

# 美國獸醫病理專科訓練 經驗分享

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國立屏東科技大學獸醫學系 助理教授

DVM, MS, PhD, DCSVP & DACVP

04/22/2022

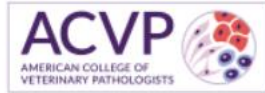
# CV

- 國立屏東科技大學獸醫學系
- 公職獸醫師
- 國立臺灣大學獸醫學系分子比病所 碩士
- 臨床獸醫師
- **Diplomate of CSVP**
- 教育部公費留學生資格
- **2017-2021 Iowa state university, US**
  - PhD
  - Resident of anatomic pathology
- **2021 Diplomate of ACVP**
- 國立屏東科技大學獸醫學系 助理教授

# Outline

- American College of Veterinary Pathologists (ACVP)訓練制度介紹
- ACVP phase 1 考試經驗分享
- ACVP phase 2 考試經驗分享
- 病理資源分享

# AMERICAN COLLEGE OF VETERINARY PATHOLOGISTS



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ACVP · ASVCP  
2022  
ANNUAL  
MEETING

**BOSTON, MA**  
NOVEMBER 12-15, 2022



The banner features a background image of a laboratory setting with a pipette and multi-well plates. The text is overlaid on a dark purple background with a circular graphic element. The ACVP logo is on the left, and the AVMA logo is on the right.

# How to become a Diplomate ACVP

- After graduation from a veterinary college or school, candidates must be trained in veterinary anatomic pathology if they are seeking certification in veterinary anatomic pathology
- Residency training 12 months
- Phase 1 exam
- Residency training 36 months + passed phase 1
- Phase 2 exam
- There are different types of residency training



