



The Association of
Biomolecular Resource
Facilities

Defining Excellence for Shared Resources Worldwide

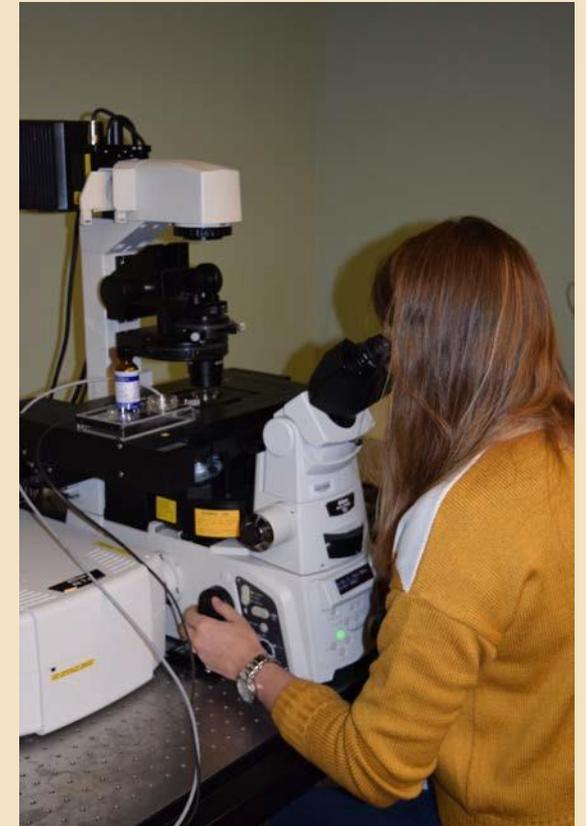
Thayumanasamy Somasundaram
Florida State University
President, ABRF
president@abrf.org



What is ABRF?

