### 図 1

### アジアの狂犬病ラボラトリーネットワークの連携強化

### 検査系の確立と野外調査のフィールド確保



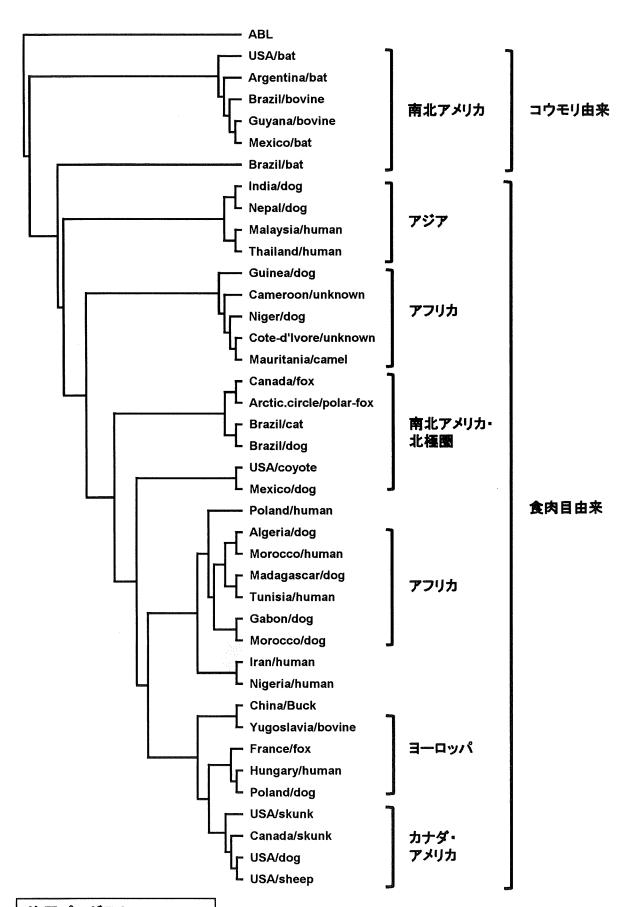
### フィールドを利用した検査系の検証と検体の確保

### 検査系と分子疫学データの共有



# 図 2 **Initial Results** Phylogenetic tree based on nucleotide sequence (~865bp) of the rabies G gene of 47 samples collected from different geographic sites in the Philippines. Pasteur Vaccine (PV) strain is used as outgroup. The tree was inferred using the Neighbor-Joining method, with evolutionary distances were computed using the Maximum Composite Likelihood method.

### 狂犬病ウイルス1型の系統樹

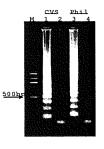


使用プログラム: ClustalX2 使用領域:完全長G遺伝子

### 図 4

# Reverse transcription loop-mediated isothermal amplification for rapid detection

( RT-LAMP )



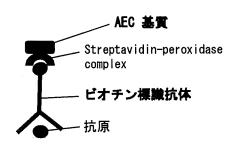
LTCZ/DVS/NIID ANID

### 図 5

### 迅速免疫組織化学検査法(dRIT)

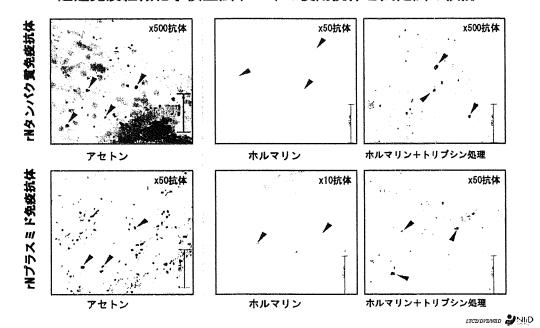
(direct rapid immunohistochemical test)

- ①脳のスタンプ標本の作製、風乾
- ②固定
- ③3% H<sub>2</sub>O<sub>2</sub> 処理 (10分)
- ④洗浄
- ⑤ビオチン標識抗体(10分)
- ⑥洗浄
- ⑦Streptavidin-peroxidase complex (10分)
- ⑧洗浄
- **⑨AEC 基質** (10分)
- 10洗浄
- ⑪対比染色(ヘマトキシリン) (2分)





