



RESIDENCY TRAINING PROGRAM REGISTRATION  
2018-2019  
NEUROLOGY

Part One

New applications for ACVIM Residency Training Programs must be received by the Residency Training Committee 90 days prior to any residents beginning training. Before completing this form, please review the general and specific requirements for Neurology Residency Training Programs in the ACVIM Certification Manual (CM). The most current version of the CM is available on the ACVIM website at [www.ACVIM.org](http://www.ACVIM.org). If there is a discrepancy between this form and the CM, the CM will be considered correct, however, please contact the ACVIM office or the Residency Training Committee Chairperson for clarification.

Prior to making significant changes in a Residency Training Program, approval of the ACVIM and Neurology Residency Training Committee must be obtained. The Candidate and/or Program Director must notify ACVIM, in writing. Significant changes could include, but are not limited to: changes in Program Director or advisors, transferring from one program to another, alterations in program duration, locations of secondary site training, switching to a 'dual board' program, or enrolling in an institutional graduate program.

**Notice:** This form contains questions for three separate purposes; data collection that ACVIM must maintain for its accreditation as a specialty college; data collection for each specialty to evaluate what is appropriate for residency programs; and data collection to evaluate this Residency Training Program for renewal. It is important that all questions be answered accurately and completely, even if the answer to a specific question is not essential for a program's renewal.

**For multi-site residency programs:** To ensure uniformity of training and compliance with current CM requirements, training programs that include multiple sites must provide detailed information regarding supervision and facilities available at each specific site(s). Multi-site programs, if any, are listed in Part Two.

Program Director Name :

(Must be a Diplomate of ACVIM in the Specialty of Neurology or an approved Diplomate of the European College of Veterinary Neurology)

Program Director's Contact Information:

|                  |   |
|------------------|---|
| Work Phone:      | <input type="text" value="(517) 353-5420"/>   |
| E-mail:          | <input type="text" value="careys@cvm.msu.edu"/>   |
| Mailing Address: | <input type="text" value="736 Wilson Road"/><br><input type="text" value="Room D208"/><br><input type="text" value="East Lansing, MI 48824"/> |

1. Location of Sponsoring Institution (Primary Site of Training Program):

Primary Site and Length of Program:

Multi-site programs, if any, are listed in Part Two.

2. Resident Advisor(s): Must be a Diplomate of ACVIM in the Specialty of Neurology or a Diplomate of ECVN.

[Kathryn Winger](#)

3. Supervising Diplomates in Neurology: Must be a Diplomate of ACVIM in the Specialty of Neurology or a Diplomate of ECVN.

[Joshua Gehrke - Neurology](#)

4. All Diplomates of ACVIM or ECVIM responsible for supervision of clinical training who are specialists in areas other than Neurology.

[Stephan Carey - SAIM](#)

[John Kruger - SAIM](#)

[Kate Holan - SAIM](#)

[Daniel Langlois - SAIM](#)

[N. Bari Olivier - Cardio](#)

[Robert Sanders - Cardio](#)

[Christine Swanson - Oncology](#)

[Paulo Vilar - Oncology](#)

[Elizabeth Carr - LAIM](#)

[Melissa Esser - LAIM](#)

[Susan Ewart - LAIM](#)

[Tom Herdt - LAIM](#)

[Harold Schott - LAIM](#)

5. Residents currently participating in your training program, along with the beginning date of the program, expected ending date of the program, and designated Resident Advisor.

| Resident Name, Dates of Program, (Resident Advisor) |
|---|
| <a href="#">None</a>                                |

**Please note, any Program Director or Candidate that significantly changes or alters their Residency Training Program before completion must notify ACVIM, in writing, before the changes are made to ensure that the proposed changes are approved.**

**Significant changes could include, but are not limited to:**

- **transferring from one program to another**
- **alterations in program duration**
- **switching to a 'dual board' program**
- **enrolling in an institutional graduate program**
- **change of Program Director or Resident Advisor**



RESIDENCY TRAINING PROGRAM REGISTRATION
2018-2019
NEUROLOGY

Part Two

Part Two of the Neurology Residency Training renewal process addresses general features of the program that apply to all current residents. These questions will be used to provide the Residency Training Committee with information needed to judge the structure, quality, scope, and consistency of training provided.