**VPATH**

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**UPDATES**

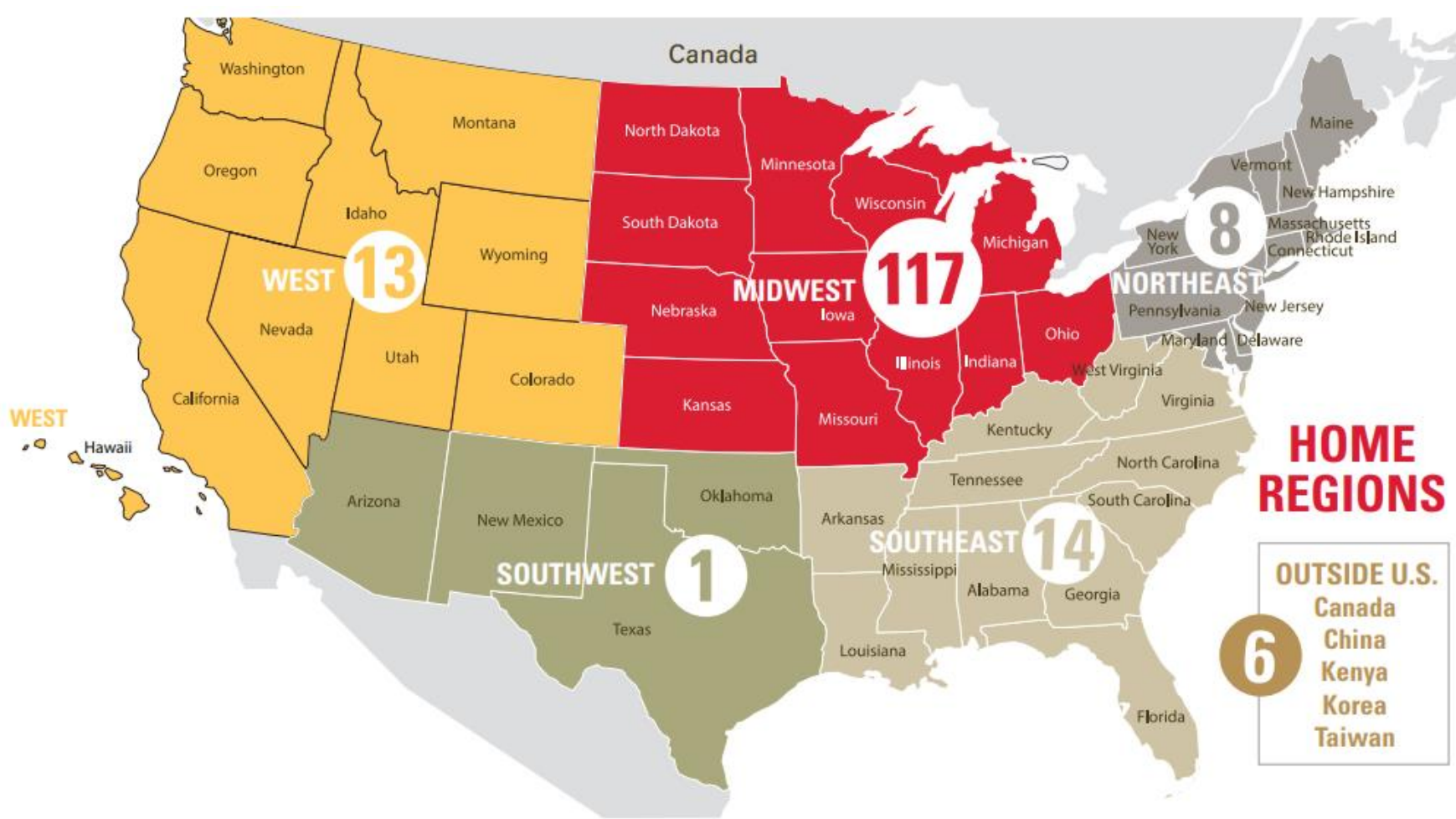
**CVM COVID-19 Moving Foward**



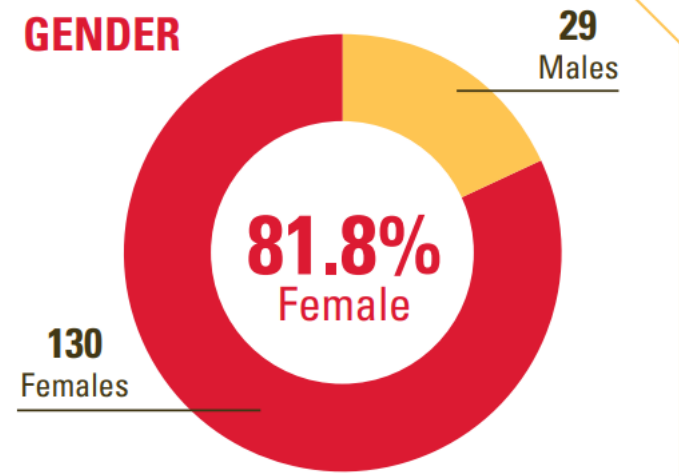


Iowa State University established the first public veterinary college in the nation in 1879.





**GENDER**





# Pathologists in VPATH



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[Smith, Jodi D](#)  
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[Yaeger, Michael J](#)  
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[Morton, Mark C](#)  
[DVM,](#)  
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# Combined residency/Ph.D. program in ISU

## Criteria for Training

1. Completion of criteria for ACVP board eligibility as outlined for the Department of Veterinary Pathology (Appendix A below), including service duties within the department. Further details of the program are present in Appendix B.
2. Successful completion of required course work as described for the departmental graduate program for anatomic pathology.
  - Masters
  - PhD
3. Participation and completion of teaching pathology courses in the professional curriculum for DVM students. Currently required teaching courses in the anatomic pathology series are: V Pth 342 Spring and V Pth 372 Fall.
4. Attendance at required seminars for training: 604 seminar, gross pathology slide review, departmental WIP, AFIP slide review, necropsy rounds with senior students. Other rounds are optional.
5. Presentations at national meetings including: ACVP, AAVLD, ASM, and similar meetings.
6. For a graduate degree from the Department of Veterinary Pathology, it is required that the major professor or co-major professor will be housed in the Department of Veterinary Pathology.