### 図 6 迅速免疫組織化学検査法 (dRIT) の使用抗体と固定法の検討



### 図 7

### Experimental design

- ウイルス株: CVS-11

- マウス: 6wks、Female、C57BL/6J

- 感染:  $10^7$  focus-forming units/ $100 \mu$  Q

- 接種: Left ticeps surae muscle (IM)

- 採材: CNS (brain and spinal cord)、Serum

1241. One (brain and spinal cold); coldin

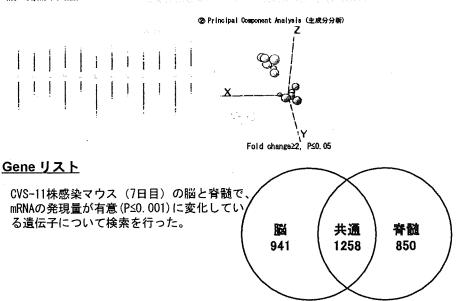
- 観察: Whole mouse genome microarray 44k probe(Agilent)

Cytokine assay (GM-CSF, IFN  $\gamma$ , IFN  $\beta$ , IL1  $\alpha$ , IL2, IL4, IL5, IL6, IL10, IL17, TNF  $\alpha$ , MCP3,

MCP1, RANTES, MIP1  $\alpha$ , MIP1  $\beta$ , IP-10)

Histopathology, Immunohistochemistry

Virus titer



LTCZ/DVS/NIID ANID

図9 GO (Gene ontology)解析 GO p-value Common biological\_process (25%)
complement activation, classical pathway
cytokine and chemokine signaling 0.0366 molecular function Brain <u>0</u> 0.0201 biological process 25.4% cellular component 49.2% 25/0/ 0.0096 caspase activity interleukin receptor activity polysaccharide binding 0.076 0.0207 chemokine activity
IgG binding
cellular\_component (37%)
extracellular region and space
MHC class 1
plasma membrane 0 0.0096 Common 37/1/6 ≤0.0361 25% Brain specific biological\_process (25.4%) small GTPase mediated signal transduction immune response cytoplasm 0.0302 38% 0.0388 immune response inflammatory response Chemotaxis response to virus 0.0636 0.0038 0.0114 0.0025 0.0096 response to virus
negative regulation of angiogenesis
molecular\_function (49.2%)
cytokine activity
sugar and calcium ion binding
cellular\_component (25.4%) Spinal cord 0.0114 ≤0.0754 plasma membrane
Spinal cord specific
molecular\_function (66%)
glutathione transferase activity ≤0,0001 66% 0.0817 0.0817 cation transporter activity
cellular\_component (34%)
neuron projection стехноство 🥻 🕦 🖸 axon



### Department of Health Research Institute for Tropical Medicine

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April 3, 2009

Dr. TATSUO MIYAMURA
Director
National Institute of Infectious Diseases
1-23 Toyama, Shinjuku-ku
Tokyo, Japan

Dear Dr. Miyamura,

Greetingsl

We would like to seek permission from your good office to invite **Dr. SATOSHI INOUE**, Chief of Laboratory 2 (Laboratory of Transmission and Control of Zoonosis), Department of Veterinary Science, National Intitute of Infectious Diseases, as one of the Lecturers in our "Rabies Workshop" to be held at the Research Institute for Tropical Medicine (RITM), Alabang Muntinlupa City, Philippines from 27 April to May 1, 2009.

The Airfare, accommodation, per diem and other incidental expenses which will incur in the travel of Dr. Inoue to the Workshop will be shouldered by the project.

Thank you and we are hoping for your favorable approval on this request.

