# ACVR - RO New Residency Program Application

Please review the Radiation Oncology (RO) Residency Program Essentials Training Standards and Requirements document prior to completing this form.
The following documents will be needed to complete the application:

- CVs (current within 1 year and a maximum of 2 pages each) for radiation oncology, diagnostic imaging, and medical oncology Diplomates involved in the training program
- Syllabi for coursework in medical physics, cancer biology, and radiation biology (including internal and external courses)
- Letters of agreement from cooperating institutions
- Letter of agreement from medical physics support for clinical training
- Resident calendar that includes the following:
  - 24 months of RO-specific activities (primary case responsibility, treatment planning, 1 week/year of radiation therapist activities)
  - 8 weeks of medical oncology
  - 4 weeks of diagnostic imaging
  - 40 hours of medical physics
  - 40 hours of clinical pathology
  - 80 hours of anesthesia in minimum 1-week blocks
  - 2 weeks of neurology
  - 2-week minimum off-clinic time per year (study, research, etc) not including vacation
  - Vacation time as mandated by state/institution
  - Required outrotations at cooperating institutions
- Resident evaluation forms

**Submission Date** Tuesday, November 23, 2021

**Your Name** Kim A Selting

**Your Address** 1008 W. Hazelwood Dr.
Urbana, Illinois, 61802

**Your Email Address** seltingk@illinois.edu

**Radiation Oncologists in support of the program (Must be Diplomate(s) of the ACVR):**

| First Name | Last Name | Title/Credentials | Email | Phone | Number of weeks per year Diplomate is available to supervise* the resident |
|---|---|---|---|---|---|
| | | | | | |

| First Name | Last Name | Title/Credentials | Email | Phone | Number of weeks per year Diplomate is available to supervise* the resident |
|---|---|---|---|---|---|
| Kim | Selting | DACVIM (O), DACVR (RO) | seltingk@illinois.edu | 2173335300 | 46 |

*Resident supervision is defined as being available on-site 40 hours/week (defined as a 4- or 5-day work week to equal a minimum of 40 hours) to support the resident in radiation oncology-related activities including patient consultation/management, review of treatment plans, position verification and participation in daily case-based rounds.

**Which of the Radiation Oncology Diplomates listed above will serve as the Residency Director? This individual will be the primary contact for the residency program and will be responsible for completing all necessary forms/reviews and notifying the RO RSEC of any changes to the program. The Residency Director must be a Diplomate of the ACVR and must be located at the primary training institution.**

Kim Selting

**Please confirm that during the minimum 24 months of RO-specific activities, a Supervising Diplomate will be present on site to supervise the resident as defined above for 40 hours/week (4-5 days).**

Yes

**Comments:**

As I am currently the only radiation oncologist, I do have 2 non-clinic days each week. On those days I am either in my office (which is part of the RT area) or working from home (coming in for at least part of one of those days and accessible to my residents at all times, and able to come to the clinic within 5 minutes when needed). We are actively recruiting a second radiation oncologist.

A standard residency program is one that meets all of the residency program requirements set forth in the ACVR-RO Residency Essentials Training Standards document. An alternative or amended program is designed for one specific individual/resident and satisfactorily meets all of the residency program requirements, but is completed in an extended timeline (more than 3 years but fewer than 5 years).

**This application is made for (check one):**

Standard Program

**Comments:**

I have a 2-year standard and a 2-year alternative program approved, and am moving to a 3-year program as required

by ACVR.

| | |
|---|---|
| **What is the total length of the training program?** | 36 months |
| **Number of months dedicated solely to radiation oncology-specific activities as defined in the ACVR-RO Residency Essentials Training Standards document (RO-specific activities include primary case responsibility, treatment planning, 1 week/yr of therapist activities):** | 24 |
| **Primary Site:** | Illinois |
| **Hospital/University:** | University of Illinois Veterinary Teaching Hospital |
| **Department:** | Veterinary Clinical Medicine |
| **Address** | 1008 W. Hazelwood Dr.<br>Urbana, Illinois, 61802 |

**Advanced Degree and Research/Publication Requirement**

| | |
|---|---|
| **Masters** | Yes |
| **PhD** | No |
| **Research Project** | Yes |
| **Publication** | Optional |

