

**Revised 08/2010**

**AMERICAN COLLEGE OF VETERINARY RADIOLOGY  
RECOGNIZED VETERINARY SPECIALTY OF RADIATION ONCOLOGY (ACVR-RO)  
RESIDENCY TRAINING PROGRAM APPLICATION**

NOTE: Some questions in this form are included for data collection purposes. The inclusion of an item does not necessarily imply that the item is a program requirement for ACVR-RO residency program. Please refer to the current Radiation Oncology Training Program Guidelines for comprehensive residency training requirements. This document may be downloaded from [acvr.org](http://acvr.org), Members Only, Downloads.

**APPLICATION INSTRUCTIONS:**

Training program directors wishing to have their programs evaluated should electronically submit this form to the chair of the Radiation Oncology Residency Standards and Evaluation Committee (RSEC) and carbon copy the Executive Director of the ACVR (contact information is available at [acvr.org](http://acvr.org), Members Only, Administration). The application must be received at least 60 days before the meeting of Executive Council at which the program will be evaluated. There are two meetings of Executive Council each year; a midyear meeting in April, and the Annual Meeting held in conjunction with the Annual meeting of the ACVR. Exact dates of Executive Council meetings are available at [acvr.org](http://acvr.org), Calendars, and are also printed in each issue of *Veterinary Radiology & Ultrasound*. There will be no exceptions to the 60 day lead time requirement. The Residency Standards and Evaluation Committee will evaluate the application, a vote will be taken, and the results of the vote and the majority recommendation of the committee forwarded to the President of the Recognized Specialty of Radiation Oncology for consideration at Executive Council at one of the two annual meetings.

For the required ACVR and ACVIM Diplomates providing consultation in medical oncology and imaging, please provide a brief 2-page curriculum vitae and specify the number of weeks each year that the individual will be available to actively support the radiation oncology trainee.

## ACVR-RO RESIDENCY TRAINING PROGRAM APPLICATION

1. Date of Application

1/11/2011

2. Program Director(s): (Must be a Diplomate of ACVR Recognized Veterinary Specialty of Radiation Oncology)

Deborah M. Prescott, DVM, PhD, Diplomate ACVR (Radiation Oncology)  
Veterinary Radiation Oncology Specialists  
MedVet Associates  
300 East Wilson Bridge Rd.  
Worthington, OH 43085

Number of weeks per year faculty member is available to resident on a daily basis.

45

Program Director's Contact Information:

Work Phone:	(614) 431-4403	
Fax:	(614) 431-6296	
E-mail:	dprescott@medvetohio.com	

3. Application is made for check one (see below):

Standard Program	Alternative Program
X	

The following conditions define an Alternative Program:

- a. If the program is not at least a minimum two-year continuous radiation oncology training program which fulfills all the trainee requirements of the training program guidelines, it will be defined as an Alternative Program.
- b. If exemption from any other requirement for a Standard program is requested in the application, the program must be submitted as an Alternative Program.

4. Location of Primary Institution

Primary Site:

Radiation Oncology

Department

Med Vet Associates, Ltd

Hospital/University

300 East Wilson Bridge Rd

Address

Worthington, OH 43085, USA

City, State Zip Country

5. Cooperating Institution(s) (If applicable):

Department

Hospital/University

Address

City, State Zip Country

For cooperating institutions, attach letters of agreement signed on behalf of the institution(s) by appropriate individual(s).

6. Length of Training Program (months):

36

If greater than 2 years, will this period include 24 months of continuous training in radiation oncology?

36 months – Please note that the Training Program was initially approved as a 24 month program and we are requesting that it be changed to a 36 month program to strengthen the training program for the current radiation oncology resident as well as future residents. By increasing the program from 24 to 36 months, the resident will have up to an additional 12 months dedicated solely to radiation oncology training.

7. Number of months dedicated solely to radiation oncology training (excluding time on Medical Oncology service, Radiology/Imaging, etc.)

28-29

8. Advanced Degree:

	Yes	No	Optional
Masters:		X	
PhD:		X	

9. Essential Program Faculty: individual faculty member may serve in only one capacity

**Please list all qualified faculty in support of program**

a. Diagnostic Radiologist(s): (Must be Diplomate(s) of the ACVR)

Jonathan T. Shiroma, DVM, MS, DACVR (Radiology) – MedVet Adam Watson, DVM, DACVR (Radiology) - MedVet
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Number of weeks per year faculty member(s) is/are available to resident on a daily basis.  
Please list for each faculty member.

Jonathan T. Shiroma – 45 Adam Watson - 45
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Faculty member on site?

Yes	No
X	

If off site, please explain relationship.

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b. Medical Oncologist(s): (must be Diplomate(s) of ACVIM, Specialty of Oncology)

Lisa M. Fulton, DVM, DACVIM (Oncology)

Number of weeks per year faculty member(s) is/are available to resident on a daily basis.  
Please list for each faculty member.

Lisa Fulton – 45

Faculty member on site?

Yes	No
X	

If off site, please explain relationship

c. Surgeon(s): (must be Diplomate(s) of the ACVS)

Eric R. Schertel, DVM, PhD, DACVS Matthew D. Barnhart, DVM, MS, DACVS Shawn Kennedy, DVM, DACVS Robert Dudley, DVM, MS, DACVS
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Number of weeks per year faculty member(s) is/are available to resident on a daily basis.  
Please list for each faculty member.

Eric R. Schertel - 45 Matthew D. Barnhart - 45 Shawn Kennedy - 45 Robert Dudley - 45
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Faculty member on site?

Yes	No
X	

If off site, please explain relationship.

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d. Pathologist(s): (must be Diplomate(s) of the ACVP)

Gary Kociba, DVM, PhD, DACVP Seth Chapman, DVM, MS, DACVP Agatha Boisvert, DVM, DACVP Michelle Wells, DVM, DACVP Stephanie Corn, DVM, DACVP
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Number of weeks per year faculty member(s) is/are available to resident on a daily basis.  
Please list for each faculty member.

Gary Kociba – 3 days per week for 45 weeks/year Seth Chapman – 45 weeks Agatha Boisvert – 45 weeks Michelle Wells – 45 weeks Stephanie Corn – 45 weeks
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Faculty member on site?

Yes	No
X	

If off site, please explain relationship.

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10. Please list all additional board certified specialists in direct support of the program. If

offsite, please explain relationship.

Name	Certifying College / Board
John G. Gordon, DVM, MS, Diplomate ACVD	Dermatology
Abby Foust, DVM, Diplomate ACVD	Dermatology
Robert J. Starkey, DVM, Diplomate ACVIM	Internal Medicine
Roger Hostutler, DVM, Diplomate ACVIM	Internal Medicine
Linda B. Lehmkuhl, DVM, MS, Diplomate ACVIM	Cardiology
Thaibinh Nguyenba, DVM, MS, Diplomate ACVIM	Cardiology
Darcy Adin, DVM, Diplomate ACVIM	Cardiology
William Fenner, DVM, Diplomate ACVIM	Neurology
Terah R. Webb, DVM, Diplomate ACVO	Ophthalmology
Diane Wilson, DVM, MS, Diplomate ACVA	Anesthesiology

11. How will resident receive training in Medical Oncology? What is time allotted for this training. Please provide description of formal and informal training experiences?

The radiation oncology resident will have two month-long rotations in medical oncology where they will be seeing cases with the board-certified medical oncologists, Dr. Lisa Fulton, or other board certified medical oncologists to be hired in the future. They will be expected to participate in the diagnostic and therapeutic plans for patients on the medical oncology service. Due to the large number of shared cases between the radiation and medical oncology services, the radiation oncology resident will receive continued exposure and training in medical oncology during the 24-30 months that the resident is on the radiation oncology service.

12. How will resident be trained in diagnostic imaging? What is time allotted for this training. Please provide description of formal and informal training experiences?

The radiation oncology resident will spend a one month rotation in diagnostic imaging under the direct supervision of the board certified radiologists, Dr. Jon Shiroma and Dr. Adam Watson. This will include reviewing clinical radiographs, ultrasounds, CT and MRI scans from all MedVet services with a concentration on oncology cases.

13. How will resident be trained in radiation biology?

Didactic courses are offered at the Arthur G. James Cancer Hospital at Ohio State University Medical Center through the radiology department. Dr. Robert Snapka is the coordinator of the class and teaches the class with other qualified instructors. Attach in the Addendum is a copy of the letter giving consent for the MedVet radiation oncology resident to participate in this class. An example of the syllabus for this class is attached in the Addendum.

14. How will resident be trained in cancer biology?

A didactic course using the textbook The Basic Science of Oncology by Tannock and Hill is offered at Ohio State University through the Department of Pathology. Drs. Rolf Barth and Thomas Rosol are the coordinators of the class and teach the class with other qualified instructors. The MedVet radiation oncology resident can participate in this class provided there is space available for an auditor. An example of the syllabus for this class is attached in the Addendum. Provided no space is available, Dr. Deborah M. Prescott will provide one on one review of this text with the radiation oncology resident.

15. How will residents be trained in radiation oncology physics?

Dr. John Hoftiezer is the medical physicist for the MedVet facility. He will conduct a radiation oncology physics course for the resident. We have attached a syllabus for the course in the Addendum. The textbook used will be The Physics of Radiation Therapy by Faiz M. Khan.

There are also didactic classes in Therapeutic Radiation Medical Physics offered at the Arthur G. James Cancer Hospital at Ohio State University Medical Center through the radiation oncology department for their residents. Dr. Nilendu Gupta is the coordinator of the physics class but several medical physicists participate in this class. Attached in the Addendum is a copy of the e-mail giving consent for the MedVet radiation oncology resident to participate in this class. An example of the syllabus for this class is attached in the Addendum.

16. Please list any formal courses and their instructors included in the residency training curriculum. Please attach syllabi and instructor credentials for each listed course.

Radiation Therapy Physics	John Hoftiezer, PhD
Radiation therapy physics	OSU Medical Center faculty members
Radiation biology	OSU Medical Center faculty members
Cancer Biology	OSU Medical Center faculty members or with the MedVet RadOnc Program Director

Syllabi for these courses are attached. Please note that there are several OSU faculty members teaching each of the classes. The participating speakers will vary slightly from year to year as the University faculty changes. I am sure the credentials of the speakers are appropriate and they all have advanced degrees in their area of interest. I would be happy to provide access to the University web pages if you feel that is necessary in the review of this application.

17. Will the resident participate in clinical rounds on a daily basis while on clinical rotations? Is a supervising Diplomate available for the majority of rounds? If no, please describe how rounds are attended and supervised.

Yes	No
X	
Comments:	Radiation Oncology patient review rounds will be held daily to discuss progress of patients and development of side effects between the radiation oncology resident, Dr. Prescott, and the radiation therapy technicians.