Sincerely yours,

REMIGIO M. OLVEDA, MD

Director

"PHIC Accredited Fiealth Care Provider"



# TOWARDS RABIES CONTROL IN THE RITM-TOHOKU COLLABORATION WORKSHOP: RESEARCH WORKING RITM-TOHOKU RESEARCH COLLABORATION WORKSHOP:

WORKING TOWARDS RABIES CONTROL IN THE PHILIPPINES TRAINING CENTER LECTURE ROOMS 2 AND 3, RITM ALABANG, MUNTINLUPA CITY 29-30 APRIL 2009

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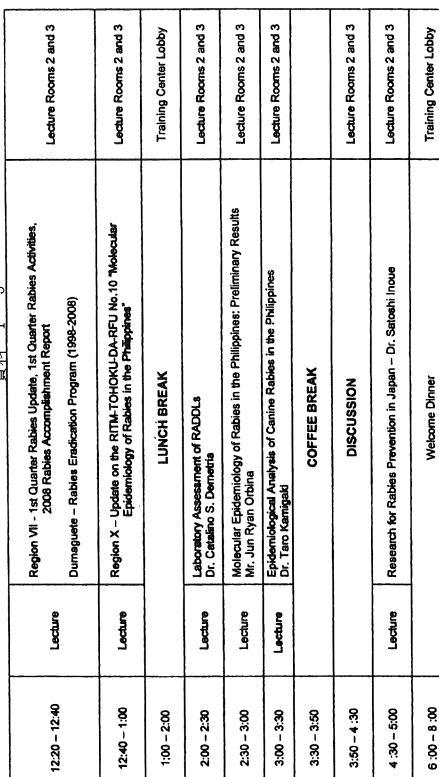
RITIM-DOH 29-30 APRIL 2009

PHILIPPINES



TOHOKU





TOWARDS RABIES CONTROL IN THE

RITIM-DOH 29-30 APRIL 2009

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COLLABORATION

RESEARCH

WORKSHOP:

WORKING



TOHOKU

Moderator. Dr. Daria L. Manalo

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CONTROL IN THE

RABIES

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To: Dr. Satoshi Inoue, D.V.M., PhD

Chief, laboratory of Transmission Control of Zoonosis

Department of Veterinary Science

National Institute of Infectious diseases, Japan.

Email: sinoue@nih.go.jp

Date: 14th July, 2009

Sub: Invitation to participate in the 2<sup>nd</sup> International conference on Rabies, September 9-11, 2009 and in ASEAN + 3 meeting on rabies to be held on 7<sup>th</sup> & 8<sup>th</sup> September, 2009.

Dear Dr. Satoshi Inoue,

On behalf of organizing committee, National Institute of Hygiene and Epidemiology, Viet Nam, we would like to invite you to kindly inaugurate the 2<sup>nd</sup> international conference on rabies viz. RIACON 2009 and the ASEAN + 3 meeting to be held at Horison hotel in Hanoi, from September, 7-11, 2009.

We also expect to your lecture on "Rabies in Japan [Country report]" for RIA CON and deliver presentation on "Country and advocacy plan for Rabies control and prevention" for the ASEAN + 3 meeting.

The cost of your registration fees, travel and accommodation will be borne by the 2<sup>nd</sup> RIA CON 2009. On receiving your confirmation further details will be provided.

A copy of the programme is enclosed for your kind attention.

Best wishes and kind regards,

Im

Assoc. Prof. Nguyen Thi Hong Hanh, MD., PhD.

Vice-Director

National Institute of Hygiene and Epidemiology

Sponsors for 2 nd RIACON



The vaccines division of sanofi-aventis Group









### ASEAN Plus Three Workshop on Strengthening National Rabies Programmes

7 – 8 September 2009, Hanoi, Vietnam

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### **Final Report of the**

### Workshop on Policy Advocacy Strategy Development on Rabies Control and Prevention among ASEAN+3 countries

Venue: Hanoi, Vietnam

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### Rabies Control & Prevention Policy Advocacy Framework

### Introduction

This report presents a framework for conducting advocacy activities aimed at increasing support among key public officials for eliminating rabies in ASEAN member states. It has been produced in follow-up to the <u>CALL FOR ACTION</u>, "Strengthening Cooperation and Information Sharing on Rabies among ASEAN plus Three Countries," developed at the 23–25 April 2008 workshop in Ha Long, Viet Nam. It was produced as a result of a second workshop held on 11-13 May, 2009 in Hanoi. Participants in this workshop included representatives from Viet Nam, Thailand, the Philippines, Myanmar, Cambodia, Laos and China. Technical experts from the WHO, CDC, WSPA and ASEAN Secretariat also participated in the meeting.

