Alternatives to Animal Testing

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EDITORIAL

ALTERNATIVES TO ANIMAL TESTING

The phrase “animal rights movement” includes both individuals and groups committed to animal welfare (the humane treatment of animals) and individuals and groups committed to animal rights (the reduction in numbers used or total elimination of the use of animals in safety testing and research). This movement initially began in Europe during the 19th century and is both militant and influential there even to this day. The animal rights movement came to the United States in the early part of this century and was less militant and influential until the late 1970s. At that time, a campaign focusing on a specific issue and targeting a defined industry was launched that united the disparate philosophies and groups of the animal welfare and animal rights activists. The issue was the Draize eye irritancy test that utilizes the rabbit animal model, and the industry was the highly visible and image conscious cosmetics industry.

Through its trade association, the Cosmetic, Toiletry and Fragrance Association (CTFA), this industry responded by sponsoring a symposium on in vitro and in vivo approaches to ocular safety testing and subsequently founded the Center for Alternatives to Animal Testing at the Johns Hopkins University in Baltimore, Maryland with a 3-year (1981–1984) $1 million grant. Subsequently, this same industry trade association granted the Center a 2-year extension grant of $700,000 (1984–1986). The first 3 years of the Center’s activities were devoted to the organization and logistics of establishing the Center to endure beyond the initial grant monies. Grants were awarded to researchers to elucidate basic mechanisms of the inflammatory process. The next two years will see this Center award grants to researchers who may be able to actually apply existing alternative test methods or develop new ones. In addition, there are research programs for

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alternatives to animal testing at Rockefeller University in New York City and at Jefferson Medical College in Philadelphia, Pennsylvania, not to mention the research efforts by the European-based Fund for Research on Alternatives to Medical Experimentation (FRAME).

However, while all this effort is being made to search for test methods alternative to the use of animals, the animal rights movement continues to hinder its progress by disseminating and reinforcing incorrect information. One such incorrect piece of information may be called the “replacement myth.” For example, there is the illusion that a true alternative to a given animal test can actually be developed and eventually be substituted on a one-to-one basis. This simply is not scientifically possible in the foreseeable future. The reasons for this are that less data are generated in in vitro alternative test methods than from whole animal experiments necessitating the need for a battery of alternative in vitro tests. These alternate in vitro tests are cell, tissue and organ cultures, although computer applications are coming on strong as contenders in the race to become alternative test methods.

Another piece of incorrect information is that alternative test methods already exist. Here the animal rights movement continually cites the in vitro mutagenicity tests as evidence for this. This confuses the issue and works against their purposes because the end point of the initial focus, the Draize eye irritancy test, is inflammation resulting from chemical irritation, not mutagenicity as a prelude to carcinogenicity.

Finally, it is assumed by the animal rights movement that alternate test methods will reduce the cost of safety testing or research. The Draize eye irritancy test currently costs between $400–$600 at commercial contract laboratories, while in vitro mutagenicity tests cost between $1000–$5000 depending upon the type of test. When one considers the future possibility of having to use a battery of in vitro tests to be able to screen test materials before deciding whether or not further animal experimentation is needed, the cost impact on safety testing and research programs will be considerable. When the test material is a consumer product, the consumer will ultimately pay for the attainment of these animal rights movement’s objectives.

In conclusion, it is interesting to observe that the cell physiologists and biochemists predicted in 1979 that the development of alternate in vitro test methods and their regulatory acceptance would take 10 years based on the scenario of the Limulus Ameobocyte Lysate (LAL) experience. It is now 5 years later, and this predicted time frame may turn out to actually be the case before the first alternate in vitro test battery is available.

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References
