

1. Dr. Cory Brayton, DVM; Diplomate, ACLAM; Diplomate ACVP

Associate Professor of Molecular and Comparative Pathobiology

Director, Phenotyping Core

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Background and Training

1981 B.A. Williams College

1985 D.V.M. Cornell University

1997 Diplomate, American College of Laboratory Animal Medicine

1997 Diplomate, American College of Veterinary Pathologists



Dr. Brayton received her D.V.M. from Cornell University, and did postdoctoral research and pathology training in New York City at the Animal Medical Center, Cornell University and The Rockefeller University. At The Rockefeller University (1989-1992), she became specifically interested in the pathology and characterization (phenotyping) of genetically engineered mice (GEM), and continued to pursue this interest at several institutions while heading the Facility for Comparative Studies at the Hospital for Special Surgery (1992-1998). At Baylor College of Medicine (1998-2004), she headed the Comparative Pathology Laboratory, and was responsible for health surveillance and diagnostic pathology for a diverse research population including more than 150,000 mice. She also was associate professor in pathology, associate director of the Center for Comparative Medicine, interim attending veterinarian, and served on the IACUC, while pursuing research collaborations, teaching initiatives, and developing national and international conferences on the characterization and pathology of genetically engineered mice.

In 2004 she moved to Johns Hopkins to develop a collaborative phenotyping core based in the Department of Molecular and Comparative Pathobiology (MCP), where veterinarian faculty investigators and trainees provide a unique comparative and translational research resource, in an institution with exceptional resources for multidisciplinary biomedical research.

Current Roles

The Phenotyping Core aims to assist in phenotyping genetically engineered animals, and to facilitate interdisciplinary collaborations. As director of this collaborative core effort, Dr. Brayton has reached out to JHU faculty investigators who wish to participate in multidisciplinary phenotyping and translational research initiatives, and additional participants are always welcome. We organized a JHU Phenotyping Symposium 2006, 2007, 2008, and a new phenotyping course (2007, 2008) that emphasize JHU resources and faculty. She has developed a website, a newsletter, a monthly comparative pathology and phenotyping slide conference. She has become involved in national and international phenotyping initiatives, conferences and workshops to promote understanding of mouse

biology, pathology and phenotyping.

Learn more about the Phenotyping Core .

Contact me with specific questions, or to participate in the core.

Research

Dr. Brayton's primary research interest is in collaborating as a pathologist in phenotyping and other translational research initiatives. Whether caused primarily by intended genetic manipulations, spontaneous mutations, experimental compounds, infections or other intended manipulations, phenotypes also are impacted by nature and nurture influences. Dr. Brayton's expertise includes the spontaneous pathology and genetics of research mice, as well as the impact of infectious and other environmental factors on pathology and other phenotypes. She has published on comparative cardiovascular, pulmonary, renal, musculoskeletal, hematopoietic, neural and ophthalmic pathology, comparative carcinogenesis, autoimmune diseases and infectious diseases, in mice and other species.

Contact me to discuss phenotyping, collaboration or research pathology needs.

Teaching

Dr. Brayton's primary teaching interest is to enhance and promote understanding of model organism biology and pathology, especially as it is relevant to phenotyping and experimental design for translational research. She has developed, directed, co-directed, and lectured in symposia, conferences, courses and workshops, relevant to phenotyping, pathology, genetics of mice and other laboratory animals, in the US and abroad. She has authored and coauthored books, chapters and invited reviews on mouse biology and pathology. At JHU, she developed the JHU Phenotyping Symposium 2006, 2007, 2008, and developed a new course (680.712) in the graduate school Phenotyping for Functional Genetics. She also participates as faculty and lecturer in 680.701 Principles of Animal Pathology & Genetically Engineered Mice; 680.702 LAM/PATH Integrated Problem Solving; 680.711 Comparative Pathology Conference; Toxicological Pathology, Bloomberg School of Public Health.