**Documentation of residency completion is required to obtain Diplomate status. Is receipt of residency certificate dependent on completion of advanced degree/research/publication?**

No

| | |
|---|---|
| **It is required that a residency in veterinary radiation oncology provide the trainee with experience in formulation of radiation treatment plans, dose calculation, and treatment administration for veterinary patients with cancer. This includes generation of both manual and computer-based treatment plans for megavoltage external beam irradiation. External beam planning experience must include both forward and inverse planning, even if only one of those types is utilized for treatment at the primary facility. Does the program fulfill these requirements?** | Yes |
| **It is required that a residency in veterinary radiation oncology provide the trainee with experience in primary case responsibility, including new referrals, ongoing radiation patients, and follow-up visits. This includes receiving patients, clinical rounds, client/referring DVM communications, and medical records keeping. Does the program fulfill these requirements as described on page 12 of the RO Essentials document?** | Yes |
| **Comments:** | In addition to working with our medical oncology clinicians, radiation oncology receives directly approximately 2-6 new cases per week and 4-8 rechecks, all of which are the primary responsibility of the residents. |
| **It is required that a residency in veterinary radiation oncology provide the trainee with a minimum of 1 week per year of radiation therapist activities to include daily linear accelerator quality assurance and warm up, patient positioning for treatment planning CT and therapy, radiation delivery (as allowed by the state/province), and acquisition of position verification imaging. Does the program fulfill these requirements?** | Yes |
| **How will the resident be trained in radiation biology? Please provide a description of formal and informal training experiences, or indicate time allotted for self-study.** | The radiation oncologist will direct training in radiation biology. This will be accomplished primarily through book clubs using “Radiobiology for the Radiologist” by Eric Hall, as well as “Basic Clinical Radiobiology” by Michael Joiner and Albert van der Kogel. One book per year will be covered, |

| | |
|---|---|
| | including responsibility of the resident to summarize and present the contents. Currently there is no formal radiation oncology course. Any opportunity to support the attendance of the resident at a forum (workshop, online course, other) that will augment this training will be considered. |
| **Please provide instructors' names and credentials for radiation biology formal and informal training:** | Kim A. Selting, DVM, MS, DACVIM (Oncology), DACVR (Radiation Oncology) |
| **How will the resident be trained in cancer biology? Please provide a description of formal and informal training experiences, or indicate time allotted for self-study.** | Every fall semester, the medical oncology residents work through a textbook on the Biology of Cancer such as those by Tannock and Hill (The Basic Science of Oncology), Pecorino (The Molecular Biology of Cancer), and Weinberg (The Biology of Cancer). This is a formal 1 credit course taught by Dr. Tim Fan. The resident will be required to audit this class and to participate fully. Finally, the resident will attend the Veterinary Cancer Society at least one year and will attend the resident review workshop. |
| **Please provide instructors' names and credentials for cancer biology formal and informal training:** | Tim Fan, DVM, PhD, DACVIM (Oncology) |
| **How will the resident be trained in medical physics? Please provide a description of formal and informal didactic (non-clinical) experiences, or indicate time allotted for self-study.** | The resident will be trained in radiation oncology physics in various ways, mostly informal. The radiation oncologist will spend one semester reviewing "The Physics of Radiation Therapy" by Khan. In addition, our physicist is willing and enthusiastic about contributing to the training of the resident. Based in Chicago (2 hours away), he will be traveling to the University of Illinois for monthly and annual quality assurance. The resident will be present during some QA. The physicist has also offered to review a series of lectures on radiation physics in a one-on-one setting with the resident. Lectures and review of Raphex exam questions will primarily occur when the physicist is visiting for monthly QA. The physicist is also available by phone, email, or text to answer any questions when needed. He is employed as an adjunct faculty. In addition, the resident will be supported to attend one physics workshop (radiation physics bootcamp) if it is offered (most recently at the University of California at Davis). |
| **Please provide instructors' names and credentials for didactic (non-clinical) medical physics formal and informal training:** | Waleed Al-Najjar, Ph.D., DABR, DABMP |

**Medical physics training requires 1 week or 40 hours of clinical contact with a qualified medical physicist. Please provide a description of the training experience.**

Resident will spend 1-2 hours with Dr. Al-Najjar at least once monthly for a minimum of 40 hours.

