SPECIAL REPORT

RAPPORT SPÉCIAL

Report of the meeting "Control of Rabies in the Americas" Animal Diseases Research Institute, September 11–13, 1991

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This meeting dealt primarily with oral rabies vaccination as a means of controlling wildlife rabies. The objectives were to review recent progress in oral rabies vaccination of wildlife, to determine what research is still needed to achieve effective rabies control, and to plan collaborative research. Participants included scientists from the United States, Canada, Mexico, South America, Europe, and Africa.

By the 1960's, wildlife rabies was well established in large regions of Europe, the United States, and Canada. The principal vectors were foxes in Europe, and skunks, foxes, and raccoons in the United States and Canada; these animals were the source of nearly all cases of rabies in domestic animals. Large areas of these countries are still affected by wildlife rabies. Because of the general ineffectiveness of population reduction in control of wildlife rabies and the obvious success of parenteral vaccination in control of canine rabies, scientists in the United States, Canada and Europe began (in the early 1970's) investigations to determine the feasibility of oral rabies vaccination. Control of wildlife rabies by this method was and is much more complex than control of dog rabies by parenteral vaccination. In addition to needing a vaccine that is effective orally, it requires suitable baits to deliver vaccine to the species of concern; a bait distribution system; extensive safety data; detailed knowledge of enzootics, animal behaviour (target and non-target species) and habitat; and models to predict fluctuations in rabies incidence and to determine the effectiveness of control programs. Progress in the early years was slow, probably because it was hampered somewhat by widespread skepticism of this novel method of disease control and by concern for the safety of a product to be widely distributed in the environment. Research on oral vaccination has made remarkable advances, not only in rabies control but in the development of technology and knowledge that may be useful in other disease control programs and for monitoring and controlling the environment (eg. wildlife management).

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During the past 12 years, extensive oral vaccination control programs have been undertaken in Europe; rabies has been reduced in parts of Europe (Germany, Italy, Belgium and France) and almost eradicated from Switzerland. Field trials have begun in Canada (Ontario) and the United States.

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Laboratory research and field trials/programs to date indicate that at least 5 vaccines are immunogenically effective by the oral route in foxes; they are SAD (Street Alabama Dufferin), ERA (Evelyn, Rokitniki, Abelseth), SAG (escape mutant of SAD), V-RG (vaccinia recombinant), and Ad5RG1 (human adenovirus 5 recombinant). Three (SAD, SAG and V-RG) have been and/or are being used in the field in Europe. The vaccine-bait combination generally consists of a chicken head or tallow-wax mixture into which a vaccine-containing blister pack is inserted. When the bait is eaten, the blister pack is ruptured, releasing liquid vaccine into the oral cavity of the fox. Research on a vaccine/bait system for raccoon rabies in the United States has been very successful. In laboratory trials, V-RG given orally induced rabies antibodies and resistance to challenge with street rabies virus. A bait was developed that is suitable for delivering the vaccine. Extensive laboratory trials in over 30 species of animals indicate a very high degree of safety. Field trials are in progress. ERA virus grown in BHK-21 cells is being used in extensive field trials to control fox rabies in Ontario, Canada. The vaccine is incorporated (via a blister pack) in beef tallow-wax baits and distributed by airplane. Early results suggest a reduction in rabies and a fairly high rate of antibody response.

Less progress has been made in control of skunk rabies, which is enzootic in large areas of the United States and Canada. The skunk is much more refractory to oral vaccination than are foxes and raccoons. In extensive laboratory trials, none of several attenuated rabies viruses were effective in skunks. One recombinant, V-RG, has given variable results. Another recombinant (Ad5RG1) is quite effective when given directly into the oral cavity, but very high titers are required when it is given in the presently available baits. This is considered a very promising vaccine and studies are underway to develop an effective vaccine/bait system.

Dog rabies (although diminished in recent years by programs of parenteral vaccination) remains a serious problem in developing countries. Previous studies suggest that dogs can be immunized orally with high doses of V-RG and SAD. Data presented at this meeting indicate that the escape mutant SAG is also effective orally in dogs.

Although there have been many successes, there are some important gaps in technology and knowledge. They include suitable methods for commercial production of high-titered recombinant vaccine (adenovirus or vaccinia recombinants) for use in skunks; baits suitable for skunks; and oral vaccines and appropriate auxiliary systems for control of rabies in dogs, mongooses and vampire bats. Improvements in bait markers and antibody testing (using sera from dead animals), epizootiology studies (especially more precise identification of rabies viral strains), and studies of virus-host adaptation and mechanisms of oral vaccination would augment existing or planned programs.

44th CVMA/ACV
Convention 1992 Congrès

St. John's, Newfoundland July/juillet 5–8, 1992

Research Rostrum

Monday, July 6, 1992

The Rostrum is intended to be a forum for dissemination of new information from research and for communication between researchers and clinicians. This announcement is a call for the submission of abstracts. A registration by speakers is not required for participation in the Rostrum.

The submission and selection of abstracts shall be as follows:

1. Abstracts must be clearly typed and submitted in the format as described below.
2. The original and one copy of the abstract should be sent (not by fax) to:

   Dr. Owen Slocombe
   Department of Pathology
   Ontario Veterinary College
   University of Guelph — Tele: 519-823-8800 Ext 4652
   Guelph, ON — Fax: 519-824-5930
   N1G 2W1
3. The telephone and fax numbers for the first author listed in the abstract should be included in a covering letter.
4. The deadline for receipt of abstracts (in Dr. Slocombe's office) is Thursday, April 30, 1992.
5. All abstracts received by the deadline and in the prescribed format will be published in the "Proceedings of the CVMA Convention" and in the "Rostrum Abstracts" under either "Oral Presentation" or "By Title".
6. The first 24 submissions received in the prescribed format will be assigned to "Oral Presentation" and given a 15 minute time slot in the program for presentation on July 6, 1992.
7. Abstracts not included for oral presentation will be under the heading "By Title".
8. The first author of each submission will be informed in early May on the status of the submission and will be sent a copy of the Rostrum Abstracts.

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Please type the abstract on ordinary white bond paper (21.5 X 28 cm; 8.5 X 11 in.) leaving a 4 cm or 1.5 in margin on all sides. High quality printing is required as your abstract will be the "camera-ready" copy for reproduction. Dot matrix printing is unacceptable.

Type title with only the first letter and those of proper nouns in upper case; all other letters in lower case. Underline the title.

Author's name(s) on a new line in upper and lower case. Add an asterisk (*) after the name of the author making the presentation.

Affiliation and complete address on a new line and in upper and lower case. If more than one author, place the last name of the author in brackets after the appropriate address.

Skip two lines and type the body of the abstract which should not exceed more than 150 words. The abstract should state the purpose(s) of the study or investigation, basic procedures (selection of study subjects or experimental animals, and observational and analytic methods), main findings (give specific data and their statistical significance, if possible) and the principal conclusions. Symbols and signs (e.g. π) which must be hand lettered should be printed clearly in black ink.

Last date for receipt of the abstracts is Thursday, April 30, 1992.