



# Laboratory Methods for Detecting Rabies Virus

February 5-9, 2017  CDC, Atlanta, GA

Sponsored by the National Laboratory Training Network *in collaboration with* the Division of High-Consequence Pathogens and Pathology, Centers for Disease Control and Prevention

## DESCRIPTION

Designed for individuals performing rabies testing in public health laboratories, this four and one-half day workshop addresses traditional rabies testing techniques, safety in the rabies laboratory, specimen acquisition and preparation, rabies quality control and proficiency testing, standardized testing procedures, emerging technologies, and epidemiologic issues.

## OBJECTIVES

At the conclusion of this program, the participant will be able to:

- Describe the basic properties of the rabies virus, its transmission, and disease course as well as relevant epidemiology of rabies in the United States.
- Assess the critical role of the rabies laboratory in terms of diagnostic capability and the interpretation of laboratory results as well as prevention and control of rabies in humans and animals.
- Recommend safe practices for those working in rabies diagnosis or shipping laboratory specimens.
- Identify and prepare appropriate specimens for rabies diagnosis.
- Review the importance of standardized DFA testing according to the national protocol.
- Demonstrate proficiency in observing DFA slides, detecting rabies virus antigen when present, and correctly interpreting difficult test results with sparse antigen or non-specific staining.
- Summarize quality control and quality assurance procedures for the rabies diagnostic laboratory.

## AUDIENCE

This advanced-level workshop is designed for the public health microbiologists with responsibilities for bench testing or supervising the rabies laboratory. Participants must be familiar with the general methods for safe handling of infectious viruses.

## CONTINUING EDUCATION

The Association of Public Health Laboratories (APHL) is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. Participants who successfully complete this program will be awarded 34 contact hours. Event Number: 588-100-18.

## LOCATION

Centers for Disease Control and Prevention Atlanta, GA

## APPLICATION

**Application Deadline: November 1, 2017**

- **The preliminary application is to be completed online at <https://www.surveymonkey.com/r/100-18RabiesApp>.**
- Only completed applications received by the deadline will be considered. Application does not guarantee acceptance.
- If you are unable to complete the application online, email Marisa Barley at [marisa.barley@aphl.org](mailto:marisa.barley@aphl.org) or phone +1 240.485.3843.
- Participants will be selected according to the degree to which the applicant's job description, experience, and responsibilities are consistent with the workshop objectives.
- Notification of acceptance status will be sent via email after November 13, 2017.
- **Requirement: Applicants must fax proof of rabies immune status prior to the application deadline to APHL at +1 888.242.5619 in order for application to be considered.**

## REGISTRATION

- **Fee: Free Registration!**
- Registration and logistical details will be provided upon acceptance into the course.
- It is important to start the travel approval process (without making any non-refundable travel plans) with your state or local agency as soon as possible. Do not make any non-refundable travel arrangements until you are notified of acceptance into the course.
- Participants are responsible for all lodging, meals, and travel costs.

## SPECIAL NEEDS

In compliance with the Americans with Disabilities Act (ADA), individuals seeking special accommodations should submit their request in writing at least three weeks prior to start date of the workshop to [Marisa Barley](mailto:Marisa Barley), APHL Customer Support. For more information phone +1 800.536.6586 or +1 240.485.3843.

## QUESTIONS?

Please email [Marisa Barley](mailto:Marisa Barley), APHL Customer Support.

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The National Laboratory Training Network is a training system sponsored by the Association of Public Health Laboratories (APHL) and the Centers for Disease Control and Prevention (CDC).

For a complete list of courses, visit <https://www.aphl.org/training>.



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## PRELIMINARY AGENDA *15 minute breaks included daily in a.m. and p.m.*

### Day 1 Monday, February 5, 2018

- 7:30 a.m. Welcome and Course Overview  
7:45 Safety in the Training Lab  
8:00 Pre-Test  
8:20 **Lecture:** Rabies Direct Fluorescent Antibody Test (DFA):  
Need for a Standardized Testing Procedure in the US  
8:50 **Lecture:** Basic Rabies Pathogenesis  
9:10 **Lecture:** Safety in the Rabies Laboratory, Shipping  
Guidelines  
9:40 **Video:** Removal of Brains from Animals for Rabies  
Diagnosis  
10:15 **Lecture:** Lab Instructions  
10:45 **Laboratory:** Dissection of Brain Tissues, Preparation of  
Slides  
**Demonstration:** Removal of Brains from Foreman  
Magnum  
12:30 p.m. Lunch (on your own in CDC cafeteria)  
1:30 **Lecture:** DFA National Standard Protocol  
2:00 **Lecture:** Fluorescence Microscopy: Basic Principles,  
Selection, Use and Preventive Maintenance  
2:30 **Laboratory:** Demonstration of Basic Microscope  
Orientation, Safe Replacement and Alignment of a  
Microscope Lamp  
3:00 **Laboratory:** Observe Pre-Stained DFA's on Brain  
Impression Slides: Strong Positive, Negative and Weak  
Positive Slides  
**Proficiency Challenge 1:** Anatomical Identification of  
Brain Tissues, Evaluation of Slides for Testing  
4:30 Group Discussion  
5:00 Adjourn