**Medical Physicist(s) in support of clinical training in the residency program**

| First Name | Last Name | Title/Credentials | Physicist on-site? Y/N |
|---|---|---|---|
| Waleed | Al-Najjar | PhD, DABR, DABMP | No |

**A minimum of 1 hour of medical literature review with an ACVR-RO Diplomate is required monthly. Please describe this experience, and any additional formal or informal conferences available to the resident (including journal clubs, seminars, book reviews, etc.) that are not already listed above:**

Residents are continuously encouraged to perform a literature search for papers relevant to specific cases. In addition, I participate with the residents in weekly journal club during the academic year on Thursday mornings from 8-9 am. There is almost always at least one article selected for review that includes the use of radiation therapy. Once or twice monthly, I meet with the rad onc residents only to review a chapter in a required text (Khan or Hall or Joiner).

**The resident is required to present at least 2 lectures or scientific presentations during the course of the residency. Please describe how the program will fulfill this requirement:**

Our department has a weekly Friday morning seminar from 9-10 am for house officers to present a topic of choice or their resident project. The resident will be scheduled to participate in this series at least 2 out of 3 years. In addition, if possible and depending on progress, the resident will be expected to present their masters research at a conference (either VCS or ACVR).

The program must include an external beam radiation therapy machine in the megavoltage range and 3D computerized radiation treatment-planning capabilities to create treatment plans used for treatment delivery. Residents must have on-site access to treatment planning systems capable of forward and inverse planning even if both types of planning techniques are not deliverable at that institution.

**Please list the manufacturer and model of the on-site external beam radiation therapy delivery system:**

Varian TrueBeam 2.7

**Please list the manufacturer and model of the on-site radiation therapy treatment planning system(s). Please indicate whether they are capable of forward or inverse planning, or both, and whether or not they are used clinically to deliver treatments:**

Eclipse v15, capable of both forward and inverse planning including both MLC and cone-based SRS/SBRT/SRT, variable dose rate, and motion management. This system is used to deliver all computer-based treatment plans. ARIA provides Verify and Record capability.

The clinical training requirements in the following six questions, described on pages 15 and 16 of the RO Essentials document can be fulfilled at a cooperating institution if the primary institution lacks resources to accomplish them. Training at cooperating institutions must be supervised by a Supervising or Supporting ACVR-RO Diplomate and a letter of agreement from the cooperating institution is required. The training requirements can be combined into a single minimum 2-week learning experience at the cooperating institution.

**The residency program requires hands-on clinical experience to develop expertise and self-sufficiency in manual setups and manual**

Delivery of palliative protocols with a manual set up occurs

| | |
|---|---|
| **treatment planning with photons. How does the program fulfill this requirement?** | regularly (on average 1-2 times per month), with distal limb or mandibular lesions treated most commonly in this manner. In addition to learning the components of an equation to hand calculate monitor units, a spreadsheet has been developed to double check calculations. Physics tables are kept in the planning area at all times and residents are tasked with looking up the necessary factors and creating a manual plan for these cases. |
| **The residency program requires hands-on clinical experience to develop expertise and self-sufficiency in manual setups and manual treatment planning with electrons. How does the program fulfill this requirement?** | Electrons are used for palliative treatment with manual calculations for clinical patients approximately every 2 months. Superficial lymph nodes and cutaneous lesions (MCT, LSA) are common. As with manual calculations of photons, residents are tasked with using physics tables to find the appropriate factors and calculate monitor units. |
| **The residency program requires hands-on clinical experience with forward planning for 3D conformal radiotherapy (non-IMRT). How does the program fulfill this requirement?** | For most cases, residents are asked to create a 3DCRT plan for each case. In many cases, a VMAT/IMRT is most appropriate and is then created. In this way, they do both forward and inverse planning for these cases and can see the difference between the two and pick the most appropriate plan, considering time to deliver, monitor units, conformity of isodose lines, and dose to OARs. Plan comparisons can be performed in Eclipse with concurrent display on DVH and side-by-side review of transverse images showing isodose lines. |
| **The residency program requires hands-on clinical experience with inverse planning for IMRT. How does the program fulfill this requirement?** | As noted above, most cases are subjected to both forward and inverse planning. Eclipse is equipped with both static IMRT and VMAT capabilities. |
| **The residency program requires hands-on clinical experience in on-board imaging verification with MV or KV CT. How does the program fulfill this requirement?** | The TrueBeam has onboard imaging with kV CBCT and most cases have positioning verified in this manner. |
| **The residency program requires hands-on clinical experience in on-board imaging verification with kV digital radiographs. How does the program fulfill this requirement?** | The kV imager can be directed to take kV images. This is most often used when verifying manual set ups. |
| **The residency program requires hands-on clinical experience in on-board imaging verification with MV portal imaging. How does the program fulfill this requirement?** | The TrueBeam has a megavoltage EPID device and MV portal imaging is performed most often for manual set ups. Whether to use kV or MV imaging to verify positioning for a manual set up depends on the location and size of the tumor, and the anatomy of the patient. In some cases, kV imaging is used to verify positioning and then a MV port is performed for future comparison or to double check the treatment field or add an MLC shape to shield an OAR. |
| **Radiologist(s) in support of the residency program [Must be Diplomate(s) of the ACVR or ECVDI]** | |

