Comprehensive Training Program for Rodent Microvascular Surgery

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Welcome to the Comprehensive Training Program for Rodent Microvascular Surgery proudly hosted by Dr. Yelena Akelina and the Microsurgery Training and Research Laboratory at Columbia University Medical Center.

Our professional microsurgical training program is intended to provide both novice and experienced research scientists with the knowledge and skills required to excel their research in the realm of microsurgery in rodent models to the next level.

Participants will have an opportunity to learn or review the foundations of performing a successful common microsurgical procedure, including proper sedation, temperature control, and vessel isolation during surgery. There will be a significant focus on how to set up equipment, handle instruments appropriately, and perform surgery with the assistance of a surgical microscope. Examples of the surgical techniques include vessel suture, vessel cannulation, and exploratory surgery. This program will also cover techniques that include end-to-end arterial and venous anastomoses, end-to-side anastomosis, and peripheral nerve repair techniques that can be used in a variety of different experimental procedures.

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Course Information

Instructor:

Yelena Akelina, DVM, MS is a Research Scientist and a Co-Director/Instructor in Clinical Microsurgery at the Microsurgery Research and Training lab at the Department of Orthopaedic Surgery, Columbia University. This program teaches microsurgery to more than 200 surgeons and researchers a year from many institutions throughout the US and more than 70 other countries. Under her direction, the main goal of the training program is to teach surgeons to perform surgery on very small (1mm diameter) vessels and nerves under the microscope to enable them to perform similar surgical procedures in the clinic, and ultimately save lives. To this end, she has been teaching microvascular surgery to different medical personnel from all over the US and abroad since 1996.

Dr. Akelina completed her Doctor of Veterinary Medicine at the Moscow Veterinary Academy in 1987 and obtained her Master of Science in Toxicology in 1991. She is one of the founders of IMSS (International Microsurgery Simulation Society) and an active member of many other domestic and international societies for microsurgery such as WSRM (World Society for Reconstructive Microsurgery), ASRM (American Society for Reconstructive Microsurgery), RAMSES (Robotic Assisted Microsurgery Society), and ISEM (International Society for Experimental Microsurgery). In addition, she is an Honorable Member of the Serbian Society for Reconstructive Microsurgery and Honorable Faculty Member of the Queen Mary's Hospital in London, UK. As a principal investigator for many microsurgical research projects, she is well-published in many peer-review journals.

Program Details:

This comprehensive training program in microvascular surgery offers one-on-one hands-on sessions in a small class setting with an experienced instructor.

The researchers will learn about equipment setup, instrument handling, and suturing with the assistance of the surgical microscope. Furthermore, they will learn basic microvascular procedures including vessel cannulation, splenectomy, exploratory surgery, and ovariectomy. For more advanced students, the program will teach end-to-end arterial and venous anastomosis, end-to-side anastomosis and peripheral nerve repair that can be used in many experimental procedures.

All students will be able to study the pre-recorded lectures on the fundamentals of microsurgery prior to hands-on sessions:

1. Surgical microscope setup
2. Appropriate instrumentation and handling
3. Correct hand positions and postures
4. Basic microsurgery suturing techniques
5. Vessel dissections, isolation, and handling under different magnifications
6. Basic microsurgery techniques utilizing vessel cannulation; jugular vein, femoral artery and vein, carotid artery
   - non-living models (PVC rat, chicken thigh)
   - living models (rats, mice)

Learning Outcomes:

- Ability to work with surgical microscopes, micro instruments, and sutures
- Gentle dissection and handling of fragile tissues
- How to perform different basic surgical procedures on rodent models: cannulation of vessels, different abdominal surgeries, skin closures
- Ability to complete different microvascular anastomoses on small (<1 mm diameter) vessels
- Ability to perform peripheral nerve repair on sciatic nerve models
- Surgical planning and decision making skills
- Inter-operative and post-operative animal care

Course Agenda

This 4-day program is intended for surgeons of all levels who wish to further develop and hone their skills to perform more complex procedures, and will also provide the necessary knowledge and training required to perform common microsurgical procedures. This program begins with the fundamental program overview and will then expand to more advanced techniques. The basic microvascular surgery techniques covered will include suture, vessel cannulation, splenectomy, exploratory surgery, and ovariectomy. The advanced techniques include end-to-end arterial and venous anastomosis, end-to-side anastomosis, and peripheral nerve repair techniques that can be used in a variety of different experimental procedures.

Day 1: Basic Aspects of Setup and Suturing under the Scope

9:00 – Practice the setup of the microscope, hand positions, body posture

9:30 – Practice working with the surgical microscopes by suturing on a plastic card

12:00 – *Lunch*

1:00 – Practice cannulations of major vessels (jugular vein, femoral vessels, and carotid artery) utilizing a PVC rat model Insertion

1:00 – Practice cannulations of major vessels (jugular vein, femoral vessels, and carotid artery) utilizing a live rat model

5:00 – Session Review

Day 2: Basic Microvascular Techniques

9:00 – Practice cannulations of major vessels (jugular vein, femoral vessels, and carotid artery) utilizing a mouse model

12:00 – *Lunch*

1:00 – Practice different surgical techniques; splenectomy, ovariectomy, exploratory surgery

3:00 – Practice end-to-end arterial anastomosis on nonliving model

5:00 – Session Review

Day 3: Microvascular Procedures

9:00 – End-to-end arterial anastomosis on femoral artery of the rat 1 mm D by a different technique

12:00 – *Lunch*

1:00 – End-to-end anastomosis of the femoral vein of the rat 1.2 mm D

3:00 – Peripheral Nerve repair on sciatic model

5:00 – Session Review

Day 4: Microvascular Procedures

9:00 – End-to-side anastomosis on femoral artery to the femoral vein of the rat 1 mm D

12:00 – *Lunch*

1:00 – End-to-side anastomosis on femoral vein to the femoral artery of the rat 1 mm D

3:00 – Q & A for the course

Registration Information

Academic Rate: $4,600 USD | **Industry Rate:** $5,200 USD

Admission to the workshop requires approval of your registration by InsideScientific and the course instructor.

For convenience, InsideScientific provides an online application form for scientists interested in registering. Access the form at the following URL:

https://insidescientific.com/workshop/virtual-training-program-for-microvascular-surgery-techniques-in-small-animal-models

Following completion of the online form an event coordinator will contact you to discuss payment options. If you have any questions about the workshop, please email events@insidescientific.com.
Please use subject line "MTRL Microvascular Surgery Workshop"

Payment & Cancellation Information:

For the security of our registrants, InsideScientific does not collect payment information within online forms.

Course registration is not confirmed until you have received official communication from InsideScientific including a registration invoice.

Please do not make travel plans until you have received an enrollment confirmation. Deadline for registration is 14 days prior to the event.

Workshop seating is limited to **3** participants. InsideScientific reserves the right to cancel and/or reschedule/combine workshop programs for a later date.

Registrant cancellations must be received no later than 14 days prior to the event to receive a 50% refund of the registration fee. No refunds will be issued if cancellation is received less than 14 days prior to the event.

Advance payment in full is required to reserve your space. Courses will be filled on a first-come-first-served basis in the order that payment is received.