

Careers in Laboratory Animal Science



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Backgrounds

- Miriam Rose
 - BS Animal/Veterinary Science West Virginia University
 - Pender Veterinary Centre
 - Charles River
 - Corporate Response Team (CRT)
 - Associate Operations Specialist
 - Technical Trainer
- Elton Machholz
 - Vet Tech Degree (US Army)
 - RLATG Certification
 - 20 Year Career
 - Technical Research/Clinical
 - Management
 - Training



Topics of Discussion

- What is Biomedical Research?
- Why we need Biomedical Research
- Role Charles River plays in LAS
- Animals that are utilized in the LAS field
- Who monitors and regulates the LAS industry?
- Continuing Education - AALAS Certification
- Opportunities in the Laboratory Animal Science field (government, industry, academia, animal welfare, regulatory, etc.)
- Where do I go from here?

What is Biomedical Research?

- The area of science devoted to:
 - the study of the processes of life
 - the prevention and treatment of disease
 - the genetic and environmental factors related to disease and health
- Biomedical research is the broad area of science that looks to prevent and treat diseases that cause illness and death in people and animals
- May be referred to as:
 - Medical research
 - Pre-clinical or Clinical research

Why do we need Biomedical Research?

- To improve the health and well-being of humans and animals through the development and implementation of new and improved practices in clinical medicine
- Virtually every major medical advance of the last century has depended upon research with animals
- The health of animals also has improved due to animal research

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What is the role of Charles River in Laboratory Animal Science?

- 60 years of experience providing research models & lab animal support services
- CR employees serve clients as global providers of solutions that advance the drug discovery and development process through market approval



- Customers include every major pharmaceutical and biotechnology company worldwide, as well as government research centers, and leading and academic institutions



Charles River & Animal Welfare

- Humane Care Initiative
 - Ensures internal awareness and best practices are followed
- Charles River Animal Welfare & Training group directs:
 - Representative from every site is requested to lead this effort
 - Every employee to sign a “Commitment to Human Care” annually and attend training
 - Humane Care & Use Awards



Make Caring Happen

What Animals are utilized in Biomedical Research?

- 95% of all laboratory species are:



- make up less than $\frac{1}{4}$ of 1% in the U.S.
- Dogs and cats **together** comprise less than $\frac{1}{2}$ of 1% of all laboratory animals in the U.S.

Source: (NABR – 2008)







NUDIST COLONIES.

With genetically diverse substrains, Charles River
ensures the highest level of genetic diversity
for quality animal research results.


CHARLES RIVER
LABORATORIES
LIFE SCIENCE & PHARMACEUTICALS


charles river

Who regulates and monitors what we do?

- Animal Welfare Act (AWA)
 - Signed into law in 1966
 - The only Federal law in the US that regulates the treatment of animals in research, exhibition, transport, and by dealers (other laws, policies, and guidelines may include additional species coverage or specifications for animal care and use, but all refer to the Animal Welfare Act as minimum acceptable standard)
 - The Act was amended six times (1970, 1976, 1985, 1990, 2002, & 2007) and is enforced by the USDA, APHIS, & Animal Care agency



Who regulates and monitors what we do?

- Provides guidance and interpretation of the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals
- Supports educational programs, and monitors compliance with the Policy by Assured institutions and PHS funding components
- Ensures the humane care and use of animals in PHS-supported research, testing, and training, thereby contributing to the quality of PHS-supported activities



Who regulates and monitors what we do?



- Goal is to minimize pain and distress and enhance animal well-being
- Reviews literature related to new technologies in laboratory animal care and use
- Determines where new guidance is necessary to ensure the best scientific outcomes and optimal animal welfare
- Central to the Public Health Service Policy on the Humane Care and Use of Laboratory Animals



Institute for

Laboratory Animal Research

DIVISION ON EARTH & LIFE STUDIES



Who regulates and monitors what we do?

- **IACUC** (Institutional Animal Care and Use Committee)
 - Internal committee comprised of at least:
 - 1 DVM, 1 non-affiliated member, and 3 members in total
 - Reviews SOPs and research protocols for animal welfare concerns and research viability
 - Is a self-regulating entity that, according to U.S. federal law, must be established by institutions that use laboratory animals for research or instructional purposes to oversee and evaluate all aspects of the institution's animal care and use program
 - Required by AWA
 - Required by PHS

www.iacuc.org

Who regulates and monitors what we do?

