

# Achievements in Raising Awareness on the Use of Alternative Methods in Latin America and the Caribbean

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**Summary** — Activities to promote the awareness and acceptance of alternatives in Latin America and the Caribbean were initiated four years ago. As a result, information about the Three Rs has been distributed to students, teachers, researchers and authorities in more than two hundred academic and research centres from seventeen countries. Short courses and lecture series were presented to hundreds of attendees from those sectors. Many educators have already been persuaded of the advantages of using alternatives. So far, models, software and videos have been used, and it is intended that further resources in the Spanish language will be produced to assist the replacement of animal use in practical classes. As an integral part and a remarkable event of the project, the First Caribbean and Latin American Workshop on Alternative Methods was held in Santiago de Cuba in December 2001. In spite of these accomplishments, much still needs to be done in order to increase the use of alternatives in various fields of scientific and educational activity within the region. The commitment is still present and further initiatives will ensue.

**Key words:** *alternative methods, education, in vitro techniques, Three Rs.*

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## Introduction

In recent years, a sustained increase in the awareness, acceptance, development and utilisation of alternative methods to animal experimentation has taken place. A modest contribution to that achievement has been provided by ProALt, which is a project for the Promotion of Alternatives in Latin America and the Caribbean. ProALt activities were initiated under the leadership of the Center for Toxicology and Biomedicine (TOXIMED) in 1998.

TOXIMED is a research centre, connected to the Medical University of Santiago de Cuba, which renders scientific services, as well as health services, to hospitals, factories and other communitarian institutions, as well as to individuals. Its firm endorsement of the Three Rs principle, as a clear institutional policy based on ethical, scientific and economic reasons, has led a team of professionals and technicians from TOXIMED to investigate the use of alternatives. We have established some *in vitro* techniques for toxicity testing in our laboratories, and in particular, assays replacing the Draize eye test for ocular irritation. These tasks have been developed under the auspices of ETAC (the Group for Alternative Toxicology in Cuba), which, in turn, is part of the Cuban Society of Toxicology. Since we teach in the Medical University, we have also been able to include alternatives in training programmes and in proposals for replacement of animals in laboratory practical classes.

In the national arena, the general development of education and science has facilitated the awareness,

acceptance and use of alternatives in Cuba. The Code on Ethics for Science Workers, the national regulatory authority for medicine (CECMED), the Cuban International Council for Laboratory Animal Science (ICLAS) Committee, the Cuban Society for Laboratory Animal Science, the Cuban Association for the Protection of Animals and Plants, the ETAC group, and a number of other organisations, have clearly stated their commitment to the Three Rs principle over the past decade.

With this support, we were able to launch a project for the promotion of alternative methods (ProALt) that provided information to scientific and educational sectors not only in Cuba, but also in other countries of Latin America and the Caribbean, where alternatives were found to be little known and used (1). The financial contribution of SET (Foundation for the Promotion of Research on Replacement and Complementary Methods to Reduce Animal Testing), from Germany, was decisive in enabling the acquisition of resources needed for this project.

This paper will mainly focus on providing information relating to the activities of ProALt over the last three years, since its goal and initial experiences were presented during the 3rd World Congress in Bologna, Italy.

## Setting and Using *In Vitro* Techniques for Toxicity Testing in TOXIMED

Promoting alternatives at TOXIMED include the setting up and use of techniques for toxicity testing, in

particular, those that allow the replacement of the Draize eye test. The first steps were taken in 1992, with the establishment of a procedure to evaluate cytotoxicity by using the lysis of human erythrocytes (2).

Thanks to the *In Vitro* Techniques in Toxicology (INVITTOX) database (3), we now also use a haemolysis assay and denaturation of haemoglobin (known as the Red Blood Cell Test), described in INVITTOX protocol no. 37. We also use some variants of the hen's egg test on the chorioallantoic membrane, in particular, those described in protocol nos. 47, 96 and 108 from INVITTOX. With the help of Dr Pilar Vinardell, from the University of Barcelona, Spain, we established the photohaemolysis assay in our laboratory. We also received training in cell culture in Barcelona, in other scientific institutions of our own country, and in the Fund for the Replacement of Animals in Medical Experiments (FRAME) Alternative Laboratories (FAL) in Nottingham, UK.

The evaluation of more than 30 substances and products in our laboratory, including cosmetics, cleaners, pesticides, medications and raw materials, is part of the process of standardisation and prevalidation of these techniques at a national level, with the aim of requesting from the regulatory authorities to approve their inclusion in the sets of toxicity tests accepted in our country.

## Activities of ProALt

### Dissemination of information

Our staff's goal was to implement a system for the dissemination of information about alternatives to animal studies in toxicity testing, biological and medical research and teaching in Latin America and the Caribbean. The aim was to create awareness and to promote activity relating to the Three Rs within the educational and scientific sectors of this geographical region. This would encourage an increased use of alternatives, leading to a reduction in the overall use of laboratory animals and to the refinement of procedures (1).

The project included the acquisition and reproduction of information on alternative methods and its distribution to specific destinations within the region. Potential recipients of information about the Three Rs were initially identified from registers and other listings of scientific and educational institutions. The initial mailing list included some 50 academic and research institutions from 15 countries in addition to Cuba. They were the first recipients of information that we began to distribute by means, firstly, of a printed bulletin and, later, in electronic format as well (named *ProALt Informa*), which was issued quarterly. Today, the mailing list includes 200 contacts in 17 countries. More and

more people with an interest in animal experimentation and the use of alternatives have asked to be incorporated into the list.