18. Are formal conferences, such as clinicopathologic conferences, journal clubs, or seminars held on a weekly basis?

Yes	No
X	
Comments:	Several rounds and conferences are available on a weekly or monthly basis. Some of them include oncology journal club, tumor rounds, resident seminars, grand rounds, and clinicopathologic rounds are some of the rounds available for the radiation oncology resident

19. Please provide a description of the conferences, etc., that are provided and the typical schedule.

Oncology Journal Club will meet every other Tuesday morning. Radiation and Medical Oncology literature will be covered in these sessions for maximum exposure of the resident. All MedVet residents will be invited to participate in the Oncology Journal
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Club meetings.

Tumor Rounds are attended by medical, radiation and surgical oncology doctors as well as all interns and residents. The purpose of the rounds is to review current oncologic cases and to provide a team-oriented approach to the care of the patient. Tumor rounds are held every Thursday morning from 8-9AM.

Resident seminars are held twice a month on Wednesday morning from 8-9AM. These seminars allow MedVet residents of all disciplines to gain experience giving formal talks and for all residents to receive current knowledge in other disciplines outside of their interest.

Grand Rounds presented by the board-certified clinicians on interesting clinical cases that have touched on several disciplines in the hospital. These rounds are held once a month on Wednesday morning from 8-9AM and do not conflict with the resident seminars.

The radiation oncology resident will be required to attend the Oncology Journal Club, Tumor Rounds, Resident Seminars and Grand Rounds during their training period unless they conflict with other course work or vacation time.

Breakfast meetings with local general practitioners are held once a month at 7AM and oncology-related topics are discussed 2-3 times a year. The breakfast meetings covering oncology-related topics will be required to be attended by the radiation oncology resident.

Clinicopathologic rounds with Dr. Seth Chapman and other clinical pathologists and the radiation oncology resident will be held once a week at a time to be arranged. These rounds will allow the resident to review cytologic slides from oncologic cases with the pathologists on duty.

20. Is the resident required to give one or more formal presentations at a conference or in an educational setting on a yearly basis?

Yes	No
X	

Comments:	Yes, two formal presentations on a yearly basis are required. These presentations may include MedVet in-house resident seminars, local veterinary association continuing education seminars as well as national conferences such as VCS or ACVR.
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22. How many major veterinary medical or medical meetings is each resident able to or expected to attend during his/her training program?

None	One	Two	> Two
			X

Comments:	ACVR, VCS, and/or ASTRO
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23. Does the training program require a research project? Please indicate the number of research projects required.

Yes	No	Optional	Number
	X		

Comments:	Strongly encouraged and time will be allocated but is not required.
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24. Are one or more publications required as part of the training program?

Yes	No	Number
	X	

Comments:	Strongly encouraged but not required.
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25. Please indicate the availability of the following facilities or equipment. Indicate if these are available at the primary training site, or at a different location. For facilities that are not on-site, please describe the situation and availability in the space at the end of this section.

Equipment / Service	Available?		On-Site?	
	Yes	No	Yes	No
Megavoltage Teletherapy Machine Please specify manufacturer and model: Varian Clinac 2100C	X		X	
3D - Computer based treatment planning system Please specify manufacturer and model: MDS Norton, Theraplan Plus	X		X	
2D/2½ D - Computer based treatment planning system Please specify manufacturer and model:		X		X
LDR Brachytherapy treatment and planning		X		X
HDR Brachytherapy treatment and planning		X		X
Diagnostic Radiology / Imaging Services	X		X	
Conventional Radiography	X		X	
Fluoroscopy	X		X	
Ultrasound	X		X	
Nuclear Medicine		X		X
Computed Tomography	X		X	

Magnetic Resonance Imaging	X	X	
Positron Emission Tomography		X	X
Intensive Care Facility - 24 hours	X	X	
Clinical Pathology capabilities: (includes CBC, serum chemistries, blood gases, urinalysis, cytology, parasitology, microbiology, and endocrinology)	X	X	
Veterinary Library w/Literature Searching Capabilities	X	X	
Medical Library w/Literature Searching Capabilities	X		X
Computerized Medical Records w/Searching Capabilities	X	X	

26. If any of the above equipment or facilities are available off-site, please explain how the resident can access them for case management, research, or study.

MRI studies are performed on MedVet patients through The Children's Hospital of Columbus, OH in the evenings or on weekends and at the Wright's Center at OSU in the afternoons on Tuesday and Thursday. The Medical and Veterinary School libraries at Ohio State University are readily available to the resident and include veterinary journals.

27. Please list numbers of patients treated in the last 12 months using the listed radiation treatment modalities.

Modality	Number Treated
Megavoltage Gamma / X-ray Teletherapy	>200
LDR Brachytherapy	0
HDR Brachytherapy	0
Injectable Radionuclide therapy	
Radioiodine	>100
Other (please specify)	
<sup>90</sup> Strontium Pleiotherapy	0
Other - please specify	

28. Describe procedures for resident record recording of radiation treatment details of all patients.

The radiation oncology resident will be required to keep a log of patients treated during their residency. This log will include the tumor type and location, treatment date, RT prescription, type of RT treatment plan, modifying devices used, and follow-up information on those patients. A separate radiation treatment folder is generated for each patient. That record includes treatment plans, port films, prescriptions, treatment logs, and pictures.

29. What procedures are in place to facilitate collection of follow up information of patients treated?

The medical records for all patients are computerized using the Intravet system. Intravet has searching capabilities that allow all patients with a given diagnosis or treatment to be selected. All radiation oncology patients are also logged into an Excel spreadsheet which includes information relevant to the diagnosis, RT treatment and recheck visits. Excel spreadsheets are updated by all radiation oncology staff with follow-up information on a regular basis. Typically, weekly rechecks are done at MedVet until the RT acute side effects have healed and then owners are encouraged to return to MedVet for rechecks every 3 months for the first year after RT, and every 6 months thereafter.

30. By what mechanisms and how often will trainees be evaluated? Please attach form used in this evaluation (required).

Residents are formally evaluated annually. If any concerns or questions arise prior to the annual review, a separate evaluation can be done at that time. An example of the Radiation Oncology Resident Performance Evaluation Form is attached in the Addendum.

31. If applicable, please list the residents who have completed the training program within the last five years, including the year that each individual's training program ended. If at all possible, please provide an address, and any information you have on the status of each individual with respect to the board certification process.

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32. Please list any additional information of interest in support of this residency application.

Please note this application is essential the same as the previous approved application with the exception of the extension of the 24 period to a 36 month period.

**Attachments:**

Please attach the following documents to the application if applicable. Please mark box to indicate which documents are included. Please list any addition documents attached in support of this application.

<b>Attached?</b>	<b>Documents</b>
X	Twenty-four (24) month calendar of resident's activities - <b>Required</b>
X	CV - ACVR-RO Diplomate - Program Director(s) - <b>Required</b>
X	CV - ACVR-R Diplomate(s) - <b>Required</b>
X	CV - ACVIM-O Diplomate(s) - <b>Required</b>
X	Syllabi of formal course work included in the training program – <b>Required</b>
X	Credentials of instructors providing formal course work - <b>Required</b>
X	Forms used in resident evaluation - <b>Required</b>
n/a	Letters of agreement from cooperating institutions - <b>Required</b>

## MedVet Radiation Oncology Residency Program Typical Training Schedule

MONTH	YEAR 1	YEAR 2	YEAR 3
1	RAD ONC	Medical Oncology	RAD ONC
2	RAD ONC	RAD ONC	RAD ONC
3	RAD ONC	Diagnostic Imaging	RAD ONC
4	RAD ONC	RAD ONC	RAD ONC
5	RAD ONC	RAD ONC	RAD ONC
6	RAD ONC	Project	RAD ONC/Vacation
7	Medical Oncology	RAD ONC	RAD ONC
8	RAD ONC	RAD ONC	RAD ONC
9	RAD ONC	RAD ONC/Vacation	RAD ONC
10	RAD ONC	RAD ONC	RAD ONC
11	RAD ONC	RAD ONC	Study for Certifying Examination
12	RAD ONC/Vacation	RAD ONC	Study for Certifying Examination

DEBORAH MCLEOD PRESCOTT, DVM, PhD

CURRICULUM VITAE

Date prepared: 8/29/04

**Name:** Deborah McLeod Prescott

**Primary appointment:** Radiation Oncologist - MedVet

**Date of birth:** 1/19/58

**Place:** Baltimore, Maryland

**Citizen of:** USA

**Veterinary Medicine Licensure and Board Certification:**

Ohio – OH License #8325

Alabama (Inactive)

Maryland, North Carolina, Florida, Kentucky, Georgia (Expired)

Diplomate, American College of Veterinary Radiology, Specialty of Radiation Oncology

<b>Education:</b>	<b>Place</b>	<b>Date</b>	<b>Degree</b>
High School	Spring Valley High School Columbia, SC	1972-1975	Diploma
College Science	Clemson University Clemson, SC	1975-1978 (degree conferred - 1980)	BS Pre-veterinary
Professional	University of Georgia Athens, GA	1978-1982	DVM Veterinary Medicine
Graduate	North Carolina State University Raleigh, NC	1986-1989	PhD Radiation Biology

Dissertation: Modification of Radiation Damage in the Canine Kidney by  
Hyperthermia: A Histologic and Functional Study.

**Professional experience and academic career:**

1982-1983: Small Animal Internship, School of Veterinary Medicine,  
Auburn University, Auburn, AL

1983-1985: Veterinary Associate, Radcliff Veterinary Clinic, Radcliff, KY

1985: Veterinary Associate, Catoosa Veterinary Clinic, Ringgold, GA

1986-1988: Graduate Research Assistant (Radiation Oncology), Department of Anatomy, Physiological Science, and Radiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC

**Professional experience and academic career (continued):**

- 1989-1990: Research Associate in Radiation Oncology, Division of Radiation Oncology, Department of Radiology, Duke University Medical Center, Durham, NC
- 1990-1993: Associate in Radiation Oncology, Department of Radiation Oncology, Duke University Medical Center, Durham, NC
- 1993-1997: Assistant Professor in Radiation Oncology, Department of Radiation Oncology, Duke University Medical Center, Durham, NC
- 1996-1997: President - Chapel Hill Veterinary Services, Inc. - mobile small animal practice providing full medical and surgical services to clients in the Research Triangle Area.
- 1996-1998: Adjunct Assistant Professor, Department of Anatomy, Physiological Sciences, and Radiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC
- 1997-1998: Associate Member in the Graduate Faculty - Department of Anatomy, Physiological Science, and Radiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC
- 1997-2002: Veterinary Radiation Oncologist - Veterinary Centers of America - Veterinary Referral Associates, Gaithersburg, MD
- 2002-Present: Veterinary Radiation Oncology Specialists – Affiliated with MedVet, Associates, Inc. Worthington, OH

**Honors:**

Magna Cum Laude - Clemson University, 1980  
Outstanding Senior Student in the Small Animal Clinic, University of Georgia, 1982  
Cum Laude - University of Georgia, 1982  
Phi Zeta - North Carolina State University, 1988  
President - NCSU College of Veterinary Medicine Graduate Student Association, 1988  
Phi Kappa Phi Honor Society - North Carolina State University, 1989  
Radiation Research Student Travel Award, 1989  
Radiation Research Travel Award, 1991

### **Professional and Scientific Societies:**

American College of Veterinary Radiology - Affiliate of Radiation Oncology  
Veterinary Radiation Therapy Oncology Group  
American Society for Therapeutic Radiology and Oncology  
American Veterinary Medical Association  
Veterinary Cancer Society  
Ohio Veterinary Medical Association  
Columbus Academy of Veterinary Medicine

### **Teaching Experience:**

#### Graduate or Professional Level

Participant in VMA 860, Radiology and Radiation Biology, Third year veterinary students, North Carolina State University, 1987, 1988.