- **AAALAC** (Association for Assessment and Accreditation of Laboratory Animal Care)
 - Private, nonprofit organization that promotes the humane treatment of animals in science through voluntary accreditation and assessment programs
 - More than 750 companies, universities, hospitals, government agencies and other research institutions in 29 countries have earned AAALAC accreditation, demonstrating their commitment to responsible animal care and use.
 - AAALAC acts as an external auditor/accreditation agency; Third party confirmation of meeting regulatory standard

www.aaalac.org



American Association for LAS (AALAS)



AMERICAN ASSOCIATION FOR LABORATORY ANIMAL SCIENCE

9190 Crestwyn Hills Drive Memphis, TN 38125
phone 901-754-8620 • fax 901-753-0046

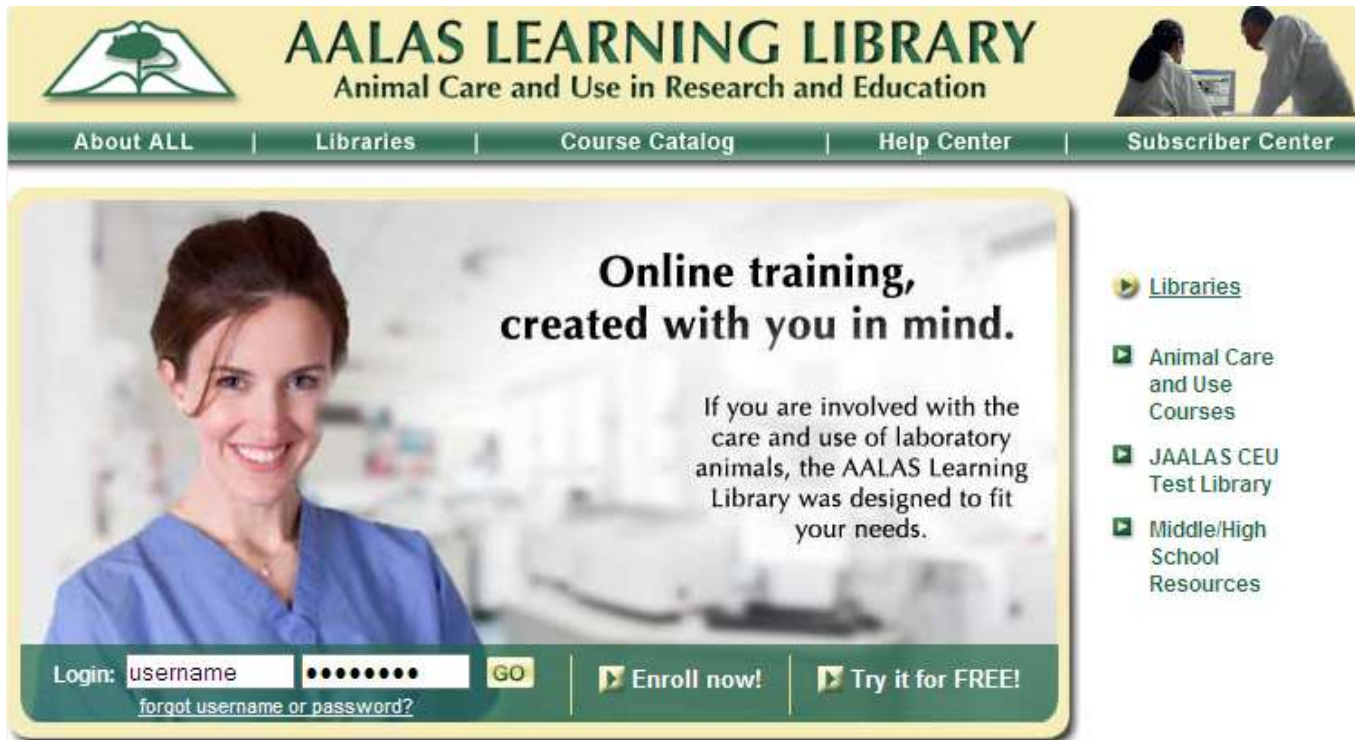


- Non-profit organization committed to serving society through education and advancement of responsible laboratory animal care and use
- Provides, reviews, and publishes educational resources
- National and Local branch support
 - 8 local districts across the United States
 - District 3-National Capital Area Branch (NCAB)