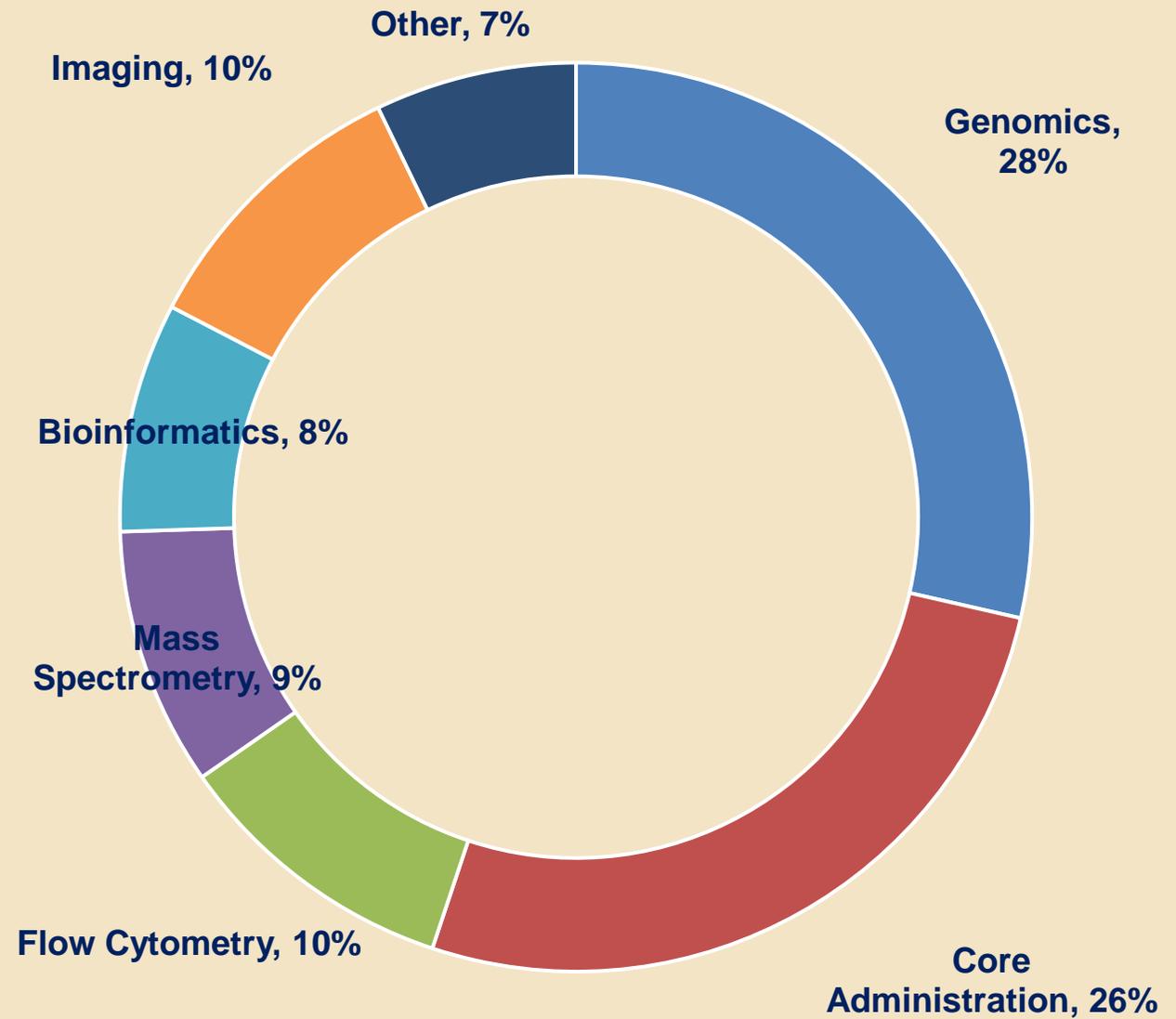
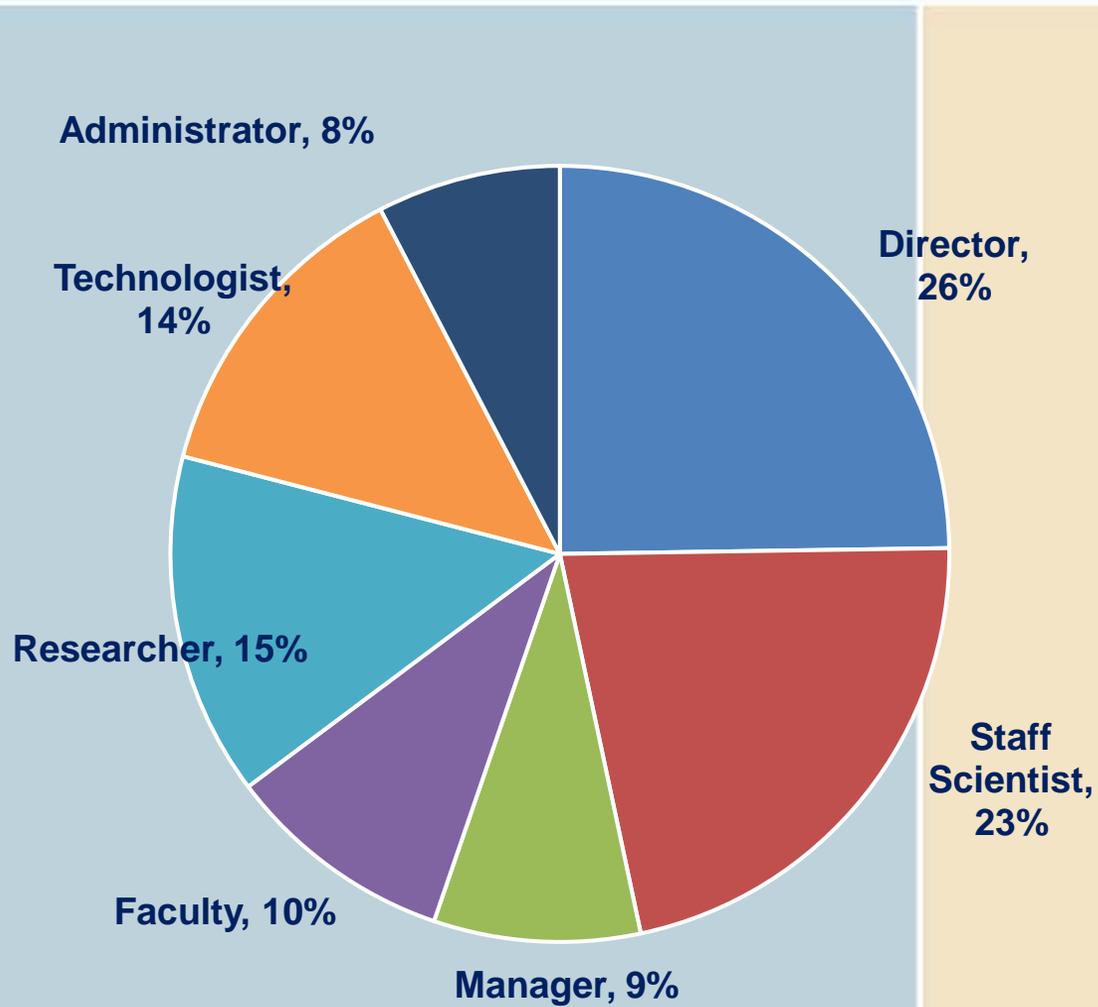
International scientific society dedicated to advancing technologies, education and communication and reproducible research in operations of shared scientific resources.