Current Date: 2/5/2018

Program Director Name: Stephan Carey, DVM, PhD, DACVIM (SAIM)

(Must be a Diplomate of ACVIM in the Specialty of Neurology or an approved Diplomate of the European College of Veterinary Neurology)

In order to comply with the 2018-2019 Certification Manual that states that the Program Director (PD) be ACVIM board-certified for at least five years and have at least three years of experience training residents, Stephan Carey DVM, PhD, DACVIM (SAIM) will assume this responsibility whereas the previous PD Kathryn Winger, DVM, DACVIM (Neurology) will remain the Resident Advisor and Supervising Diplomate.

Name of Sponsoring Institution (Residency Training Program): Michigan State University College of Veterinary Medicine

1. For multi-site residency programs: To ensure uniformity of training and compliance with current GIG requirements, training programs that include multiple sites must provide detailed information regarding supervision and facilities available at each specific site(s).

Secondary Site/Outside Rotations (if applicable):

(Please include the following for each site: Supervising Diplomate (ACVIM or other specialty), amount of time scheduled at the site and training requirements to be met.

There are currently two board certified radiologist in support of our residency training program - Anthony Pease, DVM, MS, DACVR (Oquendo Center) and Rachel Policelli, DVM, DACVR (Oakland Veterinary Referral Services). Both are off-site but continue to read imaging studies remotely for the Michigan State University College of Veterinary Medicine. Telecommunication occurs daily for discussion of advanced cases (notably CT and MRI review). A minimum one week off-site rotation with Dr. Rachel Policelli will offer 40 hours of direct contact in the clinical setting. Neuroimaging rounds and advanced training opportunities will also be provided on-site.

2. Length of Training Program:

Form with checkboxes for 'Yes' for 2 years, 3 years, and Other -provide details.

3. Advanced Degree:

|          | Yes                      | No                                  | Optional                 |
|----------|--------------------------|-------------------------------------|--------------------------|
| Masters: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| PhD:     | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Briefly explain how the degree is integrated into the residency program:

|  |
|--|
|  |
|--|

4. Please list all ACVIM Supervising **Diplomates** (Cardiology, Large Animal Internal Medicine, Neurology, Oncology, Small Animal Internal Medicine, ECVIM, or ECVN Diplomates) providing supervision off-site and explain the situation and the agreements provided for contact with the resident. (Note, in Part One, current ACVIM Supervising Diplomates are included; and you are requested to provide additional comments for off-site supervision here).

| Name of Diplomat(e)s | Comments |
|----------------------|----------|
|                      |          |

5. Please list all **Diplomates** of the American College of Veterinary Pathology or the European College of Veterinary Pathologists in the areas of clinical pathology or gross/histopathology associated with residency training. If off-site, please explain the situation, and the method of providing direct contact with the resident.

| Name of Diplomat(e)s  | Clinical or Gross   | Comments                |
|---|---|-------------------------|
| <a href="#">Scott Fitzgerald</a><br><a href="#">Thomas Mullaney</a><br><a href="#">Jon Patterson</a><br><a href="#">Kurt Williams</a><br><a href="#">Matti Kiupel</a><br><a href="#">Dalen Agnew</a><br><a href="#">Jack Harkema</a><br><a href="#">Victoria Watson</a><br><a href="#">Erica Nolan</a><br><br><a href="#">Julia Stickle</a><br><a href="#">Cheryl Swenson</a><br><a href="#">Jennifer Thomas</a><br><a href="#">Michael Scott</a> | Gross<br>Gross<br>Gross<br>Gross<br>Gross<br>Gross<br>Gross<br>Gross<br>Gross<br><br>Clinical<br>Clinical<br>Clinical<br>Clinical | <a href="#">On-site</a> |

