

**61st Annual Meeting of the
American College of Veterinary
Pathologists and 45th Annual
Meeting of the American Society for
Veterinary Clinical Pathology 2010**

**Baltimore, Maryland, USA
30 October-3 November 2010**

ISBN: 978-1-61782-375-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2010) by the American College of Veterinary Pathologists
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact the American College of Veterinary Pathologists
at the address below.

American College of Veterinary Pathologists
2810 Crossroads Drive, Suite 3800
Madison, WI 53718

Phone: (608) 443-2466

Fax: (608) 443-2474

info@acvp.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

ASVCP TEACHING CLINICAL PATHOLOGY

Writing Good Test Questions	1
<i>Jared Danielson</i>	

ASVCP EDUCATION SYMPOSIUM: COMPARATIVE ONCOLOGY

A Comparative Approach to Cancer Biology and Therapy	10
<i>Chand Khanna</i>	
Comparative Clinical Genomics	13
<i>Matthew Breen</i>	
Integrative Molecular Approaches to Cancer	17
<i>Jaime F. Modiano</i>	

CAREER DEVELOPMENT

From Government to Industry to Academia (and the Mergers, Near Mergers, Consolidations and Deconsolidations in Between)	27
<i>Keith Harris</i>	
Skills Sets and Obstacles Common to Successful Careers Across Professions and Organizations: An Executive Coach's Perspective	28
<i>Brian C. Arnold</i>	
From Academia to Big Pharma: It's More than Looking at Slides	45
<i>Glenn H. Cantor, Evan B. Janovitz</i>	
Consulting Following a Career in Big Pharma	47
<i>Hugh E. Black</i>	

CHARLES CAPEN MEMORIAL SYMPOSIUM ON ENDOCRINE DISEASE

The Legacy of Charles Capen: from the Global to the Personal	48
<i>Steven E. Weisbrode</i>	
Heritable Medullary Thyroid Carcinoma Syndromes: A Current Perspective	52
<i>Ronald A. DeLellis</i>	
The Adrenal Medulla and Extra-adrenal Paraganglia: A Current Perspective on Models and Mechanisms	65
<i>Arthur Tishcler</i>	
Calcium-Regulating Hormones: From Fish to Man and Back Again	81
<i>Thomas J. Rosol</i>	
Four Forms of Growth Hormone Excess in the Dog	91
<i>Ad Rijnberk</i>	

NATURAL DISEASE FOCUSED SCIENTIFIC SESSION I

Anatomy and Physiology of the Lymph Node: An Immunophotojournalist's POV	98
<i>A. O. Anderson</i>	

EMERGING DISEASE FOCUS SEMINAR

Tasmanian Devil Facial Tumor: The Emergence of a Transmissible Cancer	116
<i>Stephen Pyecroft</i>	

ASVCP VETERINARY LABORATORY PROFESSIONALS SESSION I

Immunocytochemistry: Getting Started	121
<i>Anne M. Barger</i>	
Immunocytochemistry: Technique and Interpretation of Hematopoietic Conditions	126
<i>Rose Raskin</i>	
Evaluating Hemolymph: Clinical Pathology in the American Lobster	132
<i>Andrea L. Battison</i>	

CLINICAL PATHOLOGY FOCUSED SCIENTIFIC SESSION I

Urinary Biomarkers of Chronic Kidney Disease in Veterinary Medicine: Where Do We Stand?	139
<i>M. Nabity</i>	

EXPERIMENTAL DISEASE FOCUSED SCIENTIFIC SESSION I

Mouse Models of Skeletal Disease	145
<i>M. Horowitz</i>	

INDUSTRIAL AND TOXICOLOGIC PATHOLOGY FOCUSED SCIENTIFIC SESSION I

Review of Recent Proposals on Global Training Practices and International Recognition for Toxicologic Pathologists	150
<i>B. Bolon</i>	
Metabonomic Technology and Early Drug Discovery: Assessment of Toxicity, Biomarkers and Mechanisms of Toxicity	159
<i>D. G. Robertson</i>	

NATURAL DISEASE FOCUSED SCIENTIFIC SESSION II

Smallpox: Update on an Ancient Scourge	165
<i>J. L. Chapman</i>	
Elephants on the Brink: Novel Herpesvirus a Threat to Survival	174
<i>L. K. Richman</i>	

ACVP AND ASVCP JOINT PLENARY SESSION

The Role of Astrocytes in the Biology and Therapy of Brain Metastasis	176
<i>Isaiah J. Fidler</i>	
Inflammation and Cancer: Reprogramming the Immune Microenvironment as an Anti-Cancer Therapeutic Strategy	181
<i>Lisa Coussens</i>	
Bone Microenvironment and the Pathogenesis of Bone Metastasis	184
<i>Thomas J. Rosol</i>	