- ABRF is a non-profit professional membership organization and member of the Federation of American Societies of Experimental Biology (FASEB)
- Founded in 1989, ABRF currently includes over **2600** members working in biomedical laboratories in **16** countries representing academia, government and industry
- ABRF promotes research, technology, communication and education
- A **member-driven** society that relies on volunteers for ongoing activities
- Members access unique resources and professional opportunities



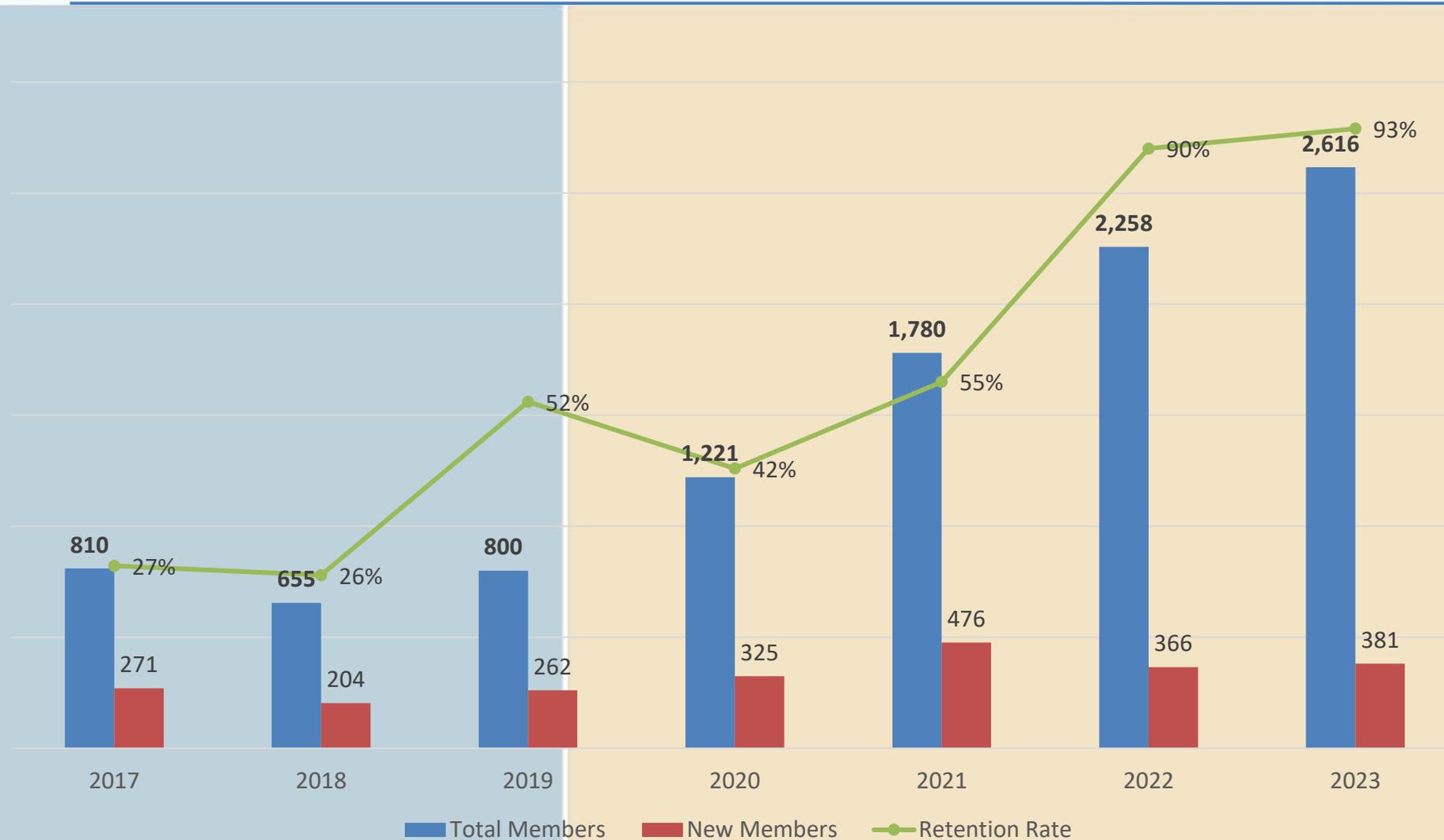


ABRF Members by Professional Role



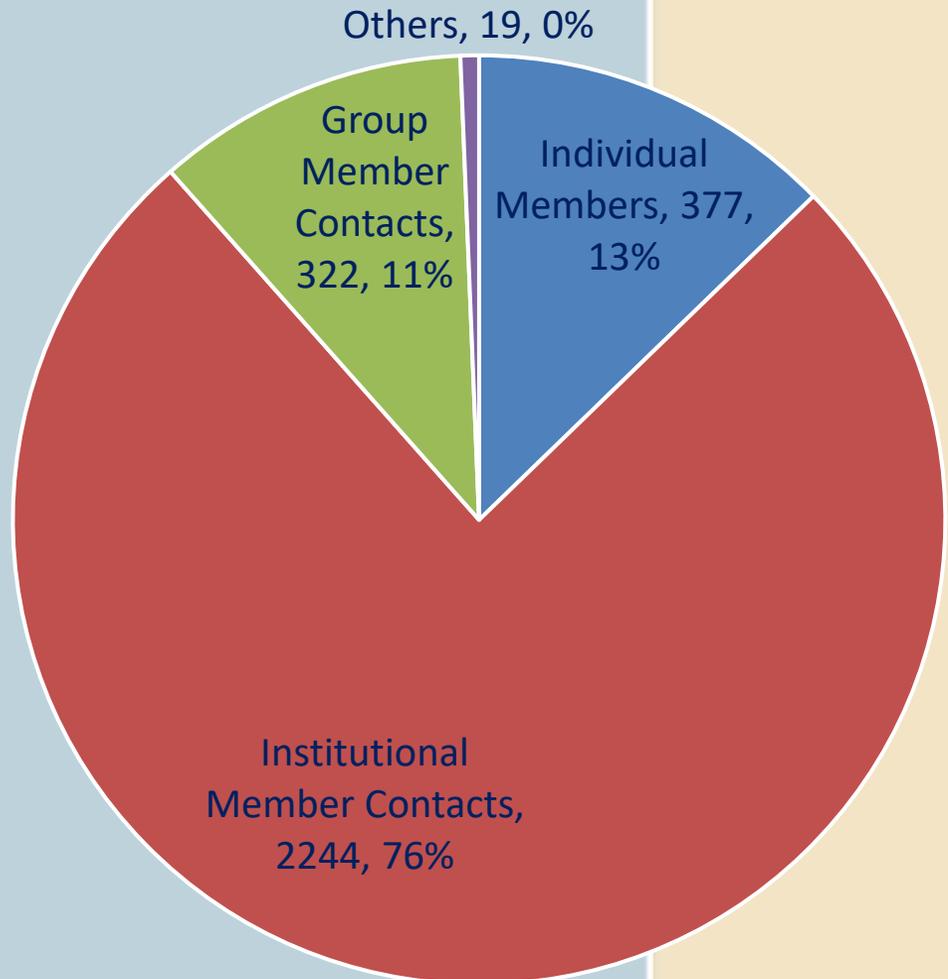


ABRF Member Growth 2017-2023





