

# **CURRICULUM VITAE**

**Diana C. J. Rhodes**

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## **Education:**

1992	Ph.D.	Purdue University, West Lafayette, IN
1987	D.V.M.	Purdue University, West Lafayette, IN
1987	M.S.	Purdue University, West Lafayette, IN
1985	B.A.	Purdue University, West Lafayette, IN

## **Professional Appointments:**

2010	Professor, Department of Anatomy Pacific Northwest University of Health Sciences
2003 – 2010	Associate Professor, Department of Anatomy Kirksville College of Osteopathic Medicine
1993- 2003	Assistant Professor, Department of Anatomy Kirksville College of Osteopathic Medicine
1992-1993	Visiting Assistant Professor, Department of Veterinary Anatomy, Purdue University
1983-1992	Graduate Instructor in Veterinary Anatomy, Purdue University

**Science Olympiad Activities:**

- 2012- present    Worked with various institutional partners in south central Washington to develop a new regional SO site. Tournament co-director for our first tournament held Feb. 9, 2013. Current board member of South Central Washington Science Olympiad.
- 2006 – 2010    Parent and assistant coach for daughter's Science Olympiad team, Kirksville, MO

**Educational Activities:**

- 2010 - present    Full participant in three person team-taught Human Gross and Developmental Anatomy course at PNWU. Course co-director since 2011.
- 2010 - present    Full participant in two person team-taught Human Histology course at PNWU.
- 2009-2010    Course director for team-taught Human Gross and Developmental Anatomy course at KCOM.
- 1993- 2010    Full participant in a three to four person, team-taught Human Gross Anatomy course at KCOM.
- 2007-2010    Assisting with Evidence Based Medicine development through faculty development programs and initiating EBM projects in Human Gross Anatomy at KCOM.
- 1998-2004    Presented "Kidney Anatomy" lectures at the Northeast Regional Medical Center CME Noon lecture series several times.
- 1996- 1999    Facilitator in several Biochemistry PBL cases, KCOM.
- 1992-1993    Full participant in two person team taught Veterinary Gross Anatomy Course (135 contact hours) at Purdue University. Delivered 10 lectures and assisted in all aspects of the course.
- 1983-1991    Teaching assistant in Veterinary Gross Anatomy (small and large animal anatomy), Veterinary Neuroanatomy, and Veterinary Microscopic Anatomy at various times at Purdue University.

**Honors:**

- 2006            Kirksville Chapter of Sigma Xi - Researcher of the Year
- 2003 -2005    Nominated for the Gutensohn Teaching Award

1993            Phi Zeta National Research Award Nominee  
1993            SAVMA National Excellence Award Nominee

**Major Research Interest:**

My research interest centers on the kidney and lower urinary tract. Most of my efforts have involved studying the biochemical and immunological properties of Tamm-Horsfall glycoprotein, a protein of renal origin, in both health and disease states in various animals. Additionally, I have studied the possible significance of urinary enzymes in individuals with interstitial cystitis.

**Funded Research Support:**

"Investigating the interaction between Tamm-Horsfall Protein and TGF- $\beta$ 2;" Genzyme Corporation; received TGF- $\beta$ 2 and antibodies with an estimated value of \$950,000; 01/04/07 – 01/03/09.

"Biochemical and Physiological Interactions between the Urinary Glycoprotein Tamm-Horsfall Protein and Factor H of the Alternate Complement Pathway;" Warner/Fermaturo and ATSU Board of Trustees Research Fund; \$4,000; 08/01/06 - 06/30/08.

"Investigating the interaction between Tamm-Horsfall Protein and TGF- $\beta$ 2;" Genzyme Corporation; received TGF- $\beta$ 2 and antibodies with an estimated value of \$95,000; 12/28/05 – 12/28/06.

"Effect of Deglycosylation on Tamm-Horsfall Protein's Interaction with Complement 1q," Warner/Fermaturo and ATSU Board of Trustees Research Fund; \$4,000; 07/01/04 - 06/30/06.

"Tamm-Horsfall Glycoprotein's Interaction with C1q," NIH (NIDDK), \$74,748, 5/1/99 to 4/30/02, no cost extension to 4/30/03.

"Use of a resonant mirror biosensor to characterize Tamm-Horsfall glycoprotein's interaction with immunoglobulin and C1q", KCOM's Strategic Research Grant Proposal, \$44,000, 7/15/98 to 7/14/99.

"Characterization of Tamm-Horsfall glycoprotein's interaction with C1q", KCOM Warner/Fermaturo Fund, \$4,000, 7/1/98 to 6/30/00.

" Immunomodulatory properties of Tamm-Horsfall glycoprotein", KCOM Warner/Fermaturo Fund, \$2,000, 2/1/95 to 1/31/97.