<http://aalas.org>

AALAS Learning Library (ALL)

- Provides resource for continuing education, training, & knowledge exchange



The screenshot shows the homepage of the AALAS Learning Library. At the top, there is a green header with the AALAS logo (a stylized green plant growing from an open book) on the left, the text "AALAS LEARNING LIBRARY" in large green letters, and "Animal Care and Use in Research and Education" in smaller green letters below it. To the right of the header is a small image of two people looking at a laptop. Below the header is a green navigation bar with white text links: "About ALL", "Libraries", "Course Catalog", "Help Center", and "Subscriber Center".

The main content area features a large image of a smiling woman in blue scrubs. To her right, the text reads: "Online training, created with you in mind." Below this, a paragraph states: "If you are involved with the care and use of laboratory animals, the AALAS Learning Library was designed to fit your needs." At the bottom of this section is a login form with fields for "username" and "password" (represented by dots), a "GO" button, and links for "Enroll now!" and "Try it for FREE!". A link for "forgot username or password?" is also present.

On the right side of the page, there is a "Libraries" section with a dropdown arrow and a list of categories: "Animal Care and Use Courses", "JAALAS CEU Test Library", and "Middle/High School Resources".

<http://www.aalaslearninglibrary.org/>

AALAS Certification Requirements

- Encourages and supports technician certification

ALAT Exam	<input type="checkbox"/> No high school diploma or GED plus 2 years laboratory animal science experience
	<input type="checkbox"/> HS diploma or GED plus 1 year laboratory animal science experience
	<input type="checkbox"/> Any college degree of 2 or more years duration plus 0.5 years laboratory animal science experience
LAT Exam	<input type="checkbox"/> HS diploma or GED plus 3 years laboratory animal science experience
	<input type="checkbox"/> Any AA/AS degree plus 2 years laboratory animal science experience
	<input type="checkbox"/> Any BA/BS or higher degree plus 1 year laboratory animal science experience
	<input type="checkbox"/> ALAT certification plus HS diploma, GED, or college degree plus 0.5 year laboratory animal science experience <i>after</i> receiving ALAT certification
LATG Exam	<input type="checkbox"/> ALAT certification without HS diploma/GED or any college degree plus 2 years laboratory animal science experience <i>after</i> receiving ALAT certification.
	<input type="checkbox"/> HS diploma or GED plus 5 years laboratory animal science experience
	<input type="checkbox"/> Any AA/AS degree plus 4 years laboratory animal science experience
	<input type="checkbox"/> Any BA/BS or higher degree plus 3 years laboratory animal science experience
	<input type="checkbox"/> LAT certification plus HS diploma/GED or college degree plus 0.5 year laboratory animal science experience <i>after</i> receiving LAT certification

	ALAT	LAT	LATG
Number of questions	120	155	180
Time Limit	2 hrs	2.5 hrs	3 hrs
Animal Husbandry, Health, and Welfare	60–70%	45–55%	30–40%
Facility Administration and Management	7–13%	17–23%	35–45%
General Knowledge	22–30%	26–34%	23–28%

What Opportunities are available in the Laboratory Animal Science Industry?

- Cagewash Technicians
- Animal Care Technicians
- Laboratory Animal Technicians
- Veterinary Technicians
- Surgical Technicians
- Research Specialists
- Research Scientists
- ACUC Specialists
- Trainers
- Administrative Support Specialists
- Facility Managers
- Vivarium Directors
- Veterinarians
- Aquatic Specialists
- Corporate Response Team (CRT)



Cagewash Technicians

- Provide cagewash support to include:
 - Cleaning and sanitizing animal caging equipment
 - Repairing and maintaining equipment and facilities
 - Gain mechanical and sterilization knowledge
 - Supporting Animal Care Technicians



Animal Care Technicians

- Provide animal care support to include:
 - Changing animal cages
 - Providing food and water
 - Monitoring animal health and reporting concerns to veterinary staff
 - Monitoring environmental conditions
 - Maintaining a sanitary environment and workspace
 - May require ALAT certification by AALAS