ABRF Membership Distribution

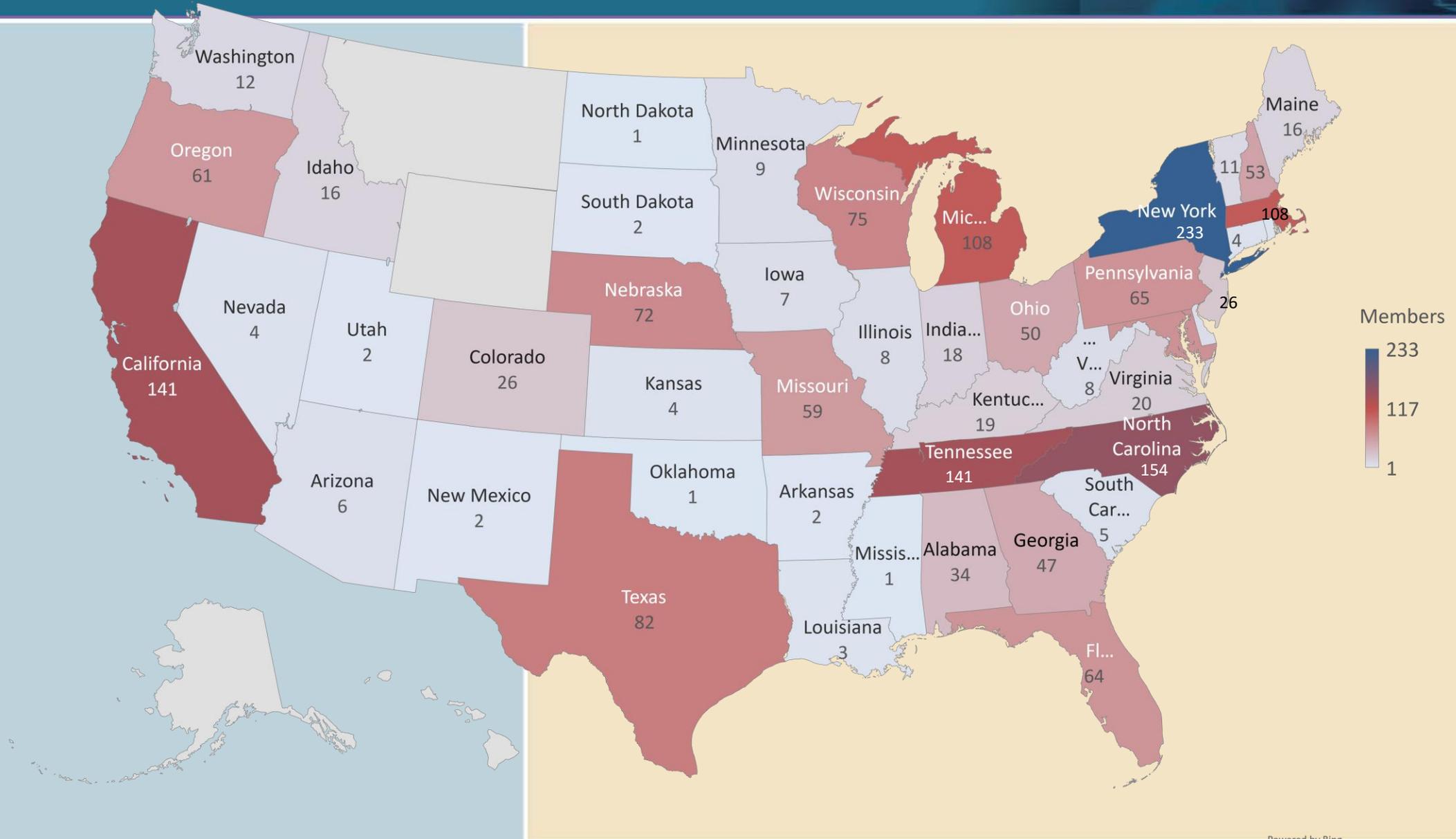


2,600+
Members

- ✓ 450+ Academic institutions
- ✓ 17 Countries
- ✓ 48/50 top are NIH institutions
- ✓ Member of FASEB (science policy)



ABRF Members by State

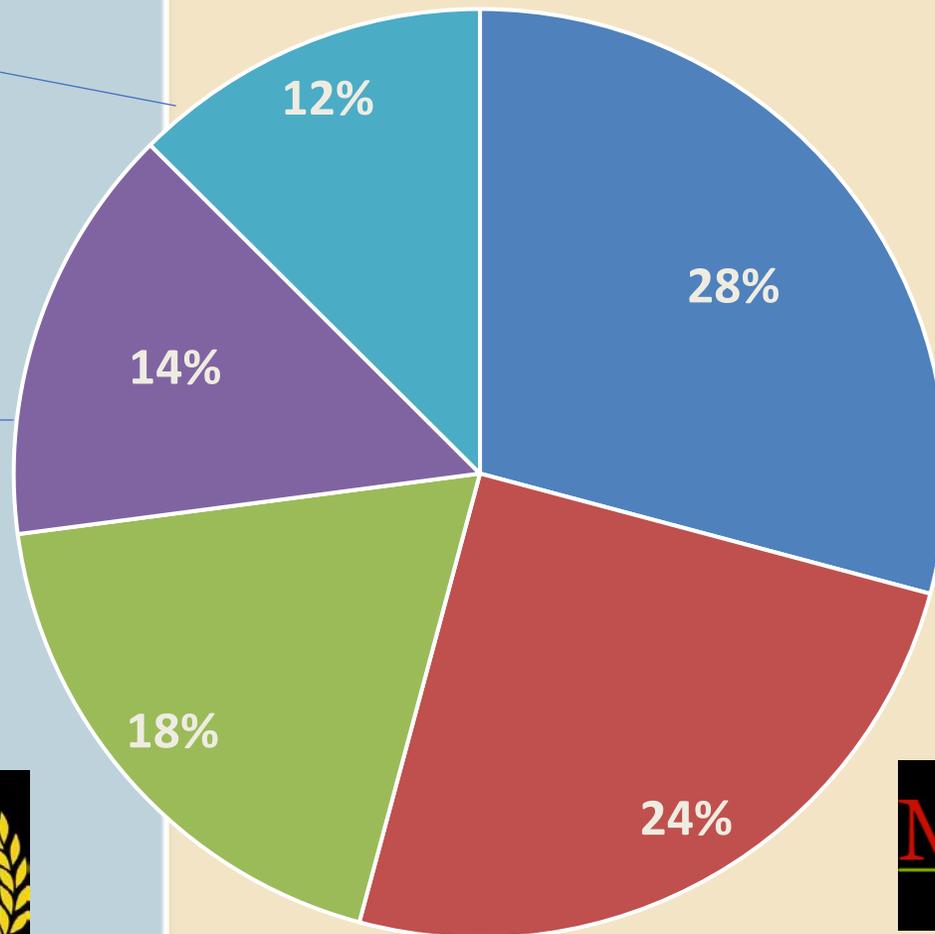
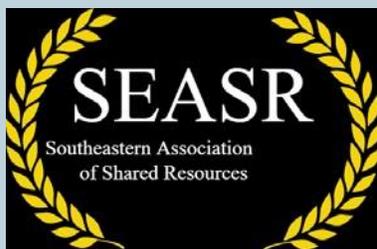