# 72 credits required

- V PTH 570 SYSTEMIC PATHOLGY I 4.0
- V PTH 571 SYSTEMIC PATHOL II 4.0
- V PTH 679 HISTOPATH LAB ANIML 2.0
- V PTH 550 SURGICAL PATHOL LAB 1.0(x 2)
- V PTH 551 POSTMORT PATHOL LAB 1.0 (x 2)
- V PTH 604 PATHOL CASE SEMINAR 1.0 (x 2)
- VDPAM 551 ADV VET DIAGNOS LAB 1.0

# Weekly seminar

- Monday: Journal club
- Tuesday: Wednesday Slide Conference
- Thursday: 604 path case seminar
- Friday: Gross pathology

# Duty schedule in ISU

- Pathologists: 20 weeks per year
- Residents: 10-12 weeks per year
- Necropsy week
- Biopsy week



# Combined residency/Ph.D. program in ISU

- Residency training 12 months
- Phase 1 exam
- Residency training 36 months + passed phase 1
- Phase 2 exam
- Year 1
- Year 2
  - Phase I
  - Prelim exam
- Year 3
  - Teaching duty
- Year 4
  - Phase II
  - Final oral defense

# Animal species focused on the ISU

- Farm animals (pigs, cattle, sheep)
- Horses
- Small animals
- Avian

# ACVP phase 1 考試經驗分享

# Introduction

- Phase I examination is a 2-hour examination composed of 100 multiple choice questions, covering all aspects of veterinary general pathology.
- knowledge of mechanisms fundamental to disease in animals such as principles of cellular injury, inflammation and repair, hemodynamic disorders, physical and chemical injury, neoplasia, congenital and genetic diseases, molecular pathology, and infections.
- The mechanisms tested in this section are “general” in that they relate to most animal species and exclude entities in single species.

# Phase 1 reading list

## Principal Sources

- Kumar V, et al. Robbins and Cotran Pathologic Basis of Disease (Chapters 1 to 9)
- Zachary JF. Pathologic Basis of Veterinary Disease (Chapters 1 to 6)

## Supplemental Sources

- Cheville NC. Ultrastructural Pathology: The Comparative Cellular Basis of Disease
- Haschek WM, Rousseaux CG, Wallig MA. Fundamentals of Toxicologic Pathology
- Veterinary Pathology (review articles)
- Toxicologic Pathology (review articles)
- New England Journal of Medicine (review articles)
- American Journal of Pathology (review articles)



# Phase I Sample Questions

A morphologic feature of autophagy is:

- A. Organelle swelling
- B. Nuclear fragmentation
- C. Pericellular neutrophils
- D. Cytoplasmic intravacuolar whorls**

The classical pathway of the complement cascade is activated when IgM binds:

- A. C1q**
- B. C1r
- C. C1s
- D. C3b

# ACVP phase 2 考試經驗分享

# Introduction

- 3 sections of 100 MCQs each
  - Previous: slides, gross, knowledge sections
- macroscopic conditions
- microscopic changes
- selection of interpretation and integration of clinicopathologic data
- selection and interpretation of appropriate ancillary tests
  - special stains, IHC, electron microscopy, PCR-based clonality, flow cytometry, cytology and ISH
- knowledge related to the pathophysiology, progression and diagnosis of disease in animals; and current literature

# Species Distribution

- 50 – 70% Domestic animals
- 20 – 30% Laboratory animals
- 10 – 20% Non-domestic animals

# Animal species focused on the US

- Horses
- Small animals
- Farm animals
- Lab animals
- Exotic animals (less)
- Avian (less)
- Fish (less)
- Honey bee! Coral!



# Phase 2 reading list principal sources

## Textbooks

- Maxie MG. *Jubb, Kennedy and Palmer's Pathology of Domestic Animals*
- Zachary JF. *Pathologic Basis of Veterinary Disease*
- Scott MA, Stockham SL. *Fundamentals of Veterinary Clinical Pathology*
- Clinical pathology atlases
  - Raskin RE, Meyer DJ. *Canine and Feline Cytology*
  - Valenciano AC, Cowell RL. *Diagnostic Cytology and Hematology of the Dog and Cat*

## Journals

- *Veterinary Pathology*
- *Journal of Comparative Pathology*
- *Journal of Veterinary Diagnostic Investigation*