"Urine hydrolase activity as an etiologic factor in interstitial cystitis", Interstitial Cystitis Association, \$10,000, 1/5/95 to 1/5/96.

"The role of Tamm-Horsfall glycoprotein in feline urinary syndrome", Morris Animal Foundation, \$87,855, 9/1/88 to 9/21/91.

"The immunosuppressive role of Tamm-Horsfall glycoprotein in Escherichia coli-induced pyelonephritis", Animal Health and Disease Research Funds, USDA, \$27,000, 3/1/88 to 9/30/90.

### **Publications:**

**Rhodes, Diana.** (2010) Tamm-Horsfall protein acts as a cofactor for Factor I-mediated complement C3b degradation. J. Am. Soc. Nephrol., 21: 750A.

**Rhodes, D.C.J.** (2008) Interactions between Tamm-Horsfall protein and IgG fragments. J. Am. Soc. Nephrol., 19: 661A-662A.

Degenhardt, BF, Darmani N, Johnson JC, Towns L, **Rhodes DCJ**, Trinh C, McClanahan B, DiMarzo V. (2007) Osteopathic manipulative treatment alters pain biomarkers: a pilot study. J. Am. Osteopath. Assoc., 107(9): 387-400.

**Rhodes, D.C.J.** (2006) Importance of carbohydrate in the interaction of Tamm-Horsfall protein with complement 1q and inhibition of classical complement activation, Immunol. Cell Biol. 84(4):357-365.

**Rhodes, D.C.J.** (2005) Role of carbohydrate in the interaction of Tamm-Horsfall protein with the classical complement pathway. J. Amer. Soc. Nephrol. 16: 418A-419A.

Degenhardt, BF, Darmani N, Towns L, **Rhodes DCJ**, Trinh C, Johnson JC: (2004) Investigating the Effect of OMT on Circulatory Biochemical Markers. J. Am. Osteopath. Assoc. 104 (8): 343.

**Rhodes, D.C.J.** (2003) Tamm-Horsfall protein inhibits activation of the classical complement pathway. J. Amer. Soc. Nephrol. 14: 162A-163A.

**Rhodes, D.C.J.** (2002) Binding of Tamm-Horsfall protein to complement 1q and complement 1, including influence of hydrogen-ion concentration. Immunol. Cell Biol. 80: 558-566.

**Rhodes, D.C.J.** (2000) Binding of Tamm-Horsfall protein to complement 1q measured by ELISA and resonant mirror biosensor techniques under various ionic-strength condition. Immunol. Cell Biol. 78: 474-482.

**Rhodes, D.C.J., J.A. Rhodes, R.O. Boling, and T.K. Karhoff.** (1996) Urinary  $\beta$ -D-glucuronidase activity in interstitial cystitis. Mol. Biol. Cell. 7:239a (abstract).

Osborne, C.A., J.M. Kruger, J.P. Lulich, K.D. Beauclair, and **D.C.J. Rhodes** (1994) Feline lower urinary tract disease: Relationships between crystalluria, urinary tract

infections, and host factors. *In*: J.R. August (ed.) Consultations in Feline Internal Medicine 2. Chapter 46, pp. 351-363, W.B. Saunders.

**Rhodes, D.C.J.,** E.J. Hinsman, and J. A. Rhodes. (1993) Tamm-Horsfall glycoprotein binds IgG with high affinity. Kidney Int. 44: 1014-1021.

**Rhodes, D.C.J.,** E.J. Hinsman, and J.A. Rhodes (1993) Cation-induced aggregation of Tamm-Horsfall glycoprotein and its possible role in feline urolithiasis. J. Vet. Med. A. 40: 283-291.

**Rhodes, D.C.J.,** E.J. Hinsman, J.A. Rhodes, and E.C. Hawkins. (1992) Urinary Tamm-Horsfall glycoprotein concentrations in normal and urolithiasis-affected male cats determined by an ELISA. J. Vet Med. A. 39:621-634.

**Rhodes, D.C.J.** (1992) Biochemical and Physiological Properties of Tamm-Horsfall Glycoprotein from Cats and Sheep. Ph.D. Thesis. Purdue University.

**Jones, D.C.** (1987) Postnatal Development of the Ovine Renal Glomerulus: An Ultrastructural Study. M.S. Thesis. Purdue University.

