WHO/PAHO Collaborating Centre for the Epidemiology and Control of Rabies in Carnivores

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17ª REUNIÓN DE DIRECTORES DE LOS PROGRAMAS DE RABIA DE LAS AMÉRICAS
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SESIÓN: El papel de los centros colaboradores de la OPS/OMS en rabia en la Región de las Américas
WHO/PAHO Collaborating Centre for the Epidemiology and Control of Rabies in Carnivores

Who we are
WHO/PAHO Collaborating Centre for the Epidemiology and Control of Rabies in Carnivores

- Canadian Reference Laboratory for Rabies “CFIA Centre of Expertise for Rabies”
- Located at the Canadian Food Inspection Agency Ottawa Laboratory - Fallowfield
- Small team of scientists and technicians
- Biocontainment Level 2 and 3 laboratories and animal facilities
- Accredited to the ISO/IEC 17025 Quality Standard
- WHO/PAHO CC since 1992
- WOAH Reference Laboratory for Rabies since 1991
WHO/PAHO Collaborating Centre for the Epidemiology and Control of Rabies in Carnivores

What we do
CFIA Centre of Expertise for Rabies – Key Activities

– Diagnosis and Variant identification
  • Suspect animals with human or domestic animal contact
  • Suspect human cases
  • Antigenic and molecular typing of virus

– Research and technology development
  • Virus characterization and phylogenetics
  • Methods development
  • Oral vaccine research and support of provincial wildlife control programs

– National and international consulting services
Diagnostics

• Direct immunofluorescence test (FAT)

• Tissue culture inoculation test (RTCIT)

• Immunohistochemistry test on formalin-fixed specimens (IHC)

• Conventional and real-time RT-PCR (for human suspect cases)
Research and Development

Supporting the National Rabies Program

• Diagnostic test development
• Epidemiologic studies
• Data and science advice to inform decisions regarding:
  – Risk assessments
  – Decisions to test
  – Disease control measures for domestic animals
  – Import controls
  – Veterinary biologics

Supporting Provincial programs for control of rabies in wildlife

• Collaborative research on oral vaccines
• Diagnostics for enhanced wildlife surveillance programs
• Serologic analyses to monitor oral vaccination field performance
Consulting services

- provide expert advice and consulting services, e.g., diagnostics, oral vaccination, rabies pathobiology

- train Canadian and international scientists and students in diagnostic and research techniques

- participate in international research initiatives, e.g., WHO Therapeutic mAb Project, characterization of lyssaviruses distributed globally

- participate in international proficiency panels for rabies diagnostics

- maintain large reference virus and monoclonal antibody collections and provide materials
How we can support laboratory capacity building in the Americas

WHO/PAHO Collaborating Centre for the Epidemiology and Control of Rabies in Carnivores
Provision of materials and advice

• Antibodies:
  • diagnostic conjugate (FITC-labelled goat anti-RNP serum)
  • Monoclonal antibodies (anti-N gene, P gene, G-gene)
  • Polyclonal antibodies (rabbit, goat anti-RNP)

• Molecular reagents:
  • Primer and probe sequences

• Virus isolates

• Standard operating procedures

• Manuscript reprints

• Review functions; scientific advice

• No cost for materials, Materials Transfer Agreement required for biologicals
Training opportunities

- Students, visiting scientists, sabbaticals
- WOAH Laboratory Twinning Projects – project completed with SENASA, Peru
- No cost for training, travel expenses paid by Member country
Antigenic and genetic characterization of rabies viruses isolated from domestic and wild animals of Brazil identifies the hoary fox as a rabies reservoir


Detection of multiple strains of rabies virus RNA using primers designed to target Mexican vampire bat variants


A molecular epidemiological study of rabies in Puerto Rico

Susan A. Nadin-Davis, Jafet Velez, Carlos Malaga, and Alexander I. Wandeler

Antigenic characterisation of lyssaviruses in South Africa

There are at least six Lyssavirus species that have been isolated in Africa, which include classical rabies virus, Lagos bat virus, Moçambique virus, Duvenhage virus, Shimanzi bat virus and Ikoma lyssavirus. In this retrospective study, an analysis of the antigenic reactivity patterns of lyssaviruses in South Africa against a panel of 15 anti-nucleoprotein monoclonal antibodies was undertaken. A total of 624 brain specimens, collected between 2005 and 2009, confirmed as


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A molecular epidemiological study of rabies in Cuba


Incorporating Direct Rapid Immunohistochemical Testing into Large-Scale Wildlife Rabies Surveillance

Kevin Middel, Christine Fehlner-Gardiner, Natalie Pulham, and Tore Buchanan

doi:10.1017/S095026880500465X Printed in the United Kingdom
How can CFIA support the Americas and contribute to the 2030 agenda?

- The CFIA Centre of Expertise for Rabies was re-designated as a WHO/PAHO CC in January 2023

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<tr>
<th>Activity</th>
<th>Timeline</th>
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<tr>
<td>Proficiency panels for the Americas</td>
<td>DFA panel is in development – pilot studies completed during 2019-23 work-plan</td>
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<td>PCR panel in planning stages</td>
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<td>Provision of materials, e.g., fluorescent</td>
<td>As requested by countries and/or WHO</td>
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<td>conjugate, mAbs, virus isolates, protocols;</td>
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<td>for Dx and research</td>
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<tr>
<td>Provision of training, e.g. Dx tests, molecular tools for virus characterization</td>
<td>As requested by countries and/or WHO</td>
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<tr>
<td>Provision of consulting, e.g., reviews, editing, scientific advice</td>
<td>As requested by countries and/or WHO</td>
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<td>French translation of test protocols, guidelines, other documents</td>
<td>As requested by WHO</td>
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<tr>
<td>Participation in joint research/validation projects (e.g. LFDs)</td>
<td>As requested by WHO</td>
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Thank you
Merci
Gracias
Obrigada

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