# Phase 2 reading list supplemental sources

## Textbooks

- Terio K, McAloose, St. Leger J. *Pathology of Wildlife and Zoo Animals*
- Barthold SW, Griffey SM, Percy DH. *Pathology of Laboratory Rodents and Rabbits*
- Noga EJ. *Fish Disease: Diagnosis and Treatment* (Chapters 4, 5, 7-15)
- Abee C, Mansfield K, Tardif S, Morris T. *Non-Human Primates in Biomedical Research: Diseases* (2012, Chapters 1, 2, 4, 6, 9, 11, 12, 13, 15)
- The American Association of Avian Pathologists. *Avian Disease Manual*
- Schmidt RE, Reavill DR, Phalen DN. *Pathology of Pet and Aviary Birds*

## Journals

- *Toxicologic Pathology* (review articles)

	Veterinary Pathology	
	Volume 52 Issue 1	Image challenge
	Volume 52 Issue 2	Inter- and Intraobs...
	Volume 52 Issue 3	Immunophenotyp...
	Volume 52 Issue 4	Pheochromocytom...
	Volume 52 Issue 5	Assessment of HER...
	Volume 52 Issue 6	CD44 and CD24 Ex...
	Volume 53 Issue 1	Expression and Rol...
	Volume 53 Issue 2	A Transplantable S...
	Volume 53 Issue 3	*Primary Colorecta...
	Volume 53 Issue 4	Sheep With the Ho...
	Volume 53 Issue 5	Granulomas Follow...
	Volume 53 Issue 6	Diagnostic Validati...
	54(1)	Correlating Gastroi...
	54(2)	A Forensic Pathol...
	54(3)	*Intramural Vascul...

## Immunophenotypic Characterization of Canine Splenic Follicular-Derived B-Cell Lymphoma

Friday, May 31, 2019 6:56 AM

# Immunophenotypic Characterization of Canine Splenic Follicular-Derived B-Cell Lymphoma

Veterinary Pathology  
2019, Vol. 56(3) 350-357  
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DOI: 10.1177/0300985818823668  
journals.sagepub.com/home/vet

CY[P

Leah Stein<sup>1</sup>, Cynthia Bacmeister<sup>2</sup>, Kris Ylaja<sup>3</sup>, Patricia Fetsch<sup>3</sup>, Zengfeng Wang<sup>3</sup>, Stephen M. Hewitt<sup>3</sup>, and Matti Kiupel<sup>1</sup>

### Abstract

Marginal zone lymphoma (MZL) and mantle cell lymphoma (MCL) belong to a subgroup of indolent B-cell lymphomas most commonly reported in the canine spleen. The goal of this study was to characterize the immunophenotype of splenic MZL and MCL in comparison to their human counterparts. Ten MCLs and 28 MZLs were selected based on morphology. A tissue microarray was generated, and expression of CD3, CD5, CD10, CD45, CD20, CD79a, Pax-5, Bcl-2, Bcl-6, cyclin D1, cyclin D3, MCL-1, MUM-1, and Sox-11 was evaluated. Neoplastic cells in all MCLs and MZLs were positive for CD5, CD20, CD45, CD79a, and BCL2 and negative for CD3, CD10, Bcl-6, cyclin D1, and cyclin D3. Positive labeling for Pax-5 was detected in 8 of 10 MCLs and 26 of 28 MZLs. Positive labeling for MUM-1 was detected in 3 of 10 MCLs, and 27 of 28 MZLs were positive for MUM-1. No MCLs but 8 of 24 MZLs were positive for MCL-1. Canine splenic MZL and MCL have a similar immunophenotype as their human counterparts. However, human splenic MCL overexpresses cyclin D1 due to a translocation. A similar genetic alteration has not been reported in dogs. In addition, in contrast to human MZL, canine splenic MZL generally expresses CD5. Following identification of B vs T cells with CD20 and CD3, a panel composed of BCL-2, Bcl-6, MUM-1, and MCL-1 combined with the histomorphological pattern can be used to accurately diagnose MZL and MCL in dogs. Expression of Bcl-2 and lack of MCL-1

病理資源分享

# How do I get from here to there?

<https://clip.cafe/doctor-strange-2016/how-do-i-get-from-here-there/>

Study and practice. Years of it.