Advocacy is defined as the attempt to persuade or convince; it is intended to put pressure on people with power to change and improve a situation. To create an Advocacy Plan, three critical questions must be addressed:

- WHAT is the desired goal or action that you are seeking to achieve? What are you trying to convince people to do?
- WI-IO are you trying to convince? Who are your primary and secondary target audiences?
- HOW are you going to convince them to support the desired goal? What is your strategy?

This report provides recommendations on each of these key points.

### What? Goals

The health goal of Rabies Control and Prevention is to eliminate rabies in each ASEAN country by the year 2020.

To achieve the health goal, the advocacy goal is to secure the resources needed to eliminate rabies.

To achieve the advocacy goal, three main resources are needed: (1) financial, (2) policy/legislation, and (3) leadership. Significant improvements in decreasing rabies incidence can be achieved without new money or legislation, but they require leadership. Leadership is defined as the ability to inspire others to adopt one's values, in this case, the value of eliminating rabies. By speaking out strongly in favor of eliminating rabies, leaders can persuade others to take step to eliminate rabies, even without additional financial resources. All of the action steps described below are directed towards achieving the advocacy goal of gaining the resources necessary to eliminate rabies.

### Who? Target Audiences

To achieve the advocacy goal, the action plan presented here is designed to generate active support in three target audiences: (1) policymakers, (2) relevant government officials (health and animal control officials) and (3) the general public. Each action step is designed to contribute to the goal of increasing support in these three groups. Effective advocacy strategies are often designed to persuade one target audience to lobby another group, for example, to ask

community members (general public) to talk to their government representatives (policymakers) about the need to eliminate rabies, in order to prevent the terrible pain and suffering caused by the disease.

### How? Strategy

After identifying the goals and target audiences, the next step in creating an advocacy plan is to identify strategies that will effectively persuade, convince and put pressure on policymakers, government officials and the general public to provide the resources needed to eliminate rabies by 2020. To develop an effective strategy, one starts by analyzing their concerns and priorities, their incentives and barriers: What is important to them? What are their priorities? Why should they care about rabies? How does taking the action that you advocate regarding rabies benefit them? What are the barriers (or costs) that they face in taking the desired action? This analysis is essential to inform one's advocacy strategy.

Strategy has two major elements: (1) messages and (2) delivery channels. In general, advocacy messages highlight the benefits and minimize the costs of taking the proposed action (appropriately tailored to each audience). In addition to the message content, people are also influenced by the process, the delivery channel: how the message is delivered to them. People are more likely to respond in the desired direction to (a) sources that they think are credible, and (b) their superiors, people who have power over them. When implementing an advocacy plan, it is important to choose the most effective "communication channel," to carefully select how the message is delivered to the intended target audience.

Messages: As a starting point for developing messages, people, in general, respond to rational appeals. They are more likely to take action where the benefits obviously outweigh the costs; conversely, it is very difficult to convince people to do anything where the costs are perceived to outweigh the benefits. Therefore, for our purposes, it is essential to show that it is feasible to eliminate rabies with modest, affordable increases in funding and that eliminating rabies (through dog vaccinations) will, in short time, save the government money relative to the high costs of administering PEP to people who have been exposed. Most importantly, eliminating rabies will save lives. (This point is sometimes stated in economic cost-benefit terms, e.g., eliminating rabies will reduce lost productivity due to premature death, etc.).

The biggest challenge in securing greater financial support for rabies control and prevention is the general lack of concern about rabies -- rabies is the "invisible" disease, the "neglected" disease - especially in the face of competing pressures on the use of scarce public resources. As a rule, putting additional funding into rabies control and prevention means taking money out of other potentially worthwhile projects (at least in the short run). To be successful in conducting advocacy activities, it is therefore important to remember that the perceived costs and benefits must be expanded beyond mere financial considerations to include more emotional appeals.