Selected References

<http://www.hopkinsmedicine.org/mcp/faculty/brayton.html>

2. Dr. David Malarkey, D.V.M., Ph.D., D.A.C.V.P.

Group Leader, National Toxicology Program (NTP)

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Research Triangle Park, North Carolina 27709



The National Toxicology Program (NTP) Pathology Group functions primarily in support of the NTP as well as with other intramural NIEHS investigators. Within the NTP, the group participates in and oversees pathology -related issues at all stages of the two-year rodent toxicology/carcinogenesis studies including study design and management, analysis, peer review, and reporting of all pathology -related data generated during the conduct of the studies. With NIEHS investigators the group evaluates, interprets and reports on the mechanisms of disease as well as pathology of genetically altered and other animal models of disease.

Preparation of NTP Toxicology and Carcinogenesis (Technical) Reports

The NTP Pathology Group reports on the toxicology and carcinogenesis studies of the NTP for public peer review and dissemination. The data is managed by the staff in the NTP data coordination unit (DCU). The Technical Report series represents the culmination of the entire NTP bioassay process. The publicly peer reviewed documents and the final book-length monographs, contain the full study details and the formal NTP interpretation of the toxicologic and carcinogenic potential of the substances tested.

Studies

Studies include those directed at characterizing the utility of rodent models of disease and identifying environmental hazards as well as investigating the pathogenic mechanisms involved in toxicity or carcinogenesis. Group efforts to explore the utility of genetically altered mice to detect carcinogens in short-term studies, evaluate the immune and reproductive systems, establish standardized nomenclature, and apply rigorous pathology peer review are underway. Collaborative efforts in support of NIEHS intramural scientists have resulted in a number of publications (<http://www.niehs.nih.gov/research/atniehs/labs/lep/ntp-path/pubs.cfm>) including characterizing cardiotoxicity, hepatotoxicity, toxicogenomics and elucidating mechanisms of environmental carcinogenesis.

NIEHS/NTP Toxicological Pathology Training Programs

The NTP Pathology Group offers specialty training positions for veterinary pathology trainees and other scientists, as well as externships for veterinary or other students. The NTP and NIEHS are fertile grounds for training in toxicologic pathology and understanding the pathogenesis of environmental disease. Many trainees use microscopic slides from NTP

studies and the CMPB laboratories for their training. Additionally, in assessing mechanisms of disease, trainees rotate in CMPB or other NIEHS laboratories such as the Comparative Pathology, Molecular Pathology and Special Techniques, whereby molecular pathology techniques, pathology and electron microscopy interpretation, protein, DNA and RNA techniques, and cell culture procedures are applied.

The CMPB laboratories serve to train graduate, predoctoral and postdoctoral fellows, as well as international fellows and guest researchers in toxicologic pathology and environmental research. The CMPB laboratories have mentored and trained students who have pursued advanced careers in human medicine, veterinary pathology/medicine, pharmacy, nursing, epidemiology/public health and toxicology. For more information please see pathology student externships

(/research/atniehs/labs/lep/ntp-path/docs/student-vet-path-externship.pdf) and

postdoctoral fellowships in toxicological pathology

(/research/atniehs/labs/lep/ntp-path/docs/postdoc-fellowship-tox-path.pdf)

NIEHS & NTP Collaborative Research

The training program is led by David Malarkey, D.V.M., Ph.D., D.A.C.V.P. He earned his D.V.M. from Tufts University and Ph.D. from North Carolina State University. He has over 15 years experience in diagnostic pathology and teaching and has mentored over 50 pathology trainees, veterinary students, or graduate students. Malarkey has also published over 50 peer-reviewed articles as well as several book chapters, primarily in the areas of hepatic carcinogenesis, molecular carcinogenesis, and toxicologic pathology. He previously was an NIEHS IRTA fellow (1993-1997) and Assistant Professor of Pathology at North Carolina State University (1997 -2002) before re-joining NIEHS in 2002.