Dr. Stephen Strange: How do I get from here to there?

The Ancient One: How did you get to reattach severed nerves and put a human spine back together bone by bone?

Dr. Stephen Strange: **Study and practice. Years of it.**

# Phase 1 reading list

## Principal Sources

- Kumar V, et al. Robbins and Cotran Pathologic Basis of Disease (Chapters 1 to 9)
- Zachary JF. Pathologic Basis of Veterinary Disease (Chapters 1 to 6)

## Supplemental Sources

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- Haschek WM, Rousseaux CG, Wallig MA. Fundamentals of Toxicologic Pathology
- Veterinary Pathology (review articles)
- Toxicologic Pathology (review articles)
- New England Journal of Medicine (review articles)
- American Journal of Pathology (review articles)

# Phase 2 reading list

## principal sources

### Textbooks

- Maxie MG. *Jubb, Kennedy and Palmer's Pathology of Domestic Animals*
- Zachary JF. *Pathologic Basis of Veterinary Disease*
- Scott MA, Stockham SL. *Fundamentals of Veterinary Clinical Pathology*
- Clinical pathology atlases
  - Raskin RE, Meyer DJ. *Canine and Feline Cytology*
  - Valenciano AC, Cowell RL. *Diagnostic Cytology and Hematology of the Dog and Cat*

### Journals

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- *Journal of Comparative Pathology*
- *Journal of Veterinary Diagnostic Investigation*



# Phase 2 reading list supplemental sources

## Textbooks

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- Barthold SW, Griffey SM, Percy DH. *Pathology of Laboratory Rodents and Rabbits*
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- The American Association of Avian Pathologists. *Avian Disease Manual*
- Schmidt RE, Reavill DR, Phalen DN. *Pathology of Pet and Aviary Birds*

## Journals

- *Toxicologic Pathology* (review articles)



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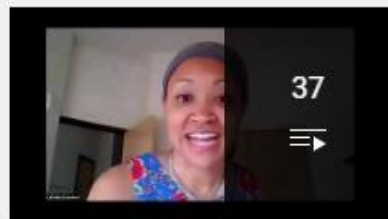
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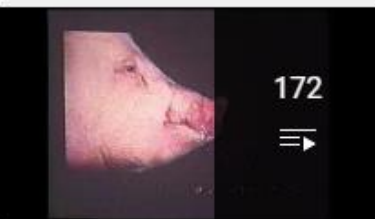
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Current conference : Wednesday Slide Conference 2021 - 2022 Conference 24

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WSC 2021 - 2022

Conference Date	Conf	Case	Conference Date	Conf	Case
August 18, 2021	01	1 2 3 4 WS	January 12, 2022	14	1 2 3 4 WS
August 25, 2021	02	1 2 3 4 WS	January 19, 2022	15	1 2 3 4 WS
September 1, 2021	03	1 2 3 4 WS	January 26, 2022	16	1 2 3 4 WS
September 15, 2021	04	1 2 3 4 WS	February 2, 2022	17	1 2 3 4 WS
September 22, 2021	05	1 2 3 4 WS	February 9, 2022	18	1 2 3 4 WS
September 29, 2021	06	1 2 3 4 WS	February 16, 2022	19	1 2 3 4 WS
October 6, 2021	07	1 2 3 4 WS	March 23, 2022	20	1 2 3 4 WS
October 13, 2021	08	1 2 3 4 WS	March 30, 2022	21	1 2 3 4 WS
November 17, 2021	09	1 2 3 4 WS	April 6, 2022	22	1 2 3 4 WS
December 1, 2021	10	1 2 3 4 WS	April 20, 2022	23	1 2 3 4 WS
December 8, 2021	11	1 2 3 4 WS	April 27, 2022	24	1 2 3 4 WS
December 15, 2021	12	1 2 3 4 WS	May 4, 2022	25	1 2 3 4 WS
January 5, 2022	13	1 2 3 4 WS			

# Attend the ACVP meeting

- Workshop
- New topics
- Case reports
- Mystery slides

Thank you