One important benefit to key target audiences is fame. One major cost is shame. Supporting the effort to eliminate rabies will enable contributors to claim credit for achieving a most praiseworthy goal; they can say that, due to their support, rabies has been (or is on the way to being) eliminated in their country. They have saved lives. They have put their country ahead of other countries that have failed to prevent unnecessary human suffering. Conversely, failing to support the effort to eliminate rabies would make them culpable, would make them responsible for each unnecessary and preventable rabies death that occurs in their country each year. They would be responsible for making their country one of the last on earth to stop rabies. Dying from rabies is a horrifying, painful way to die, and it predominantly affects children. They should be ashamed.

Delivery Channels: There are many different ways of getting one's messages to identified target audiences. Each action step described below offers ideas about the best way to get your message across to the audience that you are trying to reach. Even if the content of the message is quite similar, how the message is delivered needs to be tailored to the respective target group in order to maximize its impact.

### Actions steps

The action steps that follow are designed to raise public awareness about (a) the worldwide goal of eliminating rabies, (b) the ready availability of existing scientific technologies for accomplishing this goal, and (c) the tremendous value of preventing unnecessary human deaths due to rabies. They are designed to take rabies from being the "invisible," "neglected" disease to putting it on the national agenda as an important priority needing attention and action today. The objectives for the three major target audiences are:

- For policymakers, the action steps are designed to put pressure (1) to enact model legislation to provide state officials with the power and authority to compel dog vaccinations (and other steps, such as regulations regarding stray dog control); and (2) to increase funding for rabies control and prevention programs.
- For government officials, they are designed to convince them (1) to provide leadership in making rabies control and elimination a priority, demonstrated by (a) allocating sufficient human and financial resources within their discretionary budgetary authority to reduce rabies incidence, and (b) holding responsible parties accountable for achieving measurable progress in eliminating rabies; and (2) to demonstrate inter-sectoral collaboration between health and animal control officials, as evidenced by joint reports and joint testimony on the need to increase funding for dog vaccination programs.
- For the general public, they are intended to generate broad public support for the call to eliminate rabies, as evidenced by their support and participation in activities aimed at influencing policymakers to increase funding for rabies control and prevention.

In this Advocacy Strategy Plan, ten recommended action steps are:

- 1. Produce Country Report
- 2. Develop Policy Brief
- 3. Convene National Advisory Board (for external public relations purposes)
- 4. Convene National Steering Committee (for internal planning purposes)
- 5. Develop National Plan for the Control and Elimination of Rabies
- 6. Develop media strategy
- 7. Issue Annual Progress Reports
- 8. Enact (or improve) national legislation
- 9. Provide leadership on increasing dog vaccination rates
- 10. Establish Provincial Coordinating Committees

NOTE: The countries involved in the Hanoi workshop in May 2009 are at different stages in implementing effective rabies prevention and control programs. Several Action Steps presented in this report have already been completed by some countries, and hence, may be skipped depending on one's current situation.

### Action Step #1: Produce Country Report

The first step is to produce a Country Report that describes the current disease burden of rabies and prevention and control programs in one's country.

### Strategy:

Purpose (what): The purpose of the Country Report is to raise awareness about rabies, to increase its visibility, and to put its elimination on the national agenda. The Country Report provides the fundamental justification to the National Government, the Department of Health (DOH), and Department of Agriculture (DOA, or wherever responsibility for Animal Health resides within the government) for making rabies a priority health problem.

Target Audiences (who): The primary target audiences for the Country Report are the Ministers of Health, Agriculture (or Animal Control), and Finance. Other important audiences might include the Minister of Tourism and Minister of Economic Development, in order to enlist their support in reinforcing the need for increasing funding for rabies control and prevention programs (e.g., they can tell the Minister of Finance how much rabies costs the country from their perspective each year).

Key themes (message): The message of the Country Report must be blunt and direct: Rabies can be eliminated; any deaths from rabies are unnecessary and preventable; dying from rabies is a horrifying experience that predominantly affects children. Each section of the report should support and reinforce this key theme.