Selected References

<http://www.niehs.nih.gov/research/atniehs/labs/lep/ntp-path/index.cfm>

3. Dr. Jerrold M. Ward, DVM, PhD, Diplomate, ACVP

Veterinary Pathologist

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globalvetpathology@gmail.com



Dr. Ward received his DVM from Cornell University and PhD in Comparative Pathology from The University of California at Davis. He is a Diplomate of the American College of Veterinary Pathologists (ACVP). Dr. Ward has spent much of his career in veterinary pathology employed by the US federal government. He was at the National Cancer Institute in several programs in toxicology (cancer drug development), chemical carcinogenesis and laboratory animal pathology. Dr. Ward was in the original NCI Carcinogenesis Bioassay Program in the 1970s testing environmental chemicals that led, in part, to the present National Toxicology Program (NTP) and was head of Tumor Pathology for NTP in its first few years. For the past 15 years much of his work has involved veterinary pathology support of cancer, immunology and infectious disease research, especially involving genetically-engineered mice. He is presently a consultant in veterinary pathology for laboratory animal pathology and toxicologic pathology. His special interests include pathology of the lymphoid system, liver, and respiratory tract, tumor pathology and immunohistochemistry. He is a co-author of numerous publications in journals, book chapters and has co-edited several books. He was editor of "Pathology of Genetically-engineered Mice", and co-editor of "Pathology of the Aging Mouse". He was a co-author of the NCI mouse models of Human Cancer Consortium's tumor classifications for the lymphoid and myeloid systems, prostate, gastrointestinal and respiratory systems. He is presently a member of the InHAND international pathology nomenclature committees for the immune system and liver. Dr. Ward's many publications have involved the full spectrum of medical research including tumor pathology, phenotyping genetically-engineered mice and the uses of rodents in toxicology, carcinogenesis, immunology, infectious diseases, cancer drug and vaccine development and aging. Dr. Ward was on the Executive Committee of the Society of Toxicologic Pathology (STP) recently and is an Associate Editor for *Toxicologic Pathology* and *Veterinary Pathology*. He is also a member of the Scientific Advisory Board for The Center for Genomic Pathology.

4. Dr. Tamio Furuse, PhD

Research and Development Scientist

Technology and development team for mouse phenotype analysis

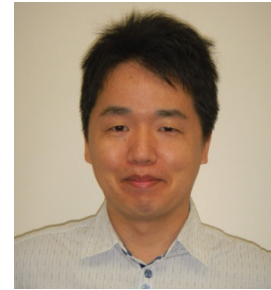
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Education

2003 Awarded the degree of Ph.D. for a thesis entitled "Behavioral study on nutrition intake, using wild-derived mouse strains" in Tokyo University of Agriculture and technology.

Research and professional experience

2003-2004: Post doctoral fellow at Mouse Genomics Resource Laboratory, National Institute of Genetics.

2004-2006: Research associate at Mutation research exploration team, mouse functional genomics research group, Riken GSC.

Participating in the behavioral screening for ENU induced mutant mice.

2006-2008: Research scientist at Mutation research exploration team, mouse functional genomics research group, Riken GSC.

Participating in the behavioral screening for ENU induced mutant mice.

2008-present: Research and Development Scientist at Technology and development team for mouse phenotype analysis, Japan Mouse Clinic, RIKEN BioResource Center (BRC)

Membership of Academic Societies

Japanese Association for Laboratory Animal Science

The Japan Neuroscience Society

The Genetic Societies of Japan

The Molecular Biology Society of Japan

Society of Neuroscience

Selected References

- Wada Y., Furuse T., Yamada I., Masuya H., Kushida T., Shibukawa Y., Nakai Y., Kobayashi K., Kaneda H., Gondo Y., Noda T, Shiroishi T., Wakana S. ENU mutagenesis screening for dominant behavioral mutations based on normal control data obtained in home-cage activity, open-field, and passive avoidance tests. *Exp Anim.* 59(4):495-510 2010.
- Furuse T., Wada Y., Hattori K., Yamada I., Kushida T., Shibukawa Y., Masuya H., Kaneda H., Miura I., Seno N., Kanda T., Hirose R., Toki S., Nakanishi K., Kobayashi K., Sezutsu H., Gondo Y., Noda T., Yuasa S., Wakana S. Phenotypic characterization of a new Grin1 mutant mouse generated by ENU mutagenesis. *Eur J Neurosci.* 2010 Apr;31(7):1281-91.