Participant in Radiation Biology course for Radiation Oncology and Radiology Residents, Duke University Medical Center, 1989, 1990, 1992-1996.

Participant in Radiation Biology course for Radiation Oncology and Radiology Residents, University of North Carolina, School of Medicine, 1992, 1993.

Participant in Basic Science of Oncology course for 3rd Year Medical Students, Graduate Students, and Radiation Oncology Residents and Fellows, Duke University Medical Center, 1994, 1995, 1996.

### **Graduate Committees:**

Chieko Azuma, PhD candidate, NCSU, Committee Member.

YingHua Liang, PhD candidate, NCSU, Committee Member.

### **Publications: (Please note DA McLeod is maiden name.)**

#### A. Refereed Journals

1. Thrall DE, Page RL, **McLeod DA**: Use of insulation to reduce extremity temperature nonuniformity during whole body hyperthermia. *Cancer Res* 47:5880-5882, 1988.
2. Price GS, Armstrong PJ, **McLeod DA**, Babineau CA, Metcalf MR, Sellett LC: Evaluation of citrate, phosphate, dextrose, adenine (CPDA-1) as a storage medium for packed canine erythrocytes. *J Vet Inter Med* 2:126-132, 1988.

A. Refereed Journals (continued)

3. Thrall DE, Robertson ID, **McLeod DA**, Heidner GL, Hoopes PJ, Page RL: A comparison of radiographic and computed tomographic findings in 31 dogs with malignant nasal cavity tumors. *Vet Radiol* 30:59-66, 1989.
4. Thrall DE, **McLeod DA**, Bentel GC, Dewhirst MW: A review of treatment planning and dose calculation in veterinary radiation oncology. *Vet Radiol* 30:194-221, 1989.
5. **McLeod DA**, Thrall DE: The combination of surgery and radiation in the treatment of animal tumors: A review. *Vet Surg* 18:1-6, 1989.
6. Thrall DE, Page RL, Dewhirst MW, Macy DW, **McLeod DA**, Scott RJ, Allen S., Gillette EL: Whole body hyperthermia in dogs using a radiant heating device: Effects of heating technique on temperature uniformity. *Int J Hyperthermia* 5:137-143, 1989.
7. Thrall DE, Dewhirst MW, Page RL, Samulski TV, **McLeod DA**, Oleson J: A comparison of temperatures in canine solid tumors during local and whole-body hyperthermia administered alone and simultaneously. *Int J Hyperthermia* 6:305-317, 1990.
8. Dewhirst MW, **Prescott DM**, Clegg S, Samulski TV, Page RL, Thrall DE, Leopold K, Rosner G, Acker JC, Oleson JR: The use of hydralazine to manipulate tumor temperature during hyperthermia. *Int J Hyperthermia* 6:971-983, 1990.
9. **Prescott DM**, Hoopes PJ, Thrall DE: Modification of radiation damage in the canine kidney by hyperthermia: A histologic and functional study. *Radiat Res* 124:317-325, 1990.
10. Thrall DE, **Prescott DM**, Samulski TV, Dewhirst MW, Cline JM, Lee J, Page RL, Oleson JR: Serious toxicity associated with annular microwave array induction of whole body hyperthermia. *Int J Hyperthermia* 8:23-32, 1992.
11. Laskowitz DT, Elion GB, Dewhirst MW, Griffith OW, Savina PM, Blum MR, **Prescott DM**, Bigner DD, Friedman HS: Hyperthermia-induced enhancement of melphalan activity against human rhabdomyosarcoma xenografts. *Radiat Res* 129:218-223, 1992.
12. **Prescott DM**, Samulski TV, Dewhirst MW, Page RL, Thrall DE, Dodge RK, Oleson JR: Use of nitroprusside to increase tissue temperature during local

hyperthermia in normal and tumor-bearing dogs. *Int J Radiat Oncol Biol Phys* 23(2):377-385, 1992.

A. Refereed Journals (continued)

13. **Prescott DM**, Charles HC, Sostman HD, Page RL, Thrall DE, Moore D, Oleson JR, Dewhirst MW: Manipulation of intracellular and extracellular pH in spontaneous canine tumors by use of hyperglycemia. *Int J Hyperth* 9:745-754, 1993.
14. Sostman HD, **Prescott DM**, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR, Charles HC: MR imaging and spectroscopy for prognostic evaluation in soft-tissue sarcomas. *Radiology* 190:269-275, 1994.
15. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR: Therapy monitoring in human and canine soft tissue sarcomas using magnetic resonance imaging and spectroscopy. *Int J Radiat Oncol Biol Phys* 28:415-423, 1994.
16. Samulski TV, Clegg ST, Das S, MacFall J, **Prescott DM**: Application of new technology in clinical hyperthermia. *Int J Hyperth* 10:389-394, 1994.
17. Anscher MS, Murase T, **Prescott D**, Marks LB, Reisenbichler H, Bentel G, Spencer D, Sherouse G, Jirtle RL: Changes in plasma TGF- $\beta$  levels during pulmonary radiotherapy as a predictor of the risk of developing radiation pneumonitis. *Int J Radiat Oncol Biol Phys* 30:671-676, 1994.
18. MacFall JR, **Prescott DM**, Fullar E, Samulski TV: Temperature dependence of canine brain tissue diffusion coefficient measured in vivo with magnetic resonance echo planar imaging. *Int J Hyperth* 11:73-86, 1995.
19. Rosner GL, Clegg ST, **Prescott DM**, Dewhirst MW: Estimation of Tumor Cell Survival. *Int J Hyperth* 12:223-239, 1996.
20. Concannon KT, Price GS, **Prescott DM**: Adverse physiologic effects of the thermosensitizing agents amiloride and DIDS in normal dogs: Correlation to amiloride infusion rate. *Radiat Oncol Invest* 4:60-65, 1996.
21. Thrall DE, **Prescott DM**, Samulski TV, Denman DL, Legorreta RL, Rosner GL, Dodge RK, Page RL, Cline MJ, Lee J, Evans SM, Oleson JR, Dewhirst MW: Radiation and local hyperthermia versus radiation and whole body hyperthermia combine with local hyperthermia in canine sarcomas. *Int J Radiat Oncol Biol Phys* 34:1087-1096, 1996.

A. Refereed Journals (continued)

22. Jones DN, McCowage G, Sostman HD, Brizel DM, Layfield L, Charles HC, Dewhirst MW, **Prescott DM**, Friedman HS, Harrelson JM, Scully SP, Coleman RE: Monitoring of neoadjuvant therapy response of soft tissue and musculoskeletal sarcomas using F18-FDG PET. *J Nucl Med* 37:1438-1444, 1996.
23. MacFall JR, **Prescott DM**, Charles HC, Samulski TV: 1H MRI Phase Thermometry in vivo in Canine Brain, Muscle and Tumor Tissue. *Med Phys* 23:1775-1782, 1996.
24. **Prescott DM**, Charles HC, Poulson J, Page RL, Thrall DE, Vujaskovic Z, Dewhirst MW: The relationship of intracellular and extracellular pH in spontaneous tumors. *Clinical Cancer Research*, 6:2501-2505, 2000.
25. Vujaskovic Z, Poulson JM, Gaskin AA, Thrall DE, Page RL, Charles HC, MacFall JR, Brizel DM, Meyer RE, **Prescott DM**, Samulski T., Dewhirst MW: Temperature-dependent changes in physiologic parameters of spontaneous canine soft tissue sarcomas after combined radiotherapy and hyperthermia treatment. *Int J Radiat Oncol Biol Phys* 46:179-185, 2000.
26. Poulson J, Dewhirst MW, Gaskin AA, Vujaskovic Z, Samulski TV, **Prescott DM**, Meyer RE, Page RL, Thrall DE: Acute pancreatitis associated with administration of a nitric oxide synthase inhibitor in tumor-bearing dogs. *In Vivo*. 14:709-714, 2000.
27. Poulson JM, Vujaskovic Z, Gaskin AA, Larue SM, Meyer RE, **Prescott DM**, Samulski TV, Thrall DE, Dewhirst MW: Effect of calcitonin gene related peptide vs sodium nitroprusside to increase temperature in spontaneous canine tumours during local hyperthermia. *Int.J Hyperth.* 20:477-489, 2004.

B. Scientific Abstracts

1. **McLeod DA**, Thrall DE, Dewhirst MW, Page RL: Temperature nonuniformity in the canine kidney during whole body hyperthermia. *North American Hyperthermia Group 8th Annual Meeting*, Apr. 16-21, 1988.
2. Thrall DE, Dewhirst MW, Page RL, Heidner G, **McLeod DA**, Tso CY: Treatment of canine soft tissue sarcomas with radiation and hyperthermia - A phase II study with analysis of variables affecting response. *Vet Cancer Society 8th Annual Meeting*, Oct 3-5, 1988.