6. Please list all **Diplomates** of the American College of Veterinary Radiology or the European College of Veterinary Diagnostic Imaging associated with residency training. If off-site, please explain the situation, and the arrangements for direct contact with the resident.

| Name of Diplomat(e)s                          | Comments  |
|---|---|
| <a href="#">Anthony Pease, DVM, MS, DACVR</a> | <a href="#">Oquendo Center, 2524 E. Oquendo Rd, Las Vegas, NV 89120</a><br><br><a href="#">Dr. Pease is a former faculty member that reviews imaging studies remotely for the MSU CVM and is available for daily consultations. He does spend time at MSU and when he is here our residents will have</a> |

|                              |  |
|------------------------------|--|
| Rachel Policelli, DVM, DACVR | <p>direct contact with him.</p> <p>Oakland Veterinary Referral Services, 1400 Old South Telegraph Rd, Bloomfield Twp, MI 48302</p> <p>Dr. Policelli is a former resident that reviews imaging studies remotely for the MSU CVM and is available for daily consultations. A one week rotation off-site at OVRS will also be scheduled, offering 40 hours of direct contact. Dr. Policelli will also provide on-site rounds discussing image acquisition, MRI physics, and image interpretation.</p> <p>The resident will also practice generating imaging reports and discuss imaging differentials daily with the neurologist on duty.</p> |
|------------------------------|--|

7. Please list all **Diplomates** available for consultation in the areas of dermatology, surgery, ophthalmology, anesthesiology, emergency/critical care, clinical nutrition, clinical pharmacology, behavior, and/or theriogenology. If off-site, please explain the situation and the arrangements provided for contact with the resident.

| Name of Diplomate(s)  | Specialty  | Comments                 |
|---|--|--------------------------|
| Edmund Rosser Jr.<br>Annette Petersen   | Dermatology<br>Dermatology   |                          |
| Bryden Stanley<br>Loic Dejardin<br>Karen Perry<br>Sun Young Kim                                     | Surgery (SA)<br>Surgery (SA)<br>Surgery (SA)<br>Surgery (SA)                                 | ECVS                     |
| Frank Nickels<br>Marc Kinsley<br>John Caron<br>Susan Holcombe<br>Ann Rashmir-Raven<br>Jane Manfredi | Surgery (LA)<br>Surgery (LA)<br>Surgery (LA)<br>Surgery (LA)<br>Surgery (LA)<br>Surgery (LA) |                          |
| Simon Petersen-Jones<br>Andras Komaromy<br>Chris Pirie  | Ophthalmology<br>Ophthalmology<br>Ophthalmology  | ECVO                     |
| Deborah Wilson<br>Andrew Claude   | Anesthesia<br>Anesthesia   |                          |
| Ari Jutkowitz<br>Matthew Beal<br>Amy Koenigshof<br>Nyssa Levy                                       | ECCM<br>ECCM<br>ECCM<br>ECCM   | Interventional Radiology |
| Helene Pazak<br>Thomas Herdt  | Nutrition<br>Nutrition   |                          |
| Carla Carlton<br>Jennifer Roberts   | Theriogenology<br>Theriogenology   |                          |
| Marie Hopfensperger   | Behavior   |                          |

|                |            |  |
|----------------|------------|--|
| John Buchweitz | Toxicology |  |
|----------------|------------|--|

8. 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 and whether the individual has completed the Board certification process.

| Name(s) | Program End Date<br>(mm/dd/yyyy) | Diplomate? (Yes or No) |
|---------|----------------------------------|------------------------|
| N/A     |                                  |                        |

9. Please list the residents currently participating in your training program, along with the beginning date of the program, expected ending date of the program, and designated resident advisor.

| Resident Name(s)<br>(first/last) | Length of Program<br>(in years) | Program Start Date<br>(mm/dd/yyyy) | Program End Date<br>(mm/dd/yyyy) | Resident Advisor Name(s)                   |
|----------------------------------|---------------------------------|------------------------------------|----------------------------------|--|
| Dr. Ian Wachowiak                | 3                               | 07/10/2018                         | 07/09/2021                       | Kathryn Winger, DVM,<br>DACVIM (Neurology) |