Laboratory Animal Technicians

- Perform technical procedures to include:
 - Pre-clinical study support
 - Advanced animal handling techniques
 - Dosing (IV, IM, IP, RO, TV)
 - Multi-species knowledge and experience gained
 - Typically requires LAT level certification by AALAS
 - Breeding colony management



Veterinary Technicians

- Mainly focused on animal health monitoring
- Perform technical procedures to include:
 - Treatment selection, monitoring, health surveillance & necropsy
 - Advanced handling techniques and technical procedures
 - Injections, anesthesia monitoring, surgical asst.
 - Effectively communicate with researchers and veterinarian
 - May require ALAT or LAT certification by AALAS



Surgical Technicians

- Support and perform surgical procedures:
 - Vascular Catheters
 - Femoral, jugular, renal
 - Non-Vascular Catheter
 - Stomach, bladder
 - Soft Tissue
 - Shunts, -ectomy
 - Neurological
 - Cannulation, Alzheimer's & Parkinson's models
 - Cardiovascular
 - Artery ligations, stroke models
 - Device Implants
 - Osmotic pumps, telemetry devices



Surgical Technicians con't...

- Support surgical procedures under research protocols
- Take part in SOP reviews and IACUC meetings
- Manage surgical calendars and schedules
- Typically requires LAT or LATG certification by AALAS



- Must have advanced technical knowledge and experience
- Previous experience is mandatory!

Research Specialists

- Support academic, commercial, & government research
 - Health surveillance
 - Colony management
 - Pre-clinical study support
 - Genetic monitoring
 - Pathology support
- AALAS certification at ALAT or LAT levels



Aquatic Specialists

- Provide aquatic husbandry and research support
 - Species include zebrafish, frogs, sea urchins, etc.
- Upper level positions support research without husbandry support
 - Cloning, PCR, DNA extraction
 - Breeding schemes
- Allows for transition into management and sales for specialty aquatic services



ACUC Specialists

- Support research through protocol and SOP monitoring and discussions
- Maintain animal census counts, orders animals, calculates per-diem costs
- Participate in IACUC committees
- AALAS certification at the LAT or LATG level