### Day 2 Tuesday, February 6, 2018

- 8:00 a.m. **Lecture:** Lab Instructions  
8:30 **Laboratory:** Perform DFA Tests on Slides Prepared the  
Previous Day, Unknowns, Observation of DFA Test Slides  
11:00 **Lecture:** Confirmatory DFA Repeat Testing  
11:30 **Lecture:** Trouble Shooting DFA Tests: Staining,  
Mounting, Reading, and Interpretation  
12:00 p.m. Lunch (on your own at a CDC cafeteria)  
1:00 **Lecture:** Lab Instructions  
1:30 **Laboratory:** Perform Confirmatory DFA on Unknown  
Slides, Observe Confirmatory DFA Test Slides  
**Proficiency Challenge 2:** Interpretation of DFA Slides  
4:00 **Lecture:** Quality Assurance, Rabies Proficiency Testing  
(PT), Personnel Training for Competency  
4:30 Group Discussion  
5:00 Adjourn

### Day 3 Wednesday, February 7, 2018

- 8:00 a.m. **Lecture:** Direct Rapid Immunohistochemistry Future  
Confirmatory Test (DRIT)  
8:30 **Laboratory:** DRIT Confirmatory Test  
11:00 **Laboratory:** Observe DRIT Slides  
11:30 **Lecture:** Conjugate Titration  
12:00 p.m. Lunch (on your own at a CDC cafeteria)  
1:00 **Lecture:** Lab Instructions, Conjugate Titration  
1:30 **Laboratory:** Conjugate Titration  
**Proficiency Challenge 3:** DRIT Slides, Confirmatory DFA  
4:30 Group Discussion  
5:00 Adjourn

### Day 4 Thursday, February 8, 2018

- 8:00 a.m. **Lecture:** Bat Identification  
8:30 **Laboratory:** Bat Identification, Observe and Discuss DFA  
and DRIT Slides Previously Tested, and PT Test Slides  
10:30 **Lecture:** Antigenic Typing  
11:00 **Lecture:** RT-PCR  
11:30 **Lecture:** Molecular Epidemiology of Rabies Virus  
12:00 p.m. Lunch (on your own at a CDC cafeteria)  
1:00 **Lecture:** Lab Instructions, Antigenic Typing  
1:15 **Laboratory:** Antigenic Typing of Unknown Samples,  
Observe Unknown/Known Antigenic Typing Test Slides  
**Proficiency Challenge 4:** Bat Identification  
4:30 Group Discussion  
5:00 Adjourn

### Day 5 Friday, February 9, 2018

- 8:00 a.m. **Lecture:** Lab Instructions, PT, Post-Test  
9:00 **Lecture:** Clinical Aspects of Rabies in Humans and  
Human Diagnosis  
9:30 **Lecture:** Pre and Post-Exposure Prophylaxis Issues  
10:00 **Lecture:** Rabies Surveillance in the USA  
11:00 Final Group Discussion  
11:45 Evaluation  
12:00 p.m. Adjourn

## FACULTY

### Poxvirus and Rabies Branch, Division of High-Consequence Pathogens and Pathology, National Center for Emerging and Zoonotic Infectious Diseases, CDC, Atlanta, GA

- James A. Ellison, PhD, Microbiologist  
Yu Li, PhD, Molecular Diagnostic Team Lead  
Michael Niezgod, MS, Microbiologist  
Lillian A. Orciari, MT, MS, Microbiologist  
S. Sathesh Panayampalli, PhD, Immunodiagnosics Team Lead  
Brett W. Peterson, MPH, MD, Medical Officer  
Andres Velasco-Villa, PhD, Associate Service Fellow  
Pamela Yager, BS, Public Health Laboratory Technologist  
Crystal Gigante, PhD, Oak Ridge Inst for Science & Education (ORISE)

### Specimen Management Branch, Division of Scientific Resources, National Center for Emerging and Zoonotic Infectious Diseases, CDC Atlanta, GA

Yvonne Stifel, BS, Biologist

## INVITED FACULTY

### Wisconsin State Laboratory of Hygiene, Madison, WI

James Powell, MS, Senior Microbiologist, Rabies Unit

## NOTE \*SECURITY CLEARANCE REQUIREMENTS

**NON-US CITIZENS** - This course will be held at the CDC Roybal campus. Due to CDC requirements for security clearance, all non-US citizens will be asked to provide information needed to obtain clearance, which will only be used for the purposes of attending this course. Detailed instructions will be provided upon acceptance into the course. Please do not make any nonrefundable travel plans until you have received confirmation of acceptance into the course and security clearance approval.

**US CITIZENS** - If you are a US CITIZEN there is no extra clearance process required.