**The following questions will be used to provide the Residency Training Committee with information needed to judge the structure, quality, scope, and consistency of training provided.**

**NOTE:** Direct supervision is required during clinical training, with the time required specified by each particular specialty. Direct supervision is defined as follows: The Supervising Diplomate and resident are participating in a clinical practice in which both the Diplomate and the resident are on duty and interactively and concurrently managing cases. The Diplomate need not personally examine each patient seen by the resident, but must remain physically available for consultation. Please use this definition when responding to the following questions regarding clinical rotations.

10. Is this a traditional or non-traditional residency training program? A traditional neurology residency is a two (2) or three (3) year postgraduate training program, with a minimum of ninety six (96) weeks of supervised clinical training with a majority of the time spent at one location. A non-traditional neurology residency allows for training that may occur in non-contiguous blocks of time over an extended time period.

|                 |                                     |
|-----------------|-------------------------------------|
| Traditional     | <input checked="" type="checkbox"/> |
| Non-traditional | <input type="checkbox"/>            |

For non-traditional programs, please provide a detailed description of the residency program, including length of program, proposed annual schedule, and the amount of time of direct Diplomate supervision for each location of the residency.

11. The ACVIM Neurology Certification Manual (CM) requires that each resident experience 75 weeks (minimum) of clinical Neurology training under the supervision of either a Diplomate of ACVIM in the Specialty of Neurology or a Diplomate of ECVN. **The 75 weeks should include at least 50 weeks of direct supervision (see definition in CM) and the remainder as indirect supervision (indirect supervision is satisfied by the Supervising Diplomate Neurologist being available for face-to-face contact with the resident at least 4 days per week).**

Please provide an outline of planned yearly schedule, including number of weeks of direct and indirect supervision (i.e. in year 1, the resident will be directly supervised for 25 weeks etc.) A table similar to the example below outlining the proposed weekly schedule of duties for the residents should be provided:

**EXAMPLE TABLE ONLY:**

|   | <b>Year I</b> | <b>Year II</b> | <b>Year III</b> |
|---|---------------|----------------|-----------------|
| <b>Medical Neurology *</b>                                    |               |                |                 |
| <b>Neurosurgery</b>   |               |                |                 |
| <b>Neurology/Neurosurgery Direct Supervision</b>              | 36            | 36             |                 |
| <b>Neurology/Neurosurgery - Indirect Supervision</b>          |               |                | 34              |
| <b>Internal Medicine</b>                                      | 4             | 2              | 2               |
| <b>Clinical Pathology</b>                                     | 2             |                |                 |
| <b>Radiology</b>  | 2             |                |                 |
| <b>Neuropathology</b>   |               | 2              | 2               |
| <b>Other Rotation (please list the name of each rotation)</b> |               |                |                 |
|   |               | 1              |                 |
|   | 2             | 4              | 4               |
| <b>Research</b>   | 4             | 5              | 8               |
| <b>Independent Study</b>                                      |               |                |                 |
| <b>Vacation</b>   | 2             | 2              | 2               |
| <b>Total</b>  | <b>52</b>     | <b>52</b>      | <b>52</b>       |

Numbers indicated are in “weeks”.

\* Many residencies are a combined neurology / neurosurgery program with no distinct separation between the services. Some programs, however, have separate training with a surgery service and this example includes that possibility in describing the weekly rotations.