ASVCP VETERINARY LABORATORY PROFESSIONALS SESSION II

Platelet Counting and Interpretation Mythology	193
<i>Harold Tvedten</i>	
VIN Quality Control Material Study: Quality of In-Clinic and Reference Laboratory Testing	198
<i>Mark Rishniw, P. Pion, T. Maher</i>	

CONCURRENT SESSION I: INFECTIOUS AND TRANSMISSIBLE CANCERS

Clonally Transmissible Cancers in Dogs and Tasmanian Devils	199
<i>Elizabeth Murchison</i>	

Papillomaviruses, Polyomaviruses and Combinations Thereof in Papillomas and Carcinomas of Australian Marsupials	211
<i>Amanda O'Hara, L. Woolford, M. Bennett, A. Rector, M. Van Ranst, K. Warren, P. Nicholls</i>	
Vaccines to Prevent Papillomavirus Infection and Associated Cancers	216
<i>Richard Roden</i>	

CONCURRENT SESSION II: AQUATIC ENVIRONMENTAL PATHOLOGY

Fish Kills, Intersex, Other Histopathological Abnormalities and Contaminants of Emerging Concern in Tributaries of the Chesapeake Bay	218
<i>Vicki S. Blazer</i>	
A Hop on the Wild Side: The Use of Frogs in Basic Research, Toxicological Testing, and Environmental Monitoring	223
<i>Jeffrey C. Wolf</i>	
The Tides They are A-Changin': Fish Models and the New Paradigm in Toxicology	228
<i>Mac Law</i>	

CLINICAL PATHOLOGY FOCUSED SCIENTIFIC SESSION II

Veterinary Cancer Biomarkers: A Specifically Sensitive Topic	234
<i>C. J. Henry</i>	

EDUCATION FOCUSED SCIENTIFIC SESSION

Continuous Curricular Progress in Veterinary Medical Education: How to Tell if Your Curriculum is Working and Keys to Making it Work Better	242
<i>Jared Danielson</i>	

ASVCP VETERINARY LABORATORY PROFESSIONALS SESSION III

Anatomy and Pathology of the Fish Eye	253
<i>Brent Whitaker</i>	
Elasmobranch Medicine (Sharks, Skates, and Rays)	256
<i>Katherine Hadfield</i>	
Amphibian Clinical Medicine: Anuran Edema	261
<i>Leigh Ann Clayton</i>	

ASVCP CASE REVIEW SESSION

ASVCP Case Review Session	266
<i>Marlyn S. Whitney</i>	

EXPERIMENTAL DISEASE FOCUSED SCIENTIFIC SESSION II

Use of Immunohistochemistry in Phenotyping Genetically Engineered Mice	268
<i>Miriam Anver, Diana Haines</i>	
Bovine Tuberculosis Vaccine Efficacy Studies: Neonatal Calves and White-tailed Deer	274
<i>W. Ray Waters, Mitchell V. Palmer, Tyler C. Thacker</i>	

INDUSTRIAL AND TOXICOLOGIC PATHOLOGY FOCUSED SCIENTIFIC SESSION II

Globalization of Toxicologic Pathology - Current State and Future Needs	278
<i>Kevin B. Donnelly</i>	
Animal Models of Cancer in the National Toxicology Program	280
<i>D. E. Malarkey</i>	

CONCURRENT SESSION IV: HEMOPARASITES

Dissecting the Mechanisms of Tick Transmission..... 284
Susan M. Noh

Understanding Piroplasmosis 289
Donald P. Knowles

Bartonellosis: A Hidden Epidemic 292
Edward Breitschwerdt

Panola Mountain Ehrlichia in the US and Its Relation to Heartwater 299
Amanda D. Loftis

MINI-SYMPOSIUM

Recommended Guidelines for the Conduct and Evaluation of Prognostic Studies in Veterinary Oncology 305
Joshua Webster

Review of the Prognostic Evaluation of Canine Mammary Carcinomas 313
Michael H. Goldschmidt

Review of the Prognostic Evaluation of Canine Melanomas 324
Rebecca C. Smedley

Review of the Prognostic Evaluation of Canine Cutaneous Mast Cell Tumors..... 333
Matti Kiupel, Nicholas Bacon, Renee Laufer Amorim, Nicole Northrup, Timothy Scase, Dodd Sledge, Douglas Thamm, Joshua Webster

Establishing Prognostic Factors for the Treatment of Canine Lymphoma 343
Victor E. Valli, San Myint, A. Durham, M. Breen

Author Index