Delivery Channel: To persuade the targeted government officials, the Country Report should be presented as an official report by national authorities on rabies control and prevention. (In most cases, this means the national representatives who participated in the Hanoi workshop on Policy Advocacy.)

Recommendations: Producing the Country Report should not be unduly burdensome. To make writing the Country Report manageable, authors can start by building on the presentations that they (and others) made at the Hanoi workshop. A suggested outline of the Country Report is presented in Annex I. To produce this report, authors are encouraged to make use of existing data (from the WHO, CDC and other sources), rather than expending significant time and resources in collecting new data or assembling and analyzing a lot of data from different domestic sources (see, for example, WHO Expert Consultation on Rabies, 2005, Technical Report Series 931; available at:

http://whqlibdoc.who.int/trs/WI-IO\_TRS\_931\_eng.pdf.)

The most difficult part of the Country Report is estimating the amount of new resources that are needed for eliminating rabies. There is no simple formula here. Increases in funding are most likely going to come in annual incremental steps, so it may be helpful to think about what an effective system for rabies control and prevention system must include by the year 2020 and work back from there.

Next steps: Participants in the Hanoi workshop will aim to have their respective Country Reports completed by the follow-up meeting in September.

### Action step #2: Develop Policy Brief

A policy brief is a short 1-3 page (maximum) statement that highlights the key points contained in the Country Report. Policy Briefs are necessary to produce because policymakers do not

have time to read long reports. They need a concise "bullet-point" fact sheet that makes the case for the recommended actions: (1) allocate more money, and (2) enact better legislation.

### Strategy:

Purpose (what): The Policy Brief serves two purposes: first, to raise awareness about the value and feasibility of eliminating rabies; and second, to present a request for the resources necessary to do the job. The policy brief is used to enlist the support of potential allies among the national policymakers for increased funding. It also lays the foundation for enacting new or revised national legislation defining policies for rabies control and prevention.

Target Audience (who): The target audiences for the Policy Brief are those national and regional legislators who are likely to be sympathetic to the cause of eliminating rabies (for example, health care committee members and policymakers who are physicians or veterinarians). Another key target audience for the Policy Brief is staff members who work in the Finance Ministry with responsibility for overseeing the development of the Health and Agriculture (Animal Control) budgets.

Key themes (message): The paired, linked messages of the Policy Brief are: Rabies can be eliminated (any deaths from rabies are unnecessary and preventable, dying from rabies is a horrifying experience that predominantly affects children); and to eliminate rabies, the funding request herein is absolutely necessary.

Delivery Channel: To influence policymakers, the Policy Brief should be delivered by officials with the highest standing possible in the Ministries of Health & Agriculture, preferably by the Ministers themselves (or one of their staff). If possible, it is preferable to deliver the Policy Brief in person, meeting directly with targeted policymakers or their staff.

Recommendations: The Policy Brief should be based on the Country Report. Everything in the Policy Brief should be contained in the Country Report (which is where people who are interested can find greater detail and information). The funding request should provide an overview of the resources needed for scaling up specific areas including dog vaccination programs, PEP, labs, staffing, surveillance system, and training programs, and then it must prioritize the funding request: which projects are most important. The Policy Brief must be short, highlighting the major points that policymakers need to know to see the benefit of eliminating rabies and how it can be done.

It may also be helpful to prepare a separate fact sheet outlining the cost-effectiveness of vaccinating dogs versus providing PEP to humans.

Next steps: Participants in the Hanoi workshop will draft Policy Briefs completed by the follow-up meeting in September.

Action step #3: Convene National Advisory Board (for external public relations purposes)

The next two action steps are to convene a National Advisory Board and to convene a National Steering Committee. These two bodies have different purposes and different memberships. The National Advisory Board is composed of high profile, publicly well known opinion leaders, celebrities, luminaries and champions of the cause of eliminating rabies. Members of the National Advisory Board are invited based on what they can do to raise public awareness – people who can gain mass media coverage and the attention of policymakers by virtue of their public renown, not for their technical expertise (although it is important to have at least 1-2