B. Scientific Abstracts (continued)

3. **McLeod DA**, Thrall DE, Hoopes PJ, Giesbrecht FE: Modification of radiation damage by hyperthermia in the canine kidney. *North American Hyperthermia Group 9th Annual Meeting*, Mar 18-23, 1989.
4. Stone EA, **McLeod DA**, Thrall DE: Effects of whole body hyperthermia on renal blood flow. *North American Hyperthermia Group 9th Annual Meeting*, Mar 18-23, 1989.
5. Thrall DE, Dewhirst MW, Samulski T, Page RL, **McLeod DA**, Oleson J: Temperatures in solid tumors during whole body hyperthermia alone and in combination with local hyperthermia. *North American Hyperthermia Group 9th Annual Meeting*, Mar 18-23, 1989.
6. **McLeod DA**, Samulski T, Dewhirst MW, Oleson J: Use of nitroprusside to induce step-down heating in canine subjects. *Vet.Cancer Society 9th Annual Meeting*, Oct 15-17, 1989.
7. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW: Use of hyperglycemia and vasoactive drugs to manipulate metabolic status of tumors. *North American Hyperthermia Group 10th Annual Meeting*, Apr 7-12, 1990.
8. **Prescott DM**, Samulski TV, Dewhirst MW, Oleson JR: Physiological manipulation using nitroprusside, a hypotensive agent, to induce step-down heating in canines. *North American Hyperthermia Group 10th Annual Meeting*, Apr 7-12, 1990.
9. Thrall D, **McLeod D**, Samulski T, Dewhirst M, Page R, Oleson J: Miniature annular phased array (MAPA) induction of whole body hyperthermia (WBH). *North American Hyperthermia Group 10th Annual Meeting*, Apr 7-12, 1990.
10. **Prescott DM**, Samulski TV, Dewhirst MW, Page R, Thrall DE, Oleson JR: Effects of nitroprusside on tumor and normal tissue temperatures during local hyperthermia in tumor-bearing dogs. *Vet Cancer Society 9th Annual Meeting*, Nov 4-6, 1990.
11. **Prescott DM**, Samulski TV, Nalesnik MA, Samulski RJ: Radiation-induction of solid tumors in a transgenic mouse line. *Radiation Research Society Workshop entitled Oncogenic Mechanisms in Radiation-Induced Cancer*, Jan 16-19, 1991.
12. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW: Use of hyperglycemia to manipulate metabolic status of spontaneous canine tumors. *Society for Magnetic Resonance Imaging*, Apr 13-17, 1991.

B. Scientific Abstracts (continued)

13. Laskowitz DT, Elion GB, Dewhirst MW, Griffith OW, Casero R, **Prescott DM**, Bigner DD, Friedman HS: Therapeutic interaction between hyperthermia, melphalan, and perturbations of glutathione and polyamine levels in human rhabdomyosarcoma xenografts. *American Association for Cancer Research Meeting*, 1991.
14. **Prescott DM**, Samulski TV, Schenkman DI, Nalesnik MA, Samulski RJ: Initial characterization of radiation-induction of solid tumors in a transgenic mouse line. *9th International Congress of Radiation Research*, July 7-12, 1991.
15. Oleson JR, Clegg S, Dewhirst MW, Samulski TV, **Prescott DM**, Rosner G, Murphy K: Variability associated with hyperthermia temperature sampling. *9th International Congress of Radiation Research*, July 7-12, 1991.
16. **Prescott DM**, Charles HC, Thrall DE, Page RL, Dodge RK, Sostman D, Dewhirst MW: Correlation of MRI/MRS parameters with time to local failure in spontaneous canine tumors following therapy with hyperthermia and radiation. *6th International Congress on Hyperthermic Oncology*, April 26-May 1, 1992.
17. Sostman HD, Charles HC, **Prescott DM**, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR: MRI/MRS for prognostic evaluation of soft tissue sarcomas. *17th LH Gray Conference*, 1992.
18. Zalutsky MR, Vaidyanathan G, Hoffman JM, **Prescott DM**, Dewhirst MW, Coleman RE: [C-11] alpha-aminoisobutyric acid (AIB): A potential blood-brain barrier permeability tracer for PET. *The Society of Nuclear Medicine 39th Annual Meeting*, June 9-12, 1992.
19. Sostman HD, Charles HC, **Prescott DM**, Dewhirst MW, Dodge RK, Thrall DE, Page RL, Tucker JA, Reece G, Harrelson J, Leopold KA, Oleson JR: MRI/MRS for prognostic evaluation of soft tissue sarcomas. *11th Annual Meeting of Society of Magnetic Resonance in Medicine*, Aug 8-14, 1992.
20. **Prescott DM**, Charles HC, Sostman HD, Leopold KL, Dodge RK, Thrall DE, Page RL, Oleson JR, Dewhirst MW: MRI/MRS for therapy monitoring in human and canine soft tissue sarcomas treated with hyperthermia and radiation. *34th Annual Scientific Meeting of the American Society for Therapeutic Radiology and Oncology*, Nov 9-13, 1992. *Int J Radiat Oncol Biol Phys* 24(Suppl 1):196, 1992.
21. Charles HC, **Prescott DM**, Britt J, Ong ET, Sostman HD, Dewhirst MW: Measurement of tumor pO<sub>2</sub> using a perfluorinated blood substitute and <sup>19</sup>F-MRS *Radiation Research Society - 41st Annual Meeting*, Mar 20-25, 1993.

B. Scientific Abstracts (continued)

22. **Prescott DM**, Charles HC, Sostman HD, Dewhirst MW: Effects of amiloride and DIDS on tumor pH in canines with spontaneous tumors. *North American Hyperthermia Group 13th Annual Meeting*, Mar 20-25, 1993.
23. Anscher MS, Marks LB, Sherouse G, Spencer D, **Prescott D**, Reisenbichler H, Jirtle RL: Changes in plasma transforming growth factor- $\beta$  levels during pulmonary irradiation. *Radiation Research Society - 41st Annual Meeting*, Mar 20-25, 1993.
24. Foltz RM, **Prescott D**, Samulski T, Clegg S, Maurer E, Bigner D, Dewhirst M: Manipulation of blood-brain barrier with microwave-induced hyperthermia. *North American Hyperthermia Group 13th Annual Meeting*, Mar 20-25, 1993.
25. MacFall JR, Samulski TV, **Prescott DM**: Echo planar imaging of tissue apparent diffusion coefficient in vivo during hyperthermia. *Society Magnetic Resonance Medicine*, Aug 14-20, 1993.
26. Anscher MS, **Prescott D**, Reisenbichler H, Spencer D, Bentel G, Marks LB, Sherouse G, Jirtle RL: Changes in plasma TGF- $\beta$  levels during pulmonary radiotherapy as a predictor of the risk of developing late radiation pneumonitis. *35th Annual Scientific Meeting of the American Society for Therapeutic Radiology and Oncology*, Oct 11-15, 1993. *Int J Rad at Oncol Biol Phys* 27(Suppl 1):182, 1993.
27. Anscher MS, Murase T, **Prescott D**, Reisenbichler H, Marks L, Bentel G, Spencer D, Jirtle RL: Plasma TGF- $\beta$  levels as a predictor for radiation pneumonitis. *Radiation Research Society - 42st Annual Meeting*, Apr 29-May 4, 1994.
28. MacFall JR, Samulski TV, **Prescott DM**, Fullar E: Thermal mapping using the MR image phase in vivo during hyperthermia. *Society of Magnetic Resonance - 2nd Meeting*, Aug 6-12, 1994.
29. MacFall JR, Samulski TV, **Prescott DM**, Fullar E: MR monitoring of tissue temperature and thermal damage during hyperthermia. *AAPM*, 1994.
30. Clegg ST, McCauley G, **Prescott D**, MacFall J: Prospective modeling of clinical hyperthermia treatments using MRI contrast images. *ASME*, 1995.
31. Thrall D, **Prescott D**, Samulski T, Denman D, Legorreta R, Page R, Cline M, Lee J, Evans S, Oleson J, Dewhirst M: A trial of radiation + local hyperthermia (LH)

versus radiation + whole body hyperthermia (WBH) + LH in canine tumors. *Radiation Research Society - 43rd Annual Meeting*, Apr 1-6, 1995.

B. Scientific Abstracts (continued)

32. Concannon KT, **Prescott D**, Price S, Dewhirst M: Cardiovascular effects and pharmacokinetic analysis of the thermosensitizing agents amiloride and 5-N,N(-Hexamethylene)-amiloride (HMA) in dogs. *North American Hyperthermia Group 15th Annual Meeting*, Apr 1-6, 1995.
33. **Prescott DM**, Concannon KT, Covington W, Samulski TV: Use of calcitonin gene-related peptide to increase tissue temperature during local hyperthermia in canines. *North American Hyperthermia Group 15th Annual Meeting*, Apr 1-6, 1995.
34. **Prescott DM**, Clegg ST, McCauley G, Concannon KT, Thrall D, Page R, MacFall J: Use of dynamic contrast-enhanced MRI to measure perfusion-related indices in canine tumors. *American College Veterinary Radiology 1995 Annual Meeting*, Aug 5-11, 1995.
35. **Prescott DM**, Clegg ST, McCauley G, Concannon KT, Thrall D, Page R, MacFall J: Use of MRI to measure perfusion-related indices in canine tumors. *Vet Cancer Society 15th Annual Meeting*, Oct 21-24, 1995.
36. **Prescott DM**, Samulski TV, Concannon KT, Brooks J, Thrall DE, Page RL, Dewhirst MW: Comparison of several vasoactive agents during local hyperthermia in normal and tumor-bearing dogs. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
37. **Prescott DM**, Clegg ST, McCauley G, Concannon KT, Brooks J, Thrall D, Page R, Charles HC, MacFall JR: Use of dynamic contrast-enhanced MRI to measure perfusion-related indices in canine tumors. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
38. Samulski TV, MacFall J, **Prescott DM**, Concannon K, Brooks J: Magnetic resonance chemical shift temperature mapping. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
39. **Prescott DM**, Dewhirst MW, Brooks J, Charles HC: Relationship of intracellular and extracellular pH in spontaneous soft tissue tumors in dogs. *Radiation Research Society - 45th Annual Meeting*, May 3-7, 1997.
40. MacFall JR, Samulski TV, Prescott DM, Poulson J: Temperature dependence of the apparent diffusion coefficient in anisotropic canine brain tissue *in vivo* for different diffusion directions. *ISMRM*, 1997.

C. Book Chapters

1. **Prescott DM**, Dewhirst MW, Hyperthermia: Update and current indications. In: *Kirk's Current Veterinary Therapy XI, Small Animal Practice*, Eds. Kirk RW, and Bonagura JD, WB Saunders, pp.418-423, 1992.
2. **Prescott DM**, Manipulation of physiological parameters during hyperthermia. In: *Principles and Practice of Thermoradiotherapy and Thermochemistry*, Eds. Seegenschmiedt MH, Fessendon P, and Vernon CC, Springer-Verlag, pp. 177-189, 1995.

D. Submitted manuscripts

1. Dewhirst MW, Prosnitz L, Thrall D, **Prescott D**, Clegg S, Charles C, Rosner G, Samulski T, Gillette E, LaRue S: Hyperthermic treatment of malignant diseases: Current Status and a view toward the future. *Int J Hyperth* (Submitted), 1997.
2. Carter DL, MacFall JR, Clegg ST, **Prescott DM**, Charles HC, Samulski TV: Magnetic resonance thermometry during hyperthermia for human high-grade sarcoma. . *Int J Radiat Oncol Biol Phys* (Submitted), 1997.