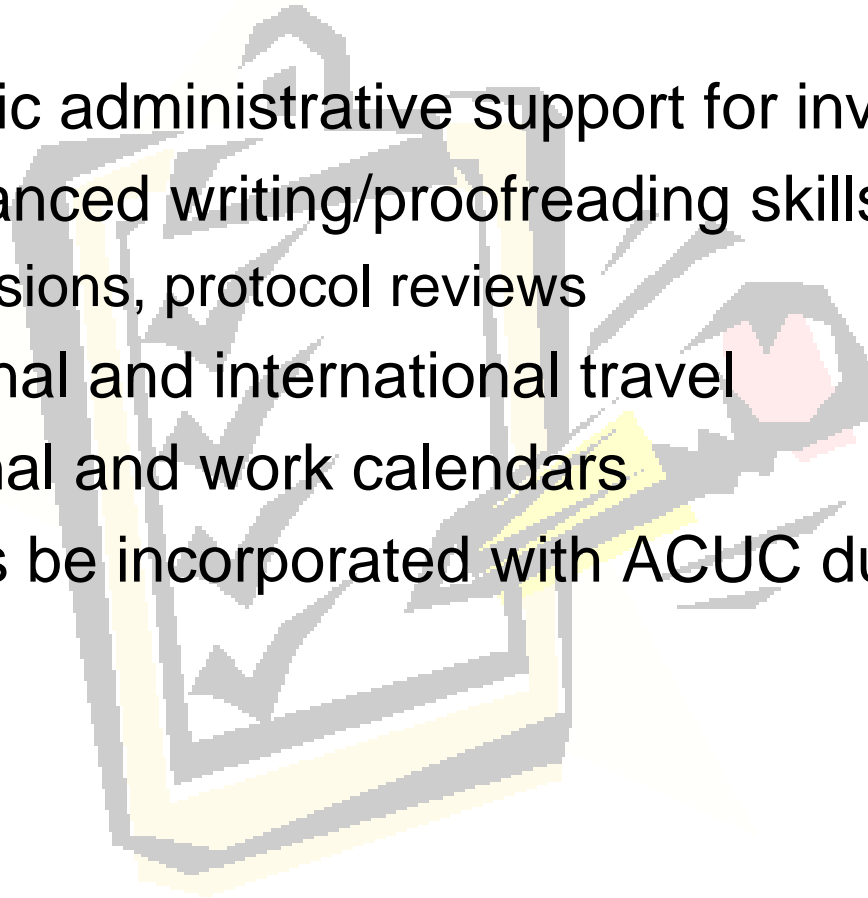
Technical Trainers

- Ensure quality of hands-on technical training
- Support managers in employee development
- Perform technical procedures during orientation or biostatistics courses
- Provide AALAS training and certification materials to staff
- Maintain current industry knowledge
- Typically requires LAT or LATG certification



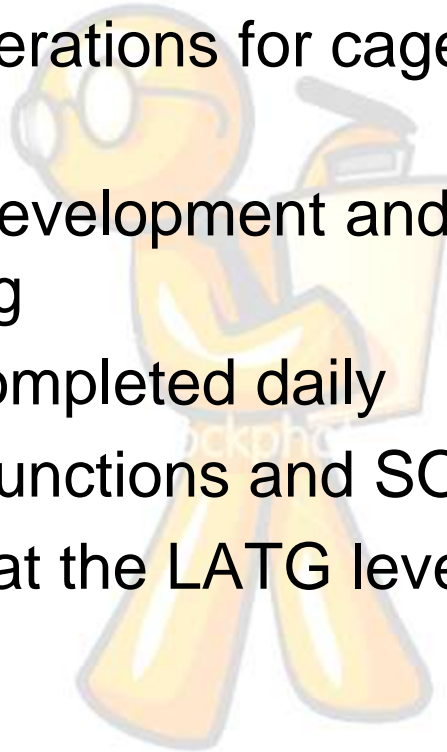
Administrative Support Specialists

- Provide scientific administrative support for investigators
- Must have advanced writing/proofreading skills
 - Grant submissions, protocol reviews
- Schedule national and international travel
- Manage personal and work calendars
- May sometimes be incorporated with ACUC duties



Facility Managers

- Supervise facility operations for cagewash, animal care and veterinary staff
- Support employee development and training, disciplinary actions, teambuilding
- Ensure all work is completed daily
- Manage regulatory functions and SOP monitoring
- AALAS certification at the LATG level



Project Managers/Operations Specialists

- Supervise an entire site or contract OR multiple sites or contracts
- Provide updates, feedback, contract support for directors or executives
- Mentoring key to overall program
- Require extensive experience, well rounded repertoire, and additional management training
- AALAS certification at the LATG and CMAR

Veterinarians

- Direct laboratory operations, ensures animal health, IACUC actions
- Provide clinical support and consultation
- DVM required; become Diplomats through Certification:
 - DACVP (Veterinary Pathologists)
 - DABT (Toxicologists)
 - DACLAM (Lab Animal Medicine)
 - DACVPM (Veterinary Preventative Medicine)

Corporate Response Team (CRT)

- Program initiated in 2000, designed ideally to bring college graduates and other enthusiastic entry level candidates into an accelerated program
- Program provides floating technical support to CSS contracts across the United States
- Supports cagewash, caretaking, veterinary, supervisory, and research specialist duties
- Includes additional training and development opportunities
- Increases your visibility and exposure within the industry

Quality of Life Decisions

- Professional field with clear opportunities for advancement and professional growth
- Work hours and schedule
 - Weekend rotations or on call hours required
- Environment
 - Cutting edge research
 - Animal welfare critical to research success
 - Commercial, academic, government
- Size
 - Small staff versus large staff
- Workload