### Activities in education

Between the years 1999 and 2001, under the auspice of ProALt, a total of 17 courses and lectures were organised and taught in Brazil, Mexico and Cuba. The attendance exceeded 600 people, including students and professors of higher education, investigators and leaders of research centres and members of scientific societies of a dozen of countries. As professors of the Medical University of Santiago de Cuba, and with the enthusiastic collaboration of a group of students, we have developed a proposal for the total replacement of animal-based laboratory practices in medical training, with videos and simulation software that we are designing. Educational software that replaces one of these practices in the discipline of Biochemistry is already being used successfully.

### The First Workshop on Alternative Methods in Latin America and the Caribbean (ALTERNATIVAS 2001)

The workshop was held on 4 and 5 December 2001 in Santiago de Cuba. The meeting was sponsored by several scientific as well as social organisations and societies from Cuba, Brazil and Germany. It received additional generous support from the Universities Federation for Animal Welfare (UFAW) and Advocates for Animals, both from the United Kingdom.

In attendance were 45 participants from Belgium, Brazil, Colombia, Cuba, Guatemala, Haiti, Italy, Mexico, Spain and the United Kingdom. Noted personalities from Europe and America, representing FRAME, the European Centre for the Validation of Alternative Methods (ECVAM), the Centre for Documentation and Evaluation of Alternative Methods to Animal Experiments (ZEBET), InterNICHE, the European Research Centre for Alternatives (EURCA), UFAW, the Royal Spanish Academy of Pharmacy, the University of Barcelona, and the Central American, Caribbean and Mexican Association for Laboratory Animal Science (ACC-MAL) of Mexico, gave plenary lectures.

The poster session included 25 presentations, as well as demonstrations of videos and educational software. There were also three short oral presentations, whose authors were from Cuba, Colombia and Mexico. The meeting was advertised in three languages (Spanish, Portuguese and English) in *ATLA* (UK); the *NCA Newsletter* (The Netherlands); on Altweb and in the *ICLAS Bulletin* (USA); *3 ERRES* (Spain); and *Biotbras* (Brazil). Dr Kryss Bottrill from FRAME wrote an extensive and

laudatory report of the meeting that was published in *ATLA* (4).

### Collaboration to ProALt

Inside the country, our team has maintained close links with the Cuban Society for Laboratory Animal Science (ETAC), and the Cuban Association for the Protection of Animals and Plants. In the region of Latin America and the Caribbean, there has been an important exchange with COBEA (Brazilian College for Animal Experimentation), ARCA Brazil and the National Society for Ethics from Mexico. The board of COBEA asked the coordinator of ProALt to write the monograph, *Alternative Methods to Animal Experiments*, which will be included as a chapter in the book entitled, *Guide of COBEA for Researchers*, to be published by that organisation. *Animales de Experimentación*, the Spanish-Language Magazine of Animal Laboratory Science & Welfare, published in Mexico, generously offered its pages for a contribution on ProALt (5). In fact, that offer was first expressed by the publication of an article that points out the objectives and the activities developed by ProALt (6).

Outside the Latin American environment, we have had the consistent support in literature, video-cassettes, simulation software and other materials given by numerous institutions, organisations and scientific societies of North America and Europe, such as the Johns Hopkins Center for Alternatives to Animal Testing (CAAT), The Humane Society of the United States, The University of California Center for Animal Alternatives and the Animal Welfare Information Center (AWIC) from the USA; FRAME, ECVAM, ZEBET, the University of Barcelona, the University of Portsmouth, Leeds Metropolitan University, EURCA, the Netherlands Centre Alternatives to Animal Use (NCA) and InterNICHE from Europe. InterNICHE has designated the coordinator of ProALt as its contact in Cuba, and has also contributed financial support for the development of a video. FRAME, especially, helped ProALt by facilitating a visit of both the coordinator and the main specialist of ProALt to their facilities and other institutions developing alternative methods in the UK. The financing of activities by SET, UFAW and Advocates for Animals was also of great value.

### Future Work

We celebrate the achievements made thus far; however, there is much left to be done. Intensive work will be needed to achieve a higher level of knowledge and use of alternatives in a wide geographical region of the western hemisphere situated south of the Rio Bravo.

After three years of industrious work, the available funds for this endeavour have been exhausted. However, this obstacle should be conquered in the near future, as our work team has invested significant effort toward obtaining international support again.

An immediate goal of supreme importance is to extend the promotion of the Three Rs to an ever-widening audience of institutions and individuals. This effort will multiply the positive impact of the reduction of the number of laboratory animals used, their replacement in all the possible cases or, at least, the decrease of their suffering in all the cases.

Numerous Latin American scientific events to be held in the near future include ethical and animal welfare issues that were not even mentioned in previous events. This topic will be very visible at the XVIII Pan-American Congress of Veterinary Sciences that will be held in November 2002 in Havana.

Focusing specifically on the topic of alternatives, we intend to continue carrying out international scientific events periodically in Santiago de Cuba, each year before a World Congress is convened, as a means of promoting the exchange and stimulating a greater number of contributions from Latin America and the Caribbean. Toward this goal, Santiago's next workshop will be held in 2004.

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