E. Invited Presentations

1. **Prescott DM**: Use of Client-Owned Pet Dogs with Spontaneous Tumors in Cancer Research. *NC Society of Radiologic Technologists, Inc.*, Apr 9, 1993.
2. **Prescott DM**, Charles HC, Samulski TV, Thrall DE, Dewhirst MW: Manipulation of Various Physiological Parameters to Enhance Thermal Sensitivity of Canine Spontaneous Tumors. *Radiation Research Society - 42st Annual Meeting*, Apr 29-May 4, 1994.
3. **Prescott DM**: Evaluation of Dynamic Contrast-Enhanced MRI as a Predictor of Tumor Heatability Pretherapy. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
4. **Prescott DM**: Soft Tissue Sarcomas as a Tumor Biologic Model. *VII International Congress on Hyperthermic Oncology*, Apr 9-13, 1996.
5. **Prescott DM**: Use of Dynamic Contrast-Enhanced MRI to Preselect Patients for Manipulation of Tumor Blood Flow During Hyperthermia. *Thomas Jefferson University Hospital - Bodine Center for Cancer Treatment*, May 15, 1996.
6. **Prescott DM**: Use of Dynamic Contrast-Enhanced MRI to Preselect Patients for Manipulation of Tumor Blood Flow During Hyperthermia. *University of Pennsylvania - School of Veterinary Medicine* May 16, 1996.

E. Invited Presentations (continued))

7. **Prescott DM:** Manipulation of Tumor pH to Enhance Cancer Therapy. *MR of Cancer Physiology and Metabolism*, Aug 7-9, 1996.

**Participation in academic and administrative activities of Duke University and the Medical Center:**

Member, Duke Comprehensive Cancer Center, 1992-1997  
Alternate Representative for the Department of Radiation Oncology, Clinical Faculty Sciences Council, Duke University Medical Center, 1994-1995  
Representative for the Department of Radiation Oncology, Clinical Faculty Sciences Council, Duke University Medical Center, 1995-Present  
Secretary, American College of Veterinary Radiology - Affiliate of Radiation Oncology, 1994-1999  
Member, Student Selection Committee, Duke Comprehensive Cancer Center's Summer on the Edge Program, 1995-1997.  
Mentor, Stephanie Broughton, Duke Comprehensive Cancer Center's Summer on the Edge Program, 1995  
Mentor, Timothy Carle, NC School of Science and Mathematics Mentorship Program, 1995-1996  
Mentor, Necia McRae, Duke Comprehensive Cancer Center's Summer on the Edge Program, 1996  
Member, Research-Track Promotion Committee, Clinical Faculty Sciences Council, Duke University Medical Center, 1996

**Prior Research Support:**

Fiscal 1987-1988, Determining the effects of whole body hyperthermia on renal blood flow with non-radioactive colored microspheres, School of Veterinary Medicine State Funds, North Carolina State University, \$17,985, Co-investigator, (E. Stone - P.I.)

Fiscal 1987-1990, Hyperthermia and perfusion effects in cancer therapy, NCI, \$3,770,379, Research Associate, (J. Oleson - P.I.)

Fiscal 1989-1990, Use of low voltage applicator in the treatment of cancer, Aqua Dynamics, Inc., Adamsville, Tennessee, \$6,001, Co-investigator, (M. Dewhirst - P.I.)

Fiscal 1990-1991, Use of low voltage applicator in the treatment of cancer, Aqua Dynamics, Inc., Adamsville, Tennessee, \$1,880, Principal Investigator

Fiscal 1993, Evaluation of NS-105 on choline uptake in the brain using MRS, Dupont/Merck, \$94,832, Co-P.I. (H.C. Charles - P.I.)

Fiscal 1990-1995, Hyperthermia and perfusion effects in cancer therapy, NCI, \$3,770,379, Investigator, (M. Dewhirst - P.I.)

**Prior Research Support (continued):**

Fiscal 1994-1996, Patient treatment planning for ultrasound induced hyperthermia using the finite element method, Whitaker Foundation, \$180,000, Veterinarian (S. K. Das - P.I.)

Fiscal 1992-1997, Ultrasound & Phased Array Applicators for Hyperthermia, NCI, \$924,715, Investigator (T.V. Samulski - P.I.)

Fiscal 1994-1997, Magnetic resonance monitoring of hyperthermia, NCI, \$599,383, Investigator (J.R. MacFall - P.I.)

Fiscal 1995-1997, Hyperthermia and perfusion effects in cancer therapy, NCI, \$14,286,022 (Total PPG), Project II - \$1,518,661 (Direct only), Project Director - Project II, Investigator – Project I&V (M. Dewhirst - P.I.)

Fiscal 1995-1997, Predicting human tumor response by 31P MRS, NCI, \$500,000, Investigator (H.C. Charles - P.I.)

# Curriculum Vitae

## Jonathan T. Shiroma, DVM, MS

### ***Title***

Veterinary Radiologist  
*Diplomate*  
*American College of Veterinary Radiology*

Radiology Consultant  
 MedVet Associates and  
 Columbus Veterinary Emergency Service  
 Indianapolis Veterinary Emergency Center  
 and Indianapolis Veterinary Referral

### ***Professional Positions***

May 22, 1995 – present	Staff Radiologist	MedVet Associates
September 27, 1991 - May 19, 1995	Assistant Professor	College of Veterinary Medicine University of Florida
August 15, 1988 - August 15, 1991	Resident in Radiology	Veterinary Clinical Sciences Ohio State University
July 1, 1987 - July 31, 1988	Intern	Santa Cruz Veterinary Hospital Santa Cruz, California
July 1, 1986 - May 30, 1987	Staff	Care Animal Hospital Honolulu, Hawaii

### ***Board Certification***

American College of Veterinary Radiology, 1993

### ***Education***

1988-1992	Veterinary Clinical Sciences Ohio State University	Master of Science
1982 - 1986	College of Veterinary Medicine Oregon State University Corvallis, Oregon	Doctor of Veterinary Medicine
1979 - 1983	Oregon State University	Bachelor of Science, General Science

## ***Refereed Publications***

Shiroma JT, Engel HN, Wagner PC, Watrous BJ. Dorsal subluxation of the proximal interphalangeal joint in the pelvic limb of three horses. *JAVMA* 1989;195:777-783.

Hardy J, Shiroma JT. What is your diagnosis? Luxation of the temporomandibular joint in a horse. *JAVMA* 1991;198:1663.

Hance SR, Shiroma JT, Bertone JJ. Ultrasonographic Diagnosis: Splenic lymphosarcoma in a horse. *Vet Radiol* 1992;33:101-102.

Shiroma JT, Weisbrode SE, Biller DS, Olmstead ML. Pathologic fracture of an aneurysmal bone cyst in the lumbar vertebra of a dog. *JAAHA* 1993;29:434-437.

Shiroma JT, Clark CK, BonenClark GD, Ginn PE, Keldahl CW. Paraesophageal cyst in a horse. *Vet Radiology & Ultrasound* 1994;35:158-161.

Simpson KW, Shiroma JT, Biller BS, Wicks J, Johnson SE, Dimski D, Chew D. Ante mortem diagnosis of pancreatitis in four cats. *J Small Anim Pract* 1994;35:93-99.

Marble SL, Edens LM, Shiroma JT, and Savage CJ. Massive spontaneous subcutaneous emphysema in a neonatal foal. *JAVMA* 1995;208:97-99.

Hawkins IF, Mladinich CRJ, Weingarten KE, Shiroma JT, Heaton-Jones T, Effects of carbon dioxide (CO<sub>2</sub>) Arterial infusion on hepatic function and histology in a rabbit model. *Investigative Radiology* 1995;30:192-195.

Stubbs WP, Voges AK, Shiroma JT, Wolf J. What is your diagnosis? Infiltrative lipoma of the parotid salivary gland. *JAVMA* 1996;209:55-56.

Romagnano A, Shiroma JT, Heard DJ, Mladinich CRJ, Schiering MR. MRI of the brain and coelomic cavity of the domestic pigeon (*Columbia livia domestica*).. *Vet Radiology & Ultrasound*, 1996;37(6):431-440

Leveille R, Biller DS, Shiroma JT. Sonographic evaluation of the common bile duct in cats. *J Vet Int Med*, 1996;10(5):296-9

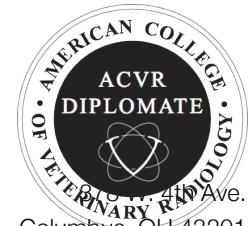
Shiroma JT, Gabriel JK, Carter RL, Scruggs SL, Stubbs PW. Effect of reproductive status on feline renal size. *Vet Radiology & Ultrasound*, 1999 May-Jun;40(3):242-5

Shiroma JT, Anderson SE. Radiographic Diagnosis: Esophageal foreign object. *Vet Radiology & Ultrasound*, 1999 Mar-Apr;40(2):126-7

Murphy ST, Lewis DD, Shiroma JT, Neuwirth LA, Parker RB, Kubilis PS. Effect of radiographic positioning on interpretation of cubital joint congruity in dogs. *Am J Vet Res*. 1998 Nov;59(11):1351-7)

Wosar MA, Lewis DD, Neuwirth L, Parker RB, Spencer CP, Kubilis PS, Stubbs WP, Murphy ST, Shiroma JT, Stallings JT, Bertrand SG. Radiographic evaluation of elbow joints before and after surgery in dogs with possible fragmented medial coronoid process. *J Am Vet Med Assoc*. 1999 Jan 1;214(1):52-8

Adam T Watson  
DVM, DACVR



810 W. 4th Ave.  
Columbus, OH 43201

**C** (614) 218-9519

**W** (614) 846-5800

[awatson@medvetohio.com](mailto:awatson@medvetohio.com)

## Current Position

**MedVet Medical & Cancer Center for Pets**  
Staff Radiologist

Worthington, OH

## Education

**Tufts Cummings School of Veterinary Medicine**  
Residency in Diagnostic Imaging, 2007-2010

North Grafton, MA

**MedVet Medical Center for Pets**

Radiology Internship, 2006-2007

Worthington, OH

**Oradell Animal Hospital**

Internship in Small Animal Medicine and Surgery, 2005-2006

Paramus, NJ

**The Ohio State University, College of Veterinary Medicine**

Doctor of Veterinary Medicine, June 2005

Columbus, OH

**The Ohio State University**

Bachelor of Science in microbiology, June 2000

Summa Cum Laude

Columbus, OH

## Research

1. "Combined Ultrasound-Guided Fine Needle Aspiration and Needle Core Biopsy of the Canine Spleen" *In process with intent for publication in 2010.* Authors: A. Watson, D. Penninck, J. Sutherland-Smith, J. Knoll, K. Burgess.
2. "Improved delineation of lateralized, extradural lesions on myelography" *Submitted to Vet Rad and Ultrasound.*  
Authors: A. Watson, J. Shiroma
3. OSU equine research assistant under Dr. Kenneth Hinchcliff (2000)
4. OSU microbiology research assistant under Dr. Darrell Galloway (1999-2000)