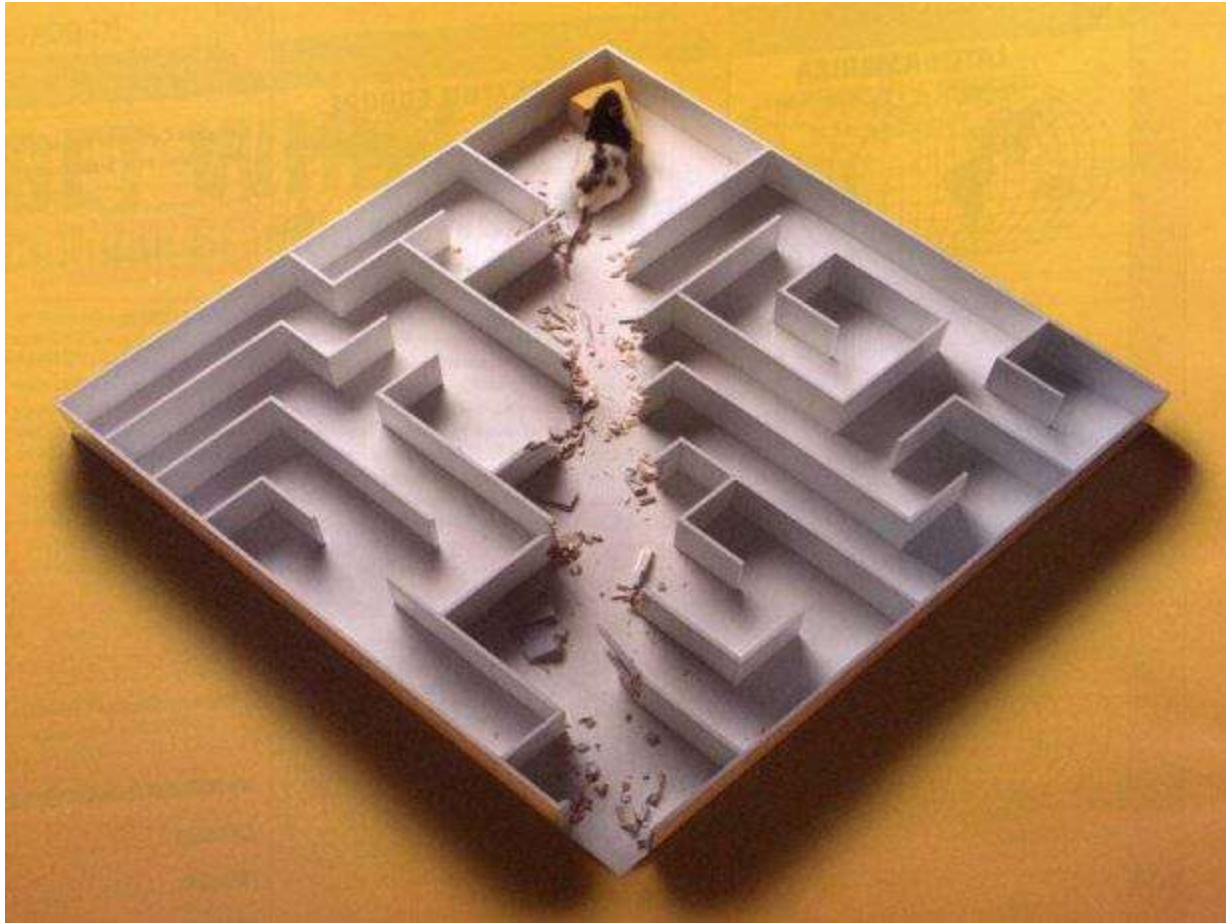
Salary Trends (USD annually)

- Cagewash Technician
 - \$16,000-\$25,000
- Animal Care Technician
 - \$20,800-\$38,000
- Laboratory Animal Technician
 - \$31,500-\$43,500
- Veterinary Technician
 - \$35,500-\$54,000
- Surgical Technician
 - \$40,000-\$70,000
- Research Specialist
 - \$35,500-\$60,000
- Aquatic Specialist
 - \$33,500-\$55,000
- ACUC Specialist
 - \$35,500-\$45,500
- CRT
 - \$31,200-\$35,500
- Administrative Specialist
 - \$31,500-\$45,500

Salary Trends (USD annually) con't...

- Trainer
 - \$39,500-\$72,500
- Facility Manager
 - \$40,000-\$70,000
- Project Manager/Operations Manager
 - \$70,000-\$100,000
- Scientist
 - \$40,000-\$100,000
- Veterinarian
 - \$85,000-\$175,000
- Pathologist
 - \$90,000-\$250,000

Where do I go from here?



Where do I go from here?

- Career Services
- Professors or Academic Counselors
- External Internships
- Volunteer Opportunities
- Work Study or Student Employment
- Professional Organizations such as AALAS

Any questions?

www.criver.com

www.aalas.org

www.nabr.org