| First Name | Last Name | Title/Credentials | Diplomate on-site? Y/N |
|---|---|---|---|
| Audrey | Billhymer | DVM, DACVR | Yes |

**The residency program requires at least 26 weeks/year of on-site diagnostic imaging support from a ACVR or ECVDI Diplomate and availability for remote support for at least 45 weeks/year. How will the institution fulfill this requirement?**

Dr. Billhymer is a clinical track assistant professor and thus is on-site 80% of her appointment (approximately 38 weeks). When she is not available, off-site resources such as Oncura and VetCT are available for questions and reports.

**How will the resident be trained in diagnostic imaging? Please provide a description of formal and informal training experiences as well as a description of the resident's role while rotating on a diagnostic imaging service:**

In addition to review of individual cases to confirm target volumes, the resident will spend a minimum of 4 weeks dedicated to diagnostic imaging when Dr. Billhymer is able to supervise, instruct, and mentor them. During these 4 weeks, the resident will not be involved in radiation treatments and will not be responsible for RT cases. The resident will review imaging and generate preliminary reports which will be reviewed, edited, and finalized by Dr. Billhymer.

**The program must have on-site access to modern radiographic equipment, including digital or computed radiography, ultrasound, and CT. Does the institution fulfill this requirement?**

Yes. We have digital radiography, 3T MRI, ultrasound (both in imaging and in oncology, with a recent acquisition of a new machine), and Siemens Somatom 120 slice CT scanner with gating capabilities.

**Medical Oncologist(s) in support of the residency program [Must be Diplomate(s) of the ACVIM, Specialty of Oncology]**

| First Name | Last Name | Title/Credentials | Diplomate on-site? Y/N |
|---|---|---|---|
| Laura | Garret t | DVM, MS, DACVIM (O) | Yes |
| Tim | Fan | DVM, PhD, DACVIM (O) | Yes |
| Alycen | Lundb erg | DVM, DACVIM (O) | Yes |
| Kim | Seltin g | DVM, DACVIM (O), DACVR (RO) | Yes |

**The residency program requires at least 26 weeks/year of on-site medical oncology support from an ACVIM (Oncology) Diplomate. How will the institution fulfill this requirement?**

The current radiation oncologist is also board-certified by ACVIM in oncology, and there are 3 additional ACVIM (Oncology) diplomates in direct support of the program. One of those 3 will be supervising the oncology rotation at all times.

**How will the resident receive training in medical oncology? Please provide a description of formal and informal training experiences as well as a description of the resident's role while rotating on a medical oncology service:**

As an integrated service, the resident will have daily access to medical oncologists. The resident will be able to receive feedback on case management during daily case rounds when applicable. In addition, the resident will be assigned to the medical oncology service for a minimum of 8 weeks,

and during those weeks the resident will not manage or receive radiation therapy cases but will be assigned medical oncology cases with an emphasis on those that are unlikely to require radiation therapy. In addition to case management and rounds, the resident will attend all book and journal clubs, and will be expected to contribute material to these rounds.