## Presentations

5. ACVR conference - "Combined Ultrasound-Guided Fine Needle Aspiration and Needle Core Biopsy of the Canine Spleen" (2010)
6. Tufts ultrasound course - "Ultrasound of the male and female reproductive system" (2009)
7. Tufts hospital grand rounds - "Imaging features of GI obstruction" (2008) and "Diagnostic imaging in pulmonary thromboembolism" (2009)
8. Tufts neuroradiology rounds - "Cerebral microhemorrhages" (2009)
9. MedVet grand rounds presentation - "Lung lobe torsion" (2007)
  - ◆ "Diagnostic ultrasonography in veterinary medicine"
    - ◆ Columbus State Community College (Nov 2006, Feb 2007)
    - ◆ MedVet CE for technicians (Dec 2006)
  - ◆ Oradell hospital grand rounds - "FLUTD" and "Lung lobe torsion" (2005)

## Teaching

- ◆ Tufts senior student clinical teaching of radiographic and ultrasonographic interpretation (weekly rounds)
- ◆ Tufts radiologic anatomy to 1- year veterinary students (quarterly)
- ◆ Universal Seminars basic abdominal ultrasound course lab instructor (Dec 2007, Feb 2008)

## Memberships and Awards

- ◆ ACVR member
- ◆ VECCS member (2008-present)
- ◆ ACVR senior student veterinary radiology award (2005)
- ◆ OSU award for excellence in radiology (2005)

## Meeting Attendance

- ◆ ACVR conference in Asheville, NC (2010)
- ◆ MRI short course at North Carolina State University (July 2008)
- ◆ Nuclear Medicine short course at the University of Tennessee (March 2008)
- ◆ VECCS conference (2008)
- ◆ ACVO conference (2007)

## Other Activities & Interests

- ◆ Developed MedVet radiology webpage (2007)
- ◆ OSU radiology department student employee (summers 2002, 2003)
- ◆ Competitive tennis
- ◆ Drums and percussion, jazz and recreational

## References

Mauricio Solano, MV, DACVR  
Tufts Cummings School of Veterinary Medicine - Resident Director and Assistant Professor  
200 Westboro Rd  
North Grafton, MA 01536  
(508) 839-7941  
[mauricio.solano@tufts.edu](mailto:mauricio.solano@tufts.edu)

Dominique Penninck, DVM, PhD, DACVR, DECVDI  
Tufts Cummings School of Veterinary Medicine - Professor  
200 Westboro Rd

North Grafton, MA 01536  
(508) 839-7941  
[dominique.penninck@tufts.edu](mailto:dominique.penninck@tufts.edu)

Amy Sato, DVM, DACVR  
Tufts Cummings School of Veterinary Medicine - Clinical Assistant Professor  
200 Westboro Rd  
North Grafton, MA 01536  
(508) 839-7941  
[amy.sato@tufts.edu](mailto:amy.sato@tufts.edu)

Jon Shiroma, DVM, MS, DACVR  
MedVet Medical and Cancer Center for Pets  
300 E. Wilson Bridge Rd.  
Worthington, OH 43085  
(614) 846-5800  
[jshiroma@medvetohio.com](mailto:jshiroma@medvetohio.com)

Orla Mahony, MVB, DACVIM, DECVIM  
Tufts Cummings School of Veterinary Medicine - Clinical Assistant Professor  
200 Westboro Rd  
North Grafton, MA 01536  
(508) 839-5302  
[orla.mahony@tufts.edu](mailto:orla.mahony@tufts.edu)

Lisa Fulton DVM, DACVIM  
300 E. Wilson Bridge Rd.  
Worthington, Ohio 43085  
USA  
614-846-5800 Ext. 2201  
E-mail: lfulton@medvet-cves.com

EDUCATION:

Miami University, Oxford, OH	BA Zoology (Cum Laude) 1974-1978
Ohio State University, Columbus, OH	DVM (Cum Laude) 1978-1982
The Animal Medical Center, New York, NY	Internship: Small Animal Medicine and Surgery 1982-1983
The Animal Medical Center, New York, NY	Residency: Medical Oncology 1983-1985

EMPLOYMENT:

VCA - Veterinary Referral Associates, Gaithersburg, MD 1985-2005  
Staff Oncologist Practice limited to oncology and internal medicine  
MedVet - Medical Center for Pets, Worthington OH 2005-Present  
Staff Oncologist

PROFESSIONAL MEMBERSHIPS:

Diplomate of the American College of Internal Medicine (Oncology)  
American Veterinary Medical Association  
Maryland Veterinary Medical Association  
Veterinary Cancer Society

PROFESSIONAL LICENSES:

Maryland  
Ohio  
Massachusetts  
New York

PUBLICATIONS:

Fulton, LM Steinberg HS: Preliminary Study of Lomustine in the Treatment of Intracranial Masses in Dogs Following Localization by Imaging Techniques. Semin Vet Med Surg (Small Animal) 1990; 5:241-245.

Fulton, LM, Bromberg NM, Goldschmidt MH: Soft Tissue Fibrosarcoma with Intraocular Metastasis in a Cat. Progress in Veterinary & Comparative Ophthalmology 1991; 1:129-132.

Jankowski M, Fulton LM: Betathine a Novel Antitumor Agent for Cats and Dogs: Results of an Ongoing Phase I/II Evaluation. Veterinary Cancer Society Newsletter Summer 1999

PRESENTATIONS:

- “Canine Lymphosarcoma” New Jersey Dog Federation, Inc. Newark, NJ 10/83
- “Veterinary Oncology” Mercy College Animal Technician Program NY, NY 5/85
- “Visceral Mast Cell Tumor in the Cat” The AMC Continuing Education Lecture NY, NY 5/85
- “Alimentary Lymphosarcoma in the Cat” Veterinary Cancer Society Meeting Purdue, IN 4/86
- “Abdominal Neoplasia in the Cat” Friendship An Hosp Continuing Ed Seminar Washington, DC 5/86
- “Cancer and Veterinary Practice” NOVA Veterinary Technician Program Leesburg, VA 5/86 & 5/87
- “Introduction to Chemotherapeutic Agents and Their Application in Small Animals MD/PA Mid-Atlantic States Veterinary Clinic Timonium, MD 5/91
- “The Use of Lomustine for the Treatment of Brain Masses in Dogs” The 9<sup>th</sup> Annual ACVIM Forum New Orleans, LA 5/91
- “Lymphoma in the Ferret” The 9<sup>th</sup> Small Mammal Veterinary Conference Baltimore, MD 8/97
- “Canine Mast Cell Tumor” Wheeling Area

This is a copy of the e-mail from Dr. Snapka allowing my residents to participate in the Radiation Biology Course offer at OSU.

**From:** Robert M. Snapka [<mailto:snapka.1@osu.edu>]

**Sent:** Saturday, September 10, 2005 5:08 PM

**To:** Deb Prescott

**Subject:** Re: Radiation Biology and Physics class for Radiation Oncology Residents

Your residents are very welcome. Vet Med students, including those with a specialty interest in radiology, have done well in our class in the past. We maintain a library of board type exams, including in-service exams, radiology board exams and others, which we base many of our test questions on. These also include vet rad exams that I have been provided with in the past, but they strongly resemble the exams the COM rad Onc residents take. I have attached a lecture schedule. As you see, we meet on Wed each week at 4:30 PM and the lectures are 2 hr. We continually update them. The board exams have been increasing emphasis on molecular aspects of radiation biology (cell cycle checkpoints, DNA repair mechanisms etc) and we will be including them. We will all be including material in the new BEIR VII report in this year's lectures. I'll be glad to talk to you about the course, let me know when is the best time to call.  
-Bob Snapka

At 06:23 PM 9/9/2005, you wrote:

Hi,

I was given your name, phone numbers and e-mail addresses from Dr. John Hoftiezer. I am a veterinary radiation oncologist that will be starting a residency training program next year. To appropriately prepare the candidate for boards, I would like to have them complete/attend a radiation biology, a radiation physics course and if possible a cancer biology course that is similar to the course work providing to radiation oncology residents at your facility.

When I did my radiation oncology training at North Carolina State Univ School of Vet Med, I attended the radiation biology, radiation physics and cancer biology courses offered at Duke Univ. Medical Center for their radiation oncology residents. I know that these classes are probably early in the AM in order to avoid conflicts with the clinical responsibilities for the residents.

Since it is now late on Friday and I haven't had a chance to talk to either of you, I thought that I would start with this e-mail asking your permission for my future residents to attend your classes. If you have a chance to call me, I would love to talk to each of you further. I am currently preparing the application to get the radiation oncology residency program approved. Therefore, with your permission, I can attach syllabi for the courses as well as names of the instructors and their credentials to the application.

Thank you for your help now and in the future.  
Deb

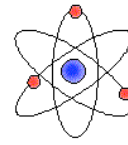
Deborah M. Prescott, DVM, PhD  
Diplomate ACVR in Radiation Oncology

Rad Onc Ph 614-431-4403  
MedVet Ph 614-846-5800

fax 614-431-6296



**RADIATION BIOLOGY**  
 (Radiology 680, Fall 2005, Call #17914-8, 2 credit hrs)  
 S-207 Rhodes Hall, 450 W. 10th Av., Wednesdays, 4:30 pm



Text: *Radiobiology for the Radiologist*  
 5th edition, Eric J. Hall, Lippincott, 2000  
 Aux. Text: Basic Clin. Radiobiol. Steel, 3<sup>rd</sup> Ed. Snapka.1@OSU.edu

Coordinator: Robert M. Snapka,  
 2001 Polaris Parkway 293-0822

<u>Lecture</u>	<u>Date</u>	<u>Topic &amp; Instructor</u>	<u>Hall Chapter</u>	<u>Steel</u>
1.	Sept 21	Physics of Radiation Biology, Dr. Robert Snapka	1, 7, 14	
2.	Sept 28	Cellular & Molecular Aspects of Radiation Biology, Dr. Steven D'Ambrosio (Dambrosio.1@osu.edu)	4, 16, 17	1, 2
3.	Oct 5	Cell Death, Apoptosis and Survival, Dr. Altaf Wani (wani.2@osu.edu)	3, 18, 20	
4.	Oct 12**	Molecular Mechanisms of Damage and Recovery, Dr. Altaf Wani	5, 7	
5.	Oct 19	Modification of Radiation Damage, Dr. Altaf Wani	6, 9, 25, 28	
6.	Oct 26	Organ & Tissue Pathogenesis, Dr. Steven D'Ambrosio	13, 19	3, 4, 5
7.	Nov 2**	Radiation Carcinogenesis, Dr. Robert Snapka	10	
8	Nov 9	Whole Body & Time-dose relationship Dr. Steven D'Ambrosio	8, 12, 22	12
9	Nov 16	Genetics and Molecular Mechanisms of Radiation Mutagenesis, Dr. Robert Snapka	2, 11	
10	Nov 23	NO CLASS (Thanksgiving Nov 24, Columbus Day Nov 25)		
11	Nov 30	Occupational and Medical Exposure, Dr. Robert Snapka	24, 25	

\*\* = Midterm Exam

Grade Value:

Class participation 20%

Midterms (2, mult.choice) 30%

Final Exam 50% (Dec 7, 4:30 pm)

This is a copy of the e-mail from Dr. Nilendu Gupta where he sent me the syllabus for the Radiation Physics course.

