded in 1982 to include all members and was distributed to industrial and non-industrial laboratories throughout the United States.

In 1984 the survey was expanded again. At that time, 454 questionnaires were mailed to 80 industrial, 43 contract, 18 governmental, and 25 academic laboratories throughout the United States and Canada.

The 1986 survey follows the same format as that used in 1984.

**MATERIALS AND METHODS**

A total of 450 questionnaires were sent to 360 GTA members and 90 non-members in approximately 80 industrial facilities, 43 contract laboratories, 18 governmental laboratories, and 25 academic institutions.

The 1986 questionnaire, which was identical to that used in 1984, is shown in Figure 1. Thirty-two assays were listed on both questionnaires as opposed to 23 on the original 1978 survey and 28 on the 1982 survey. The original list of assays was based on the assay evaluated by the U.S. Environmental Protection Agency's Gene-Tox Program (Green and Auletta, 1980;