**Surgeon(s) in support of the residency program [Must be Diplomate(s) of the ACVS]**

| First Name | Last Name | Title/Credentials | Diplomate on-site? Y/N |
|---|---|---|---|
| Heidi | Phillips | VMD, DACVS | Yes |
| Clara | Moran | DVM, MS, DACVS | Yes |
| Kyle | Chu | DVM, DACVS | Yes |
| Hadley | Gleason | VMD, MS, DACVS | Yes |

**The residency program requires at least 26 weeks/year of on-site surgical support from an ACVS Diplomate. How will the institution fulfill this requirement?**

A faculty DACVS surgeon is assigned to clinical service 52 weeks per year, with one dedicated to orthopedics and one to soft tissue and oncologic surgery. We have open positions for additional surgeons as well as for a fellowship-training oncologic surgeon. When staffing requires, locum surgeons are also utilized.

**Pathologist(s) in support of the residency program [Must be Diplomate(s) of the ACVP (Anatomic or Clinical Pathology) or ECVP (Clinical Pathology)]**

| First Name | Last Name | Title/Credentials | Diplomate on-site? Y/N |
|---|---|---|---|
| Anne | Barger | DVM, MS, DACVP (CP) | Yes |
| Wes | Baumgartner | DVM, PhD, DACVP (AP) | Yes |
| Sara | Connolly | DVM, MS, DACVP (CP) | Yes |
| Patrick | Roady | DVM, MS, DACVP (AP) | Yes |
| Mike | Rosser | DVM, MS, DACVP (CP) | Yes |
| Jonathan | Samuelson | DVM, MS, DACVP (AP) | Yes |
| Amy | Schnelle | DVM, MS, DACVP (CP) | Yes |
| Miranda | Vieson | DVM, PhD, DACVP (AP) | Yes |

**The residency program requires at least 45 weeks/year of anatomic and clinical pathology support by ACVP Diplomates. If not on-site, a letter of support must be submitted. How will the institution fulfill this requirement?**

At least one of the pathologists listed above is on duty 52 weeks per year, with one clinical pathologist for clinic cases, and one

anatomic pathologist for necropsy with additional pathologists performing histopathology.

**At least 1 week or 40 hours in a clinical rotation or rounds with a clinical pathologist are required during the residency program. If off-site, a letter of agreement must be submitted. How will the institution fulfill this requirement?**

During the academic year, clinical pathology provides cytology rounds on Friday mornings from 8-9 am. Residents are required to attend (now available online as well) unless they are on vacation or have cases that require immediate attention.

**Anesthesia Specialists in support of the residency program [Must be Diplomate(s) of the ACVAA or ECVAA, or Veterinary Technician Specialists (VTS)]**

| First Name | Last Name | Title/Credentials | Diplomate on-site? Y/N |
|---|---|---|---|
| Graeme | Doodnaught | BSc (Hons), BVM&S, MSc, DES, MRCVS, DACVAA | Yes |
| Stephanie | Keating | DVM, DVSc, DACVAA | Yes |
| Danielle | Strahl-Heldreth | DVM, MS, MSEd, DACVAA | Yes |
| Nicole | Trenholme | DVM, MS, DACVECC, DACVAA | Yes |

**The residency program requires two 1-week (40-hour per week) clinical rotations (80 hours in total) in anesthesia with an Anesthesia Specialist, as defined above. Please provide a description of this training experience and the resident's role on this rotation.**

Residents will be assigned to the anesthesia service for either two 1-week rotations or one 2-week rotation. During that time they will function as a student, assessing patients and developing an anesthesia plan that is approved by the board-certified anesthesiologist on duty and supervised by a dedicated anesthesia technician. The anesthesiologist will also intermittently supervise most anesthetic events and be available for questions when indicated. During these two weeks, the resident will not have any responsibilities for radiation therapy.

**Neurologist(s) in support of the residency program [Must be Diplomate(s) of the ACVIM, Specialty of Neurology or ECVN]**

| First Name | Last Name | Title/Credentials | Diplomate on-site? Y/N |
|---|---|---|---|
| Devon | Hague | DVM, DACVIM (Neuro) | Yes |
| Kari | Foss | DVM, MS, DACVIM (Neuro) | Yes |

**The residency program requires a 2-week clinical rotation supervised by a Diplomate of the ACVIM (Neurology) or ECVN. Please provide a description of the training experience and resident's role on this rotation.**

The resident will be assigned to a 2-week rotation during which time they will not be responsible for any duties in radiation therapy. During that time they will manage neurology cases of all kinds, spinal and brain, tumors and seizures, discs and neuropathies. Their role in these cases will be to manage them with a neurology resident and with the direct supervision of a boarded neurologist.