*The example table is only a listing of a proposed weekly schedule for each of the three years of a typical 3-year residency program, including all that is required by ACVIM without making any specific recommendations.*

Please indicate the outline of planned yearly schedule here:

|  | <b>Year I</b> | <b>Year II</b> | <b>Year III</b> |
|--|---------------|----------------|-----------------|
| <b>Medical Neurology *</b>                                     | -             | -              | -               |
| <b>Neurosurgery</b>  |               |                |                 |
| <b>Neurology/Neurosurgery - Direct Supervision</b>             | 36            | 32             | 32              |
| <b>Neurology/Neurosurgery - Indirect Supervision</b>           | 0             | 0              | 2               |
| <b>Internal Medicine</b>                                       | 3             | 3              |                 |
| <b>Clinical Pathology</b>                                      | 1             | 1              |                 |
| <b>Radiology</b>   |               | 1              | 1               |
| <b>Neuropathology</b>  |               | 1              | 1               |
| <b>Other Rotation (please list the name of each rotation):</b> |               |                |                 |
| <b>Other: Ophthalmology</b>                                    | 3             |                |                 |
| <b>Other: Anesthesia</b>                                       |               | 3              |                 |
| <b>Other: Electrodiagnostics</b>                               | 1             |                |                 |

|                          |    |    |    |
|--------------------------|----|----|----|
| <b>Research</b>          | 2  | 3  | 6  |
| <b>Independent Study</b> | 2  | 4  | 6  |
| <b>Vacation</b>          | 4  | 4  | 4  |
| <b>Total *</b>           | 52 | 52 | 52 |

**\*The totals should add up to 52 weeks.**

12. Describe how daily clinical case rounds are conducted and supervised:

Transfers and hospitalized patients are examined every morning between 8:00-9:00 am by the student, house officer, and supervising neurologist in the neurology examination room. Case discussion occurs following the examination of each patient. This includes an overview of the examination findings, lesion localization, differentials, recommended diagnostics and/or therapeutic plan, and guiding client expectations. The same format follows each scheduled appointment. Cage-side rounds are conducted in the evening during weekdays. Formal didactic rounds with students take place as time permits, generally 3-4 times per week with each session lasting 1-2 hours. This includes a combination of set topic rounds for commonly encountered clinical presentations and diseases, as well as topics of interest to the students and house officers on service.

13. The neurology specialty requires that the resident spend at least 50 hours during the residency in the following rotations: Radiology, Clinical Pathology, Neuropathology and Neurosurgery. A Training Agreement Form must be completed and signed by the Diplomate supervising the required training, regardless of whether the training occurs on site or off-site. **Please use the standardized “Training Agreement Form” found on the ACVIM website ([www.ACVIM.org](http://www.ACVIM.org)) to document proof of supervision for all required contact hours (clinical pathology, radiology, neuropathology surgery, etc.) in rotations other than neurology.** 1 Training Agreement form is required per rotation per resident at the beginning of the residency. Forms do not need to be resubmitted each year as long as a valid Training Agreement Form is on file.

In addition, please provide a brief description of how each phase of this required training is accomplished.

Radiology: 50 hours with a Board-certified radiologist interpreting radiographs, attending seminars and participating in and evaluating the results of special radiographic procedures.

Rounds, case interpretation, and image acquisition training will be provided both remotely via Skype and Zoom as well as in house through Oakland Veterinary Referral Services and at MSU by radiology locums. The resident will have both indirect and direct contact with two board certified radiologists, Anthony Pease, DVM, MS, DACVR (Oquendo Center) and Rachel Policelli, DVM, DACVR (Oakland Veterinary Referral Services). A minimum one week off-site rotation with Dr. Rachel Policelli will offer 40 hours of direct contact in the clinical setting.

Clinical Pathology: 50 hours with a Board-certified pathologist or clinical pathologist evaluating clinical pathologic findings, attending clinicopathologic conferences, and examining surgical sections.

The resident will be involved with the clinical pathology section of a graduate course offered at the Michigan State University College of Veterinary Medicine for the pathology residents. Additional one-on-one instruction, resident and pathologist, will also occur with the use of a dual or multiheaded microscope. Residents are expected to review the cytology from their clinical cases with the pathologists and pathology residents during the course of their clinical training. Participation in weekly clinical pathology rounds will also take place when relevant.

Neuropathology: 50 hours devoted to review of veterinary neuropathology. This time may be spent in lecture series, seminars, or a formal training program recognized and approved by the college.