ABRF Members by Regional Chapter



THE MIDWEST ASSOCIATION OF CORE DIRECTORS



South Central Core Collective
SC3



Institution's Goals ⁽¹⁾

- Improve Funding and Business Operations for Shared Resource Facilities
- Increase the Discoverability and Access of Shared Resources
- Better Meet Evolving Resource Needs
- Professionalize Careers in Shared Resources

ABRF's Role

- Access a global network of core facilities leaders
- Advocacy and engagement with federal policy makers to make the case for increased funding
- Outreach and collaboration with allied scientific societies; convene industry partners and research officers to identify future directions
- Create a professional development curriculum for core facilities personnel



ABRF: Where do you fit?





Meet Your Needs

Education – *learn more about the latest scientific and technology advances*

Benchmarking – *understand how other core facilities operate*

Problem-Solving – *connect with peers to ask questions*

Professional Development – *add experience to advance your career*

Networking – *find your peers in the core facilities community*

ABRF Opportunities/Resources

- Year-round content on today's key developments
- Articles and presentations developed by ABRF members
- Committees, working groups, and discussion forums to engage with colleagues
- Speaking, publishing, and leadership opportunities



- Annual Meetings (national and regional)
- Research Groups
- Education Workshops
- Leadership Opportunities
- Peer Mentoring Groups
- Virtual Town Halls

<https://abrf.org>





Match your interests with an ABRF Committee

- Career Development
- Communications
- Core Administrators' Network
- Core Rigor and Reproducibility
- Corporate Relations
- Education
- Membership

ABRF Council

- Diversity, Equity, Inclusion and Belonging





ABRF Research Groups

*Often referred to as the heart and soul of the ABRF, **Research Groups (RGs)** are organized by ABRF members to advance specific biotechnologies and analytical techniques for the benefit of core and research laboratories.*





Research Groups

Genomics	Proteomics, Metabolomics & Mass Spectrometry	Imaging/ Flow	Bioinformatics
DNA Sequencing	Metabolomics	Flow Cytometry	Genomics Bioinformatics
Genome Editing	Proteome Informatics	Light Microscopy	
Genomics	Proteomics		
Metagenomics & Microbiome	Proteomics Standards		

<https://abrf.org/research-groups>

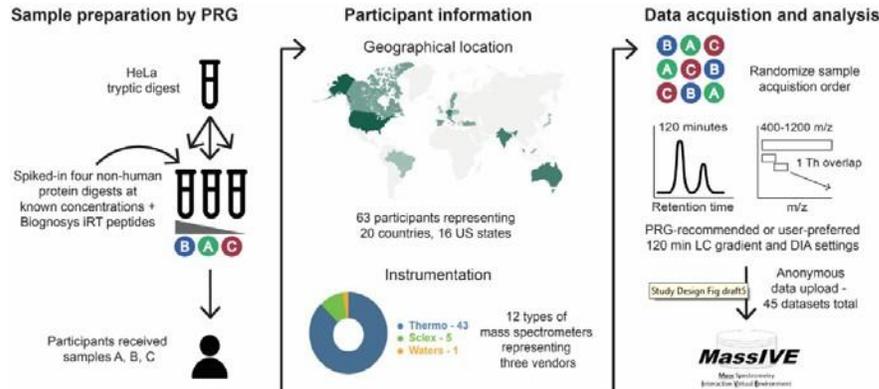


Sample Research Group activities:

- New studies
- Posters (Flash Talks)
- Presentations (Meetings)
- Publications (JBT)

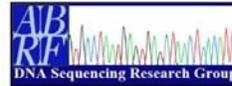
Current Study: 2