**From:** Nilendu Gupta [ <mailto:gupta.6@osu.edu> ]

**Sent:** Tue 9/20/2005 8:46 AM

**To:** Deb Prescott

**Subject:** Re: Radiation Biology and Physics class for Radiation Oncology Residents

Dr. Prescott,

Sorry for not sending this to you earlier. Attached is the Syllabus for Physics. I have to get the same from Dosimetry and send it to you later.

--Nilendu

At 08:33 AM 9/20/2005, you wrote:

Hi,

Wanted to make sure you got my fax number to send me a copy of the medical physics syllabus. The fax # is listed below and comes directly to my office. If it is a word document, you could also email it to me.

I have to finish the application this week so I can send it out next Monday. Again Thanks for your help.

deb

Deborah M. Prescott, DVM, PhD  
Diplomate ACVR in Radiation Oncology

Rad Onc Ph 614-431-4403  
MedVet Ph 614-846-5800  
fax 614-431-6296

***Division of Radiation Oncology***  
***Arthur G. James Cancer Hospital & Richard J. Solove Research Institute***

**RESIDENCY TRAINING PROGRAM**

**Radiation Physics: The Physics of Therapeutic Radiology**

**Instructors:** C. Kanellitsas, Ph.D., N. Gupta, Ph.D., N. Samsami, Ph.D & S. Marsh, M.S.

This course deals with basic atomic and nuclear physics at a simplified level: the production and properties of the types of radiation involved in Radiation Oncology, their interaction with matter, and their measurement.

**Text:** Faiz M. Khan. *The Physics of Radiation Therapy*, 3<sup>rd</sup> ed. Philadelphia: Lippincott, 2003.

**MODULE I:    4 HRS            NS**

**1.    STRUCTURE OF MATTER**

The Atom  
The Nucleus  
Distribution of Orbital Electrons  
Atomic Energy Levels Nuclear Forces  
Particle Radiation  
Electromagnetic Radiation  
    Wave Model  
    Quantum Model

**2.    NUCLEAR TRANSFORMATIONS**

Radioactivity  
Radioactive Series  
Radioactive Equilibrium  
Modes of Radioactive  
Decay  
     $\alpha$  Particle Decay  
     $\beta$  Particle Decay  
    Negatron Emission  
    Positron Emission  
    Electron Capture  
    Internal Conversion  
    Isomeric Transition  
    Nuclear Reactions  
        The  $\alpha, p$  Reaction  
        The  $\alpha, n$  Reaction  
        Proton Bombardment  
        Deuteron Bombardment  
        Neutron Bombardment  
        Photodisintegration  
        Fission

## Fusion

Activation of Nuclides

Nuclear Reactors

### 3. PRODUCTION OF X-RAYS

The X-Ray Tube

The Anode

The Cathode

Basic X-Ray Circuit

Voltage Rectification

Physics of X-Ray Production

Bremsstrahlung

Characteristic X-Rays

X-Ray Energy Spectra

Operating Characteristics

## **MODULE II: 3 HRS NS**

### 4. CLINICAL RADIATION GENERATORS

Kilovoltage Units

Grenz-Ray Therapy

Contact Therapy

Superficial Therapy

Orthovoltage Therapy or Deep Therapy

Supervoltage Therapy

Megavoltage Therapy

Linear Accelerator

The Magnetron

The Klystron

The Linac X-Ray Beam

The Electron Beam

Treatment Head

Target and Flattening Filter

Beam Collimation and Monitoring

Gantry

Betatron

Microtron

Cyclotron

Machines Using Radionuclides

Cobalt-60 Unit

Source

Source Housing

Beam Collimation and Penumbra

Heavy Particle Beams

Neutrons  
D-T Generator  
Cyclotron  
Protons

**MODULE III: 3 HRS            TBA**

**5. INTERACTIONS OF IONIZING RADIATION**

Ionization

Photon Beam Description

Photon Beam Attenuation

Coefficients

Attenuation Coefficient

Energy Transfer Coefficient

Energy Absorption Coefficient

Interactions of Photons with Matter

Coherent Scattering

Photoelectric Effect

Compton Effect

Special Cases of Compton Effect

Direct Hit

Grazing Hit

90<sup>0</sup> Photon Scatter

Dependence of Compton Effect on Energy and Atomic Number

Pair Production

Annihilation Radiation

Variation of Pair Production with Energy and Atomic Number

Relative Importance of Various Types of Interactions

Interactions of Charged Particles

Heavy Charged Particles

Electrons

Interactions of Neutrons

Comparative Beam Characteristics

**MODULE IV & V: 5 HRS            TBA**

**6. MEASUREMENT OF IONIZING RADIATION**

Introduction

The Roentgen

Free-Air Ionization Chamber

Thimble Chambers

Chamber Wall

Effective Atomic Number  
Chamber Calibration

Practical Thimble Chambers .

Chamber Sensitivity  
Stem Effect  
Farmer Chamber

Electrometers

Special Chambers

Extrapolation Chamber  
Parallel-Plate Chambers

Ion Collection

Saturation  
Collection Efficiency

Chamber Polarity Effects  
Environmental Conditions

Measurement of Exposure

## 7. QUALITY OF X-RAY BEAMS

Half Value Layer

Filters

Measurement of Beam Quality Parameters

Half-Value Layer  
Peak Voltage  
    Direct Measurement  
        Voltage Divider  
        Sphere-Gap Method

Effective Energy  
Mean Energy

Measurement of Megavoltage Beam Energy

Measurement of Energy Spectrum

## 8. MEASUREMENT OF ABSORBED DOSE

Radiation Absorbed Dose

Absorbed Dose

Kerma  
Exposure and Kerma  
Absorbed Dose and Kerma

Calculation of Absorbed Dose from Exposure

Absorbed Dose to Air  
Absorbed Dose to any Medium  
Dose Calibration with Ion Chamber in Air  
Dose Measurement from Exposure with Ion Chamber in a Medium

The Bragg-Gray Cavity Theory

Stopping Power  
Chamber Volume  
Effective Point of Measurement  
    Plane Parallel Chambers  
    Cylindrical Chambers

Calibration Protocol for Megavoltage Beams

Cavity-Gas Calibration Factor ( $N_{gas}$ )

Chamber as a Bragg-Gray Cavity

Photon Beams

- Electron Beams
- Transfer of Absorbed Dose from One Medium to Another
  - Photon Beams
  - Electron Beams
- Exposure from Radioactive Sources
- Measurement of Absorbed Dose
  - Calorimetry
  - Chemical Dosimetry !
    - Ferrous Sulfate (Fricke) Dosimeter
    - G Value
  - Solid State Methods
    - Thermoluminescence Dosimetry
    - Simplified Theory of TLD
    - Lithium Fluoride
    - Practical Considerations
  - Film Dosimetry

**MODULE VI: 3 HRS                    TBA**

**9. DOSE DISTRIBUTION AND SCATTER ANALYSIS**

- Phantoms
- Depth Dose Distribution
- Percentage Depth Dose
  - Dependence on Beam Quality and Depth
    - Initial Dose Buildup
  - Effect of Field Size and Shape
  - Dependence on Source-Surface Distance
- Tissue-Air Ratio
  - Effect of Distance
  - Variance with Energy, Depth, and Field Size
    - Backscatter Factor
  - Relationship between TAR and Percent Depth Dose
    - Conversion of Percent Depth Dose from One SSD to Another---the TAR Method
  - Calculation of Dose in Rotation Therapy
- Scatter-Air Ratio
  - Dose Calculation in Irregular Fields-Clarkson's Method

**10. TREATMENT PLANNING: FUNDAMENTALS**

- Dose Calculation Parameters
  - Collimator Scatter Factor
  - Phantom Scatter Factor
  - Tissue-Phantom and Tissue-Maximum Ratios
    - Properties of TMR
  - Scatter-Maximum Ratio
- Practical Applications
  - Accelerator Calculations
    - SSD Technique
    - Isocentric Technique
    - Cobalt-60 Calculations
- Isodose Chart
- Measurement of Isodose Curves

- Sources of Isodose Charts
- Parameters of Isodose Curves
  - Beam Quality
  - Source Size, SSD, and SDD- The Penumbra Effect
  - Collimation and Flattening Filter
  - Field Size
- Wedge Filters
  - Wedge Isodose Angle
  - Wedge Transmission Factor
  - Wedge Systems
  - Effect on Beam Quality
  - Design of Wedge Filters

**MODULE VII: 2 HRS            TBA**

**11. ELECTRON BEAM THERAPY**

- Electron Interactions
  - Rate of Energy Loss
    - Collisional Losses (Ionization and Excitation)
    - Radiation Losses (Bremsstrahlung)
    - Polarization
    - Stopping Power
    - Absorbed Dose
  - Electron Scattering
- Energy Specification and Measurement
  - Most Probable Energy
  - Mean Energy
  - Energy at Depth
- Determination of Absorbed Dose
  - Output Calibration
    - Ion Chamber
    - Phantom
    - Reference Depth and Field Size
    - Absorbed Dose Calculation
  - Depth Dose Distribution
    - Ionization Chambers
    - Silicon Diodes
    - Film
    - Phantoms
- Characteristics of Clinical Electron Beams
  - Central Axis Depth Dose Curves
  - Isodose Curves
  - Field Flatness and Symmetry
    - Beam Collimation
  - Field Size Dependence
  - Electron Source
  - X-Ray Contamination
- Treatment Planning
  - Choice of Energy and Field Size
  - Corrections for Air Gaps and Beam Obliquity
  - Tissue Inhomogeneities
    - Bone

- Lung
- Small Inhomogeneities
- Use of Bolus and Absorbers
- Problems of Adjacent Fields
- Field Shaping
  - External Shielding
  - Effect of Blocking on Dose Rate
  - Internal Shielding
- Electron Arc Therapy
  - Calibration of Arc Therapy Beam
  - Treatment Planning
    - Beam Energy
    - Scanning Field Width
    - Location of Isocenter
    - Field Shaping
    - Isodose Distribution
- Total Skin Irradiation
  - Translational Technique
  - Large Field Technique
    - Field Flatness
    - X-Ray Contamination
    - Field Arrangement
    - Dose Distribution
    - Dual Field Angle
    - In Vivo Dosimetry