#### **Recent Scientific Presentations:**

- 2010 Presented poster at 43<sup>rd</sup> Annual American Society of Nephrology Meeting on "Tamm-Horsfall Protein Acts as a Cofactor for Factor I-mediated Complement C3b Degradation."
- 2008 Presented poster at 41<sup>st</sup> Annual American Society of Nephrology Meeting on "Interactions between Tamm-Horsfall protein and IgG fragments."
- 2008 Presented poster at Experimental Biology meeting on "Tamm-Horsfall protein binds TGF- $\beta$ 2."
- 2007 Presented talk at Kirksville Chapter of Sigma Xi entitled "Interaction of Tamm-Horsfall Protein with Molecules of the Immune System."
- 2007 Presented poster at Experimental Biology meeting on "Tamm-Horsfall protein binds to factor H of the alternate complement pathway."
- 2005 Presented poster at 38<sup>th</sup> Annual American Society of Nephrology meeting on "Role of carbohydrate in the interaction of Tamm-Horsfall protein with the classical complement pathway."
- 2003 Presented poster at 36<sup>th</sup> Annual American Society of Nephrology meeting on "Tamm-Horsfall protein inhibits activation of the classical complement pathway."

- 2001 Presented talk at Truman State University Biology Seminar Series entitled “Binding of an abundant urinary protein, (Tamm-Horsfall protein) to factors of the innate immune system (C1q and C1).”
- 2001 Presented poster at Experimental Biology meeting on “Binding of Tamm-Horsfall protein to complement1 (C1) and complement 1q (C1q) quantified with a resonant mirror biosensor.”
- 2000 Presented poster at Experimental Biology meeting on “Binding of Tamm-Horsfall protein (THP) to C1q using microtiter plate and resonant mirror biosensor techniques.”
- 2000 Presented talk at KCOM Basic Science Seminar entitled “Binding of the urinary glycoprotein, Tamm-Horsfall protein (THP), to C1q as measured by ELISA and resonant mirror biosensor techniques.
- 1998 Presented poster at Experimental Biology meeting on “Human Tamm-Horsfall Glycoprotein Binds IgG, IgM, and C1q.”
- 1998 Presented talk at KCOM Basic Science Seminar entitled “Binding of Tamm-Horsfall Glycoprotein to Immunoglobulin and Complement.”
- 1997 Presented talk at KCOM Basic Science Seminar entitled “Enzymuria in Interstitial Cystitis.”
- 1996 Presented poster at American Society for Cell Biology on “Urinary  $\beta$ -D-glucuronidase activity in interstitial cystitis.”
- 1994 Presented talk at Northeast Missouri State University Biology Series entitled “ Biochemical and physiological properties of a renal protein.”

**Member on University Committees:**

Admissions Committee, PNWU (2011- present)  
Research Committee, PNWU (2010-present)  
Executive Committee of the Faculty Council (vice-chair), PNWU (2011-2012)  
Curriculum Committee, KCOM (2006-2010)  
R25 EBM Faculty Development Team, KCOM (2007 -2010)  
Institutional Research Board (IRB), KCOM (2002-2010)  
Interdisciplinary Research Committee (IRC) , KCOM (2000-2010)  
Fringe Benefits Committee, KCOM (1997-2010)  
Orientation Committee, KCOM (2000-2010)  
Admissions Interviewer, KCOM (1995-2010)  
Assessment Subcommittee of the Curriculum Committee, KCOM (2007 -2008)

WebCT Subcommittee of the Curriculum Committee, KCOM (2008)  
Survey Committee (Chair), KCOM (2007-2008)  
AOA COCA Self Study Committee, KCOM (2005-2006)  
Faculty Subcommittee of AOA Self-Study, KCOM (Chair) (2005-2006)  
Scholarship of Teaching Committee (Chair) , KCOM (2005-2006)  
Faculty Senate Formation Committee, KCOM (2000)  
Ad Hoc Committee for Faculty Activity Report Revision, KCOM (1998)  
NCA Subcommittee, KCOM (1997 – 1998)  
Ad Hoc Interdepartmental PBL Committee, KCOM (1997)  
Coordinated Basic Science Seminars, KCOM (1994-1995)

**Other Professional Duties:**

Faculty mentor for a student Society at KCOM, 2005 to 2010

Member on several KCOM Master of Science Biomedical Sciences advisory committees, 2005 to 2010

Chairperson, Researcher of the Year Award Committee, Kirksville Chapter of Sigma Xi, 2004

President of the Kirksville Chapter of Sigma Xi, 2002-2003

Primary organizer for Sigma Xi Ethics Workshop held at Truman State University (April 5-6, 2002)

President-elect of Kirksville Chapter of Sigma Xi, 2001-2002

Treasurer for Kirksville Chapter of Sigma Xi, 1999 - 2001.

Mentor for PRIMO student Matthew Greenblatt 7/6/98 to 8/14/98 in individual research project entitled "The effect of NaCl concentration of Tamm-Horsfall glycoprotein's binding to C1q."

Reviewed articles for the following journals:

*American Journal of Kidney Disease*  
*Clinical Anatomy*  
*American Journal of Veterinary Research*  
*Transplant Immunology*  
*Molecules*

**Membership in Professional Organizations:**

American Association of Anatomists  
American Association of Veterinary Anatomists  
American Society of Nephrology