**Please list all additional board certified specialists in direct support**

**of the residency program. If offsite, please explain relationship:**

| Name | Certifying College/Board | Subspecialty (if applicable) | Explain Relationship if offsite |
|---|---|---|---|
| Krista Keller | ACZM | | |
| Sam Sander | ACZM | | |
| Jennifer Reinhart-Dungar | ACVIM | Small Animal | |
| Arnon Gal | ACVIM, ACVP | Small Animal, Anatomic Path | |
| Marcella Ridgeway | ACVIM | Small Animal | |
| David Williams | ACVIM | Small Animal | |
| Ryan Fries | ACVIM | Cardiology | |
| Saki Kadotani | ACVIM | Cardiology | |
| Bailey Braeme | ACVD | Dermatology | |
| Clarissa Souza | ACVD | Dermatology | |
| Amy Somrak | AVDC | Dentistry | |
| Jenica Haraschak | ACVECC | | |
| Meghan Fick | ACVECC | | |

**Evaluation of resident performance and progress must be documented every 6 months through appropriate techniques, including faculty appraisal, or oral or written tests, or a combination of these. Institutional resident evaluation forms should be submitted as part of the residency application. How will the program fulfill this requirement?**

Residents will be evaluated every 6 months with a standard form adapted from our medical oncology resident evaluations. Feedback from medical oncology faculty will be requested prior to completion and review of the evaluation with the resident.

| | |
|---|---|
| **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 possible, provide the status of each individual with respect to the board certification process.** | None yet. The first rad onc resident at the University of Illinois (2-year program) will finish in 2022. |
| **Please list any additional information of interest in support of this residency application.** | We have active searches open for a second radiation oncologist as well as a diagnostic radiologist and additional surgeons including an oncologic surgeon. |

How is the resident training experience presently impacted by the COVID-19 pandemic? Please comment on the following:

1. On-site presence of residents and radiation oncology faculty
2. Caseload
3. Faculty oversight of radiation treatment planning and patient management
4. Rounds/seminars/journal club and other didactic courses
5. Non-radiotherapy clinical rotations
6. External rotations

Since the beginning of the pandemic, we have not taken any time away from clinic duty. Our caseload, if anything, increased. Because veterinarians are considered essential personnel, we continued to come every day to treat patients even during lockdown. COVID has primarily changed the way we bring patients into the hospital, lead to the routine use of Zoom for daily rounds and weekly journal club with medical oncology. Faculty has continued to come in person to work, both medical and radiation oncology. Our residents do not do external rotations. Residents will have 6-7 weeks off clinics to focus on masters work in addition to flexibility during clinic days when needed. The comparative oncology laboratory is located adjacent to the radiation therapy area. Residents are provided with 2 weeks of vacation per year.

# Upload the following information

- CVs (current within 1 year and maximum of 2 pages) for each radiation oncologist, radiologist and medical oncologist involved in the training program
- Resident calendar that includes the following:
    - 24 months of RO-specific activities (primary case responsibility, treatment planning, 1 week/year of radiation therapist activities)
    - 8 weeks of medical oncology
    - 4 weeks of diagnostic imaging
    - 40 hours of medical physics
    - 40 hours of clinical pathology
    - 80 hours of anesthesia in minimum 1-week blocks
    - 2 weeks of neurology
    - 2-week minimum off-clinic time per year (study, research, etc) not including vacation
    - Vacation time as mandated by state/institution
    - Required outrotations at cooperating institution(s)
- Letters of agreement from cooperating institutions
- Letter of agreement from medical physics support for clinical training

- Residency evaluation forms
- Syllabi for any formal or informal coursework

## CVs

2pagerTimFanNov2021.docx

Billhymer2pgBiosketch.docx

Lundberg CV.pdf

Selting Biosketch AKC Aug 2021 2pg.docx

biosketch 2021 garrett.docx

## Resident Calendar

Calendar of activities for radiation oncology r...

## Residency Evaluation Forms

Resident review form Nov2021.doc

## Syllabi for Coursework

Journal club 2021.docx

Syllabi for informal coursework.docx

Translational Pathogenesis of Veterinary Dis...