**MODULE VIII:      3 HRS      TBA**

**12: BRACHYTHERAPY**

- Radioactive Sources
  - Radium
    - Decay
    - Source Construction
    - Source Specification
    - Exposure Rate Constant
    - Radon Hazard
  - Cesium-137
  - Cobalt-60
  - Iridium-192
  - Gold-198
  - Iodine-125
  - Palladium-103
- Calibration of Brachytherapy Sources
  - Specification of Source Strength
    - Activity
    - Exposure Rate at a Specified Distance
    - Equivalent Mass of Radium
    - Apparent Activity
    - Air Kerma Strength
- Calculation of Dose Distributions
  - Exposure Rate
    - Effect of Inverse Square Law

- Absorbed Dose in Tissue
- Isodose Curves
- Systems of Implant Dosimetry
  - The Paterson-Parker System
  - Planar Implant
  - Volume Implants
  - Paterson-Parker Tables
  - Determination of Implant Area or Volume
    - Orthogonal Radiographs
  - The Quimby System
  - The Memorial System
  - The Paris System
  - Computer System
- Computer Dosimetry
  - Localization of Sources
    - Orthogonal Imaging Method
    - Stereo-Shift Method
  - Dose Computation
- Implantation Techniques
  - Surface Molds
  - Interstitial Therapy
  - Intracavitary Therapy
    - Uterine Cervix
    - Uterine Corpus
- Dose Specification: Cancer of the Cervix
  - Milligram-Hours
  - The Manchester System
    - Dose to Bladder and Rectum
  - The ICRU System
    - Absorbed Dose at Reference Points
  - Commentary

**MODULE IX: 2 HRS                      TBA**

**13. RADIATION PROTECTION**

- Dose Equivalent
- Effective Dose Equivalent
- Background Radiation
- Low-Level Radiation Effects
- Effective Dose Equivalent Limits
  - Occupational and Public Dose Limits
  - Dose Limits for Pregnant Women
  - Negligible Individual Risk Level
- Structural Shielding Design
  - Primary Radiation Barrier
  - Secondary Barrier for Scattered Radiation
  - Secondary Barrier for Leakage Radiation
  - Door Shielding
  - Protection against Neutrons
- Protection against Radiation from Brachytherapy Sources

- Storage
- Source Preparation
- Source Transportation
- Leak Testing
- Radiation Protection Surveys
  - Radiation Monitoring Instruments
    - Ionization Chamber
    - Geiger-Muller Counters
    - Neutron Detectors
  - Equipment Survey
  - Area Survey
- Personnel Monitoring
  - Administrative Requirements
    - ALARA Program
    - Radiation Safety Officer
    - Radiation Safety Committee
    - Quality Management Program

**MODULE X: 1 HR                      TBA**

**14. QUALITY ASSURANCE**

- Equipment
  - External Beam Units
  - Brachytherapy Sources
- Dosimetric Accuracy
- Acceptance Testing
  - Linear Accelerator
    - Radiation Survey
    - Jaw Symmetry
    - Coincidence
    - Collimator Axis, Light Beam Axis and Cross-Hairs
    - Light Beam with X-Ray Beam
  - Mechanical Isocenter
    - Collimator Rotation
    - Gantry Rotation
  - Radiation Isocenter
    - Collimator
    - Treatment Table
    - Gantry
  - X-Ray Beam Performance
    - Energy
    - Field Flatness
    - Field Symmetry
  - Electron Beam Performance
    - Energy
    - Flatness and Symmetry
  - Monitor Chambers
  - Wedges
- Commissioning
  - Linear Accelerator
    - Central Axis Depth Dose Tables
    - Isodose Curves



**Department of  
Pathology**



**N-308 Doan Hall  
410 W. Tenth Avenue  
Columbus, OH 43210  
Phone: 293-3055  
Fax: 293-7273**

**SUBJECT:** Pathology/Veterinary Biosciences 640, "Fundamentals of Oncology"  
**DATE:** September 19, 2005  
**FROM:** Rolf F. Barth, M.D. (Pathology) and  
Charles C. Capen, D.V.M., Ph.D. (Veterinary Biosciences)  
Course Coordinators  
**TO:** Participating Faculty

Attached is a draft of the lecture schedule for our course Pathology/Veterinary Biosciences 640 "Fundamentals of Oncology", which will be given during Winter Quarter 2006. Would you please check your calendar for any possible conflicts? Please call or e-mail Gretchen Staschiak in the Pathology Education Office (3-3055) or fax (3-7273), e-mail [Staschiak.2@osu.edu](mailto:Staschiak.2@osu.edu) if you have a conflict with your tentative assigned date. Please let us know and we will come up with an alternative. If we don't hear from you by September 28th, we will assume that the time that you have been scheduled for is satisfactory. We plan to distribute this lecture outline as a course announcement using the Cancer Center mailing list in the third week of October for posting across campus.

The required text will be the new, fourth edition of *The Basic Science of Oncology* by Tannock and Hill (McGraw Hill, 2005). Copies of the chapters relating to your lecture/discussion topic will be sent to you in November. We suggest that you include the chapter(s) as part of the assigned reading for your session. Further details relating to the course will be sent to you in early December.

Thank you again for your continued interest and participation in this course!

Attachment

**PATHOLOGY / VETERINARY BIOSCIENCES 640  
FUNDAMENTALS OF ONCOLOGY**

**Winter Quarter 2006**

**Tuesdays and Fridays, 3:30-5:30 p.m., Room 400 Health Sciences Library  
Use call number for either Pathology or Veterinary Biosciences (4 Credit Hours)**

The course will be oriented towards graduate students in cancer-related programs and will consist of a series of lecture/seminars, each two hours in duration, covering a variety of aspects of experimental oncology including chemical and biologic carcinogenesis, epidemiology, genetics, developmental biology, biochemistry, cell kinetics, clonality, metastases, hormonal and immunologic factors, and the molecular basis of cancer therapy. Reading will be from primary sources in the current scientific literature and the required text, *The Basic Science of Oncology* (4<sup>th</sup> edition, 2005) by Ian Tannock and Richard Hill, et. al. Seminars will be interactive and encourage critical evaluation of the reading assignments. Enrollment will be limited to approximately 20 students.

Jan. 3	Course Overview	Rolf Barth, M.D. and Charles Capen, D.V.M., Ph.D.
Jan. 3	Nomenclature, Classification, & Pathology of Neoplasms; Properties of Malignant Cells	Steven Weisbrode, D.V.M, Ph.D, Veterinary Biosciences
Jan. 6	Epidemiology of Cancer	Randall Harris, M.D., Ph.D., Preventive Medicine
Jan. 10	Oncogenes & Tumor Suppressor Genes	Jas Lang, Ph.D., Otolaryngology
Jan. 13	Oncogenes & Tumor Suppressor Genes	Jas Lang, Ph.D., Otolaryngology
Jan. 17	Oncogenes & Tumor Suppressor Genes	Jas Lang, Ph.D., Otolaryngology
Jan. 20	DNA Viruses and Cancer	Marshall Williams, Ph.D., Molecular Virology, Immunology and Medical Genetics
Jan. 24	RNA Viruses and Cancer	Patrick Green, Ph.D., Veterinary Biosciences
Jan. 27	Chemical Carcinogenesis	Michael Pereira, M.D., Internal Medicine
Jan. 31	Radiation Carcinogenesis and Other Physical Agents	Altaf Wani, Ph.D., Radiology
Feb. 3	Midterm Examination Hall	4:00 pm – 7:00 pm, 107 Hamilton
Feb. 7	Growth Factors and Intracellular Signaling Medicine	Sissy Jhiang, Ph.D., Internal
Feb. 10	Genetic Testing	Gail Wenger, Ph.D., Pathology
Feb. 14	Genetic Basis of Cancer	Steven Qualman, M.D., Pathology
Feb. 17	Cancer Cytogenetics	Nyla Heerema, Ph.D., Pathology

<b>Feb. 21</b>	<b>Tumor Growth and Cell Kinetics</b>	<b>Dale Vandre, Ph.D., Physiology &amp; Cell Biology</b>
<b>Feb. 24</b>	<b>Tumor Immunology Pathology</b>	<b>Xue-Feng Bai, M.D., Ph.D.</b>
<b>Feb. 28</b>	<b>Invasion and Metastasis Tumor Angiogenesis</b>	<b>Sanford Barsky, M.D., Pathology Rolf Barth, M.D., Pathology</b>
<b>Mar. 3</b>	<b>Hormones and Cancer</b>	<b>Charles Capen, D.V.M., Ph.D., Veterinary Biosciences</b>
<b>Mar. 7</b>	<b>Experimental Radiotherapy  Gene Therapy</b>	<b>Steven D'Ambrosio, Ph.D., Radiology Sissy Jhiang, Ph.D., Internal Medicine</b>
<b>Mar. 10</b>	<b>Biological and Pharmacological  Properties of Anti-Cancer Drugs</b>	<b>Michael Grever, M.D., Internal Medicine</b>
<b>Mar. 13</b>	<b>Final Examination Hall</b>	<b>4:00 pm – 7:00 pm, 107 Hamilton</b>

**Course Coordinators: Rolf F. Barth, M.D. (2-2177) Department of Pathology, and Charles C. Capen, D.V.M., Ph.D. (247-6206) Department of Veterinary Biosciences**



## ~Resident Performance Evaluation~

Resident: \_\_\_\_\_  
 Department: \_\_\_\_\_  
 Advisor: \_\_\_\_\_

Year of Evaluation: \_\_\_\_\_  
 Review Date: \_\_\_\_\_

### RATINGS

<b>1</b>	<b>Unsatisfactory</b>
<b>2</b>	<b>Improvement Needed</b>
<b>3</b>	<b>Meets Expectations</b>
<b>4</b>	<b>Exceeds Expectations</b>

### I. Clinical Ability

▪ Knowledge (theory/principle)	1	2	3	4
▪ Application of knowledge	1	2	3	4
▪ Productivity	1	2	3	4
▪ Patient Management/Care	1	2	3	4
▪ Communication/Listening Skills	1	2	3	4
▪ Innovative Problem Solving/Creativity	1	2	3	4

Section I Total = \_\_\_\_\_

### II. Sense of responsibility

▪ Initiative, motivation	1	2	3	4
▪ Judgement	1	2	3	4
▪ Reliability	1	2	3	4
▪ Organization	1	2	3	4
▪ Punctuality/attendance at rounds and seminars	1	2	3	4

➤ \_\_\_\_\_  
 ➤ \_\_\_\_\_  
 ➤ \_\_\_\_\_

Section II Total = \_\_\_\_\_

### III. Interpersonal Skills

▪ Positive Attitude/Sense of Humor	1	2	3	4
▪ Professional Appearance	1	2	3	4
▪ Communication with Internal Staff/Drs	1	2	3	4
▪ Receptiveness towards guidance	1	2	3	4
▪ Performance under stress	1	2	3	4

Section III Total = \_\_\_\_\_

### Scoring

- Section I Total \_\_\_\_\_
- Section II Total \_\_\_\_\_
- Section III Total \_\_\_\_\_

**TOTAL POINTS = \_\_\_\_\_**