The resident will be involved with the neuropathology section of a graduate course offered at the Michigan State University College of Veterinary Medicine for the pathology residents. This entails didactic lectures and evaluation of in-house and send-in cases. Training includes both gross and microscopic neuropathology images for interpretation in the context of cases. Residents are expected to review the histopathology from their clinical cases with the pathologists and pathology residents during the course of their clinical training.

Neurosurgery: 50 hours participating in veterinary neurosurgical procedures. Please provide a specific description of the type of participation [i.e. observation, performance of neurosurgery], and credentials of those providing the training [i.e. ACVS vs. ACVIM Neurology]. A Training Agreement Form must be completed if this training is provided by individuals other than the ACVIM (Neurology) or ECVN supervising Diplomate for the residency training program.

The MSU Neurology Service consists of two ACVIM board-certified neurologists whom together provide advanced medical and surgical care 52 weeks a year. Dr. Joshua Gehrke was trained at the Animal Medical Center in New York City under the supervision of Dr. Chad West (DACVIM – Neurology), and Dr. J. P. McCue (DACVIM – SAIM, Neurology). Dr. Kathryn Winger was trained at the UC Davis Veterinary Medical Teaching Hospital under the supervision of Dr. Peter Dickinson (DACVIM – Neurology), Dr. Marguerite Knipe (DACVIM – Neurology), Dr. Beverly Sturges (DACVIM – Neurology), Dr. Karen Vernau (DACVIM – Neurology), and Dr. Richard LeCouteur (DACVIM – Neurology, DECVN).

Commonly performed surgical procedures include hemilaminectomy/mini-hemilaminectomy, lateral corpectomy, ventral slot, lumbosacral decompression, dorsal cervical decompression, spinal stabilization (including fractures/luxations and atlanto-axial instability), and craniotomies. A total of 94 surgical procedures were recorded in the last fiscal year. In addition to the clinical caseload, cadaver labs are offered biannually to hone resident surgical skills and practice less common procedures.

During the first year of the training program, the resident will learn approaches and closures to common procedures, as well as basic drill handling. All procedures will be performed under direct supervision. During the second year of the training program, the resident will be the primary surgeon on common procedures, with direct or indirect supervision based on proficiency. Advanced procedures, such as craniotomies, will be performed by the supervising neurologist with assistance from the resident. During the third year of the training program, the resident will perform all common procedures while on clinical duty, and may take a lead role in advanced procedures based on proficiency.

14. The neurology specialty requires that the resident be able to perform and interpret current electrodiagnostic procedures. Briefly state how the concepts of electrodiagnostics (including EEG) and their clinical application will be taught to residents during the training program. Specifically state whether or not the resident will have hands-on electrodiagnostics experience:

The resident will be responsible for performing electrodiagnostic evaluations on their clinical cases as appropriate, under the supervision of the neurologist on duty. Commonly performed procedures include BAER, EMG, and motor NCV. Exposure to more advanced techniques, including EEG, will occur primarily via a one week hands-on electrodiagnostic course hosted on-site by Dr. Colette Williams. House officer rounds will also review principles and case examples as provided in Dr. Cuddon's electrodiagnostic manual. Once EEG is available on site, the resident will become proficient in electrode placement as well as interpretation in the clinical setting.

15. The college requires that the resident spend a minimum of 80 hours involved in routine and regular participation in a critical review of the literature (e.g. journal club) during the residency training program. Please explain how this requirement is met:

Neurology journal club takes place weekly on Thursday mornings. Articles are selected from publications denoted as recommended reading for the specialty examination as well as the human literature where appropriate. Two to

three articles are selected each week, generally centered on a topic of current relevance. The discussion is led on an alternating basis by the board-certified neurologists and the neurology resident, and is routinely attended by house officers from other services (surgery, internal medicine, emergency and critical care, rotating interns, etc.) as well as other faculty when available.