2010.

- Tanaka N., Waki K., Kaneda H., Suzuki T., Yamada I., Furuse T., Kobayashi K., Motegi H., Toki H., Inoue M., Minowa O., Noda T., Takao K., Miyakawa T., Takahashi A., Koide T., Wakana S., Masuya H. SDOP-DB: a comparative standardized-protocol database for mouse phenotypic analyses. *Bioinformatics*. 15;26(8):1133-4. 2010.
- Wakana S., Suzuki T., Furuse T., Kobayashi K., Miura I., Kaneda H., Yamada I., Motegi H., Toki H., Inoue M., Minowa O., Noda T., Waki K., Tanaka N., Masuya H., Obata Y. Introduction to the Japan Mouse Clinic at the RIKEN BioResource Center. *Exp Anim*. 2009 Oct;58(5):443-50.
- Furuse T., Miura, Y., Yagasaki, Y., Shiroishi, T., Koide, T. Identification of QTLs for differential capsaicin sensitivity between mouse strains KJR and C57BL/6. *Pain*, 105: 169-175, 2003.
- Furuse, T., Takano-Shimizu, T., Moriwaki, K., Shiroishi, T., Koide, T. QTL analyses of spontaneous activity by using mouse strains from Mishima battery. *Mamm. Genome*, 13: 411-415, 2002.
- Furuse, T., Blizard, D. A., Moriwaki, K., Miura, Y., Yagasaki, K., Shiroishi, T., Koide, T. Genetic diversity underlying capsaicin intake in the Mishima battery of mouse strains. *Brain Res Bull.*, 57:49-55, 2002.

5. Dr. Wakana Shigeharu, PhD

Team Leader

Technology and development team for mouse phenotype analysis

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Education

1986 Doctor of Agriculture, Graduate school of Agricultural Science, Nagoya University

Work Experience

1986-1991 Scientist Staff

Laboratory of Genetics, Central Institute for Experimental Animals

1991-1994 Trustee Research Staff

Department of Cell Genetics, National Institute of Genetics

1994-2000 Senior Scientist

Gene Analysis Unit

Central Institute for Experimental Animals

2000-2008 Team Leader

Mutation Resource Exploration Team

Mouse Functional Genomics Research Group

RIKEN Genomics Sciences Center (GSC)

2008-Present Team Leader

Technology and development team for mouse phenotype analysis

RIKEN BioResource Center (BRC)

Membership of Academic Societies

International Mammalian Genome Society

The Genetic Societies of Japan

Japanese Association for Laboratory Animal Science, Councilor

Research Areas

The Technology and Development Team for Mouse Phenotype Analysis develop a systematic and comprehensive phenotyping platform consisting of more than 400 test items, based on the knowledge of pathogenesis of human diseases. Using this system, we perform more comprehensive and profound phenotyping of mouse mutants, which are and will be deposited to RIKEN BRC. Judging from the results of preceding foreign phenotyping projects, we expect that existing mouse mutants be revalued as new disease models by identified novel phenotypes. We also develop a standard operating procedures (SOP) of mouse phenotyping and exchange this information with other large-scale related projects, such as

EUMODIC (European Mouse Disease Clinic) and MPP (Mouse Phenome Project), and thereby we will contribute to international efforts for standardization of mouse phenotype data. Finally, through collaborations with and our team will integrate information of mouse phenotypes and clinical features of human diseases. It will enable more objective characterization of mouse mutants, and lead to the development of high value-added mouse resources.

Research Subject

1. Development of a systematic and comprehensive mouse phenotyping platform.
2. Development of standard operating procedures (SOP) of mouse phenotyping
3. Collaboration with the large-scale mouse phenotyping projects, such as EUMODIC (European Mouse Disease Clinic) and MPP (Mouse Phenome Project).
4. The development of high value-added mouse resources corresponding with human disease information

Selected References

<http://www.riken.go.jp/engn/r-world/research/lab/brc/mouse-ph/index.html>