The discussion focuses on both the quality of the articles presented as well as their content and the clinical applicability of their findings. A critical evaluation form is completed for each article which includes the following: aims/purpose, overview of methods, summary of results, major conclusions; Are the aims/purposes clear and do they match up with the major conclusions? Are the methods and analysis appropriate? What are the strengths or limitations? Have the results been interpreted correctly and objectively in the discussion? Which ideas/statements have been under or over emphasized in the discussion? How will these results affect our clinical practice?

16. The neurology specialty requires that the advisor meet with the resident at 6 month intervals to assess, review and critique the resident's progress and weekly schedule of activities. Please explain how this is accomplished:

The resident will receive quarterly informal evaluations during the first year assessing overall knowledge base and clinical problem-solving skills, technical skills, interpersonal relationships and clinical teaching ability, organization and time management skills. Formal written evaluations will be provided every six months and submitted to the department to document the resident's progress throughout the training program. During these formal evaluations, case logs and competencies will be reviewed with the resident advisor. Areas for growth will be identified for the following six months. The resident will also be offered the opportunity to evaluate the program bi-annually.

17. The neurology specialty requires that the resident complete a significant research or clinical investigative project. Please describe how you plan for the resident to undertake, monitor, and complete a project. Include a timeline that the resident and mentor will use as a guide for completion of the project. Note that publication of this research project is not a requirement.

The project will be geared to the resident's area of interest and can be prospective or retrospective in nature. The resident will outline the project within the first 6 months of the residency. This will be reviewed with the resident advisor and grant preparation will be started if indicated. By the end of the second year of the residency the resident will be expected to have completed all data collection. During the third year of the residency the resident will complete statistical analysis. During the final 6 months, the resident will prepare a manuscript for publication. Submission to present at ACVIM in either a poster or oral abstract format will be required, however acceptance for publication will not be mandatory for completion of the residency training program.

18. 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. (In the Location column, indicate on-site for primary location or the name of the facility where the equipment is located if off-site.) For facilities that are not on-site, please describe the situation and availability in the space at the end of this section. Please also provide the manufacturer and model of the unit for electrodiagnostic and imaging equipment.

|            |    |                             |
|------------|----|-----------------------------|
| Available? |    | Location of equipment?      |
| Yes        | No | (On-site or list site name) |

- a) Standard radiological equipment
- b) Ultrasonographic equipment
- c) Clinical Pathology capabilities:  
(includes CBC, serum chemistries, blood gases,

|                                     |                          |         |
|-------------------------------------|--------------------------|---------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | On-site |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | On-site |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | On-site |

|  |                                     |                                     |  |
|--|-------------------------------------|-------------------------------------|--|
| urinalysis, cytology, parasitology, microbiology, and endocrinology) |                                     |                                     |  |
| d) Electrocardiography   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site  |
| e) Blood Pressure Measurement  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site  |
| f) Radiation Therapy Facility  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site  |
| g) Veterinary Library w/Literature Searching Capabilities            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site  |
| h) Computerized Medical Records w/Searching Capabilities             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site  |
| i) Medical Library w/Literature Searching Capabilities               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site  |
| j) Electromyography and nerve conduction velocity testing            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site (TECA Synergy EMG and EP systems; VIASYS Healthcare) |
| k) Evoked Response Equipment   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site (TECA Synergy EMG and EP systems; VIASYS Healthcare) |
| l) Electroencephalography  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Equipment purchase proposal submitted                        |
| m) Computed Tomography   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site (Revolution EVO 64 slice CT scanner)                 |
| n) Magnetic Resonance Imaging (include field strength)               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | On-site (Siemens Espree 1.5 Tesla)                           |

- Revolution EVO 64 Slice CT Scanner Key Features:

- ASIR – May enable reduction in image noise and improve 3D reformat visualization
- Clarity Imaging Chain (provides the following)
  - 40mm of coverage @ 1.25mm slice thickness
  - Up to 90% less heat compared to previous GE technology
  - Improved SNR up to 44%
  - May do full body trauma scan of 1000mm in as little as 6 seconds
- Silent Design – Significant reduction of audible noise
- Exam prescription for table side
- Gantry Display
- Real time reconstruction during scan
- Full 360<sup>0</sup> rotation ensuring short breath holds
- IQ Enhance Pitch Booster = Increased speed, shorten breath holds
- Aperture: 70 cm, Max SFOV – 50cm Performix 40 Plus liquid metal bearing tube
  - More scans with less tube cooling
  - Longer tube life
  - Dual Focal Spots
- Clarity DAS (Data Acquisition System) reduces noise and improves image performance
  - 2,460 HZ max sample rate
  - 861-1968 views per rotation
- Smart MAR (Metal Artifact Reduction)

- Siemens Espree 1.5 Tesla Key Features:

- TIM's Technology (Total Imaging Matrix)
  - Allows scanning without the need to change coils.
- Multiple Coils

- 70cm Aperture Short Bore system
- Scanning Abilities include:
  - Turbo Spin Echo
  - HASTE
  - Spectroscopy
  - DTI/DWI
  - VIBE
- 5 gauss line relatively close to magnet
  - Allows for Monitoring/Anesthesia equipment to be closer during scanning

If any of the above equipment or facilities is available off-site, please explain how the resident can access them for case management, research, or study, *especially with respect to the use of imaging equipment*:

19. Describe the formal conferences, such as clinicopathologic conferences, journal clubs, or seminars that are held on a regular basis. Please provide a description and the typical schedule for these:

Neurology journal club takes place weekly on Thursday mornings. The MSU CVM holds a weekly resident seminar on Friday mornings for approximately 9-10 month out of the year. Attendance at the weekly seminar is a requirement of our residency and the resident will be expected to present annually. Neurology book chapter review takes place weekly on Tuesdays. Combined neurology and emergency and critical care rounds take place bimonthly and include a combination of topic rounds and case-based presentations. The MSU Neurology Service also gives intern rounds 5-6 times per year, and the resident is expected to attend and/or present. Radiology and clinical pathology rounds will be offered ad hoc.

20. Detail the teaching responsibilities expected of the resident during the training program. This may include lectures in departmental courses for veterinary students, grand rounds presentations, presentation of papers or seminars at conferences, or participation in continuing education programs.

Our residents have the opportunity to attend the annual Michigan Veterinary Conference each year. Most attend at least once or twice and presentation at least once is encouraged in a specific track of talks designated for MSU residents. Submission of an abstract to the ACVIM Forum will be expected in the second or third year of the residency training program. Annual presentation as part of the weekly MSU CVM house officer seminar series (grand rounds style) is required. Clinical teaching occurs on a daily basis as part of our neurology clerkship. Participation in several pre-clinical courses is also expected, primarily in the laboratory setting (brain dissection in gross anatomy, neurological examination skills in clinical competencies, etc.)

21. How many major veterinary medical or medical meetings are each resident able to or expected to attend during his/her training program?

| None                     | One                      | Two                      | > Two                               |
|--------------------------|--------------------------|--------------------------|-------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Comments: The resident is expected to attend the ACVIM Forum in the second and third year of their training program. They may attend, and are likely to present at, the Michigan Veterinary Conference held in Lansing, MI annually. The resident will have the opportunity to attend Brain Camp at least once during the course of their training program.

22. Are one or more publications required as part of the training program?

| Yes                      | No                                  | Number |
|--------------------------|-------------------------------------|--------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> |        |

Comments:

Preparation of a manuscript and submission for publication will be encouraged, but publication is not required to complete the residency training program.

23. Please describe any additional pertinent information that the Residency Training Program should consider in its evaluation of this Training Program.

**Please note, any Program Director or Candidate that significantly changes or alters this Residency Training Program before completion must notify ACVIM, in writing, before the changes are made to ensure that the proposed changes are approved.**

Significant changes could include, but are not limited to:

- transferring from one program to another
- alterations in program duration
- switching to a 'dual board' program
- enrolling in an institutional graduate program
- change of Program Director or Resident Advisor

**I verify that the above information is an accurate reflection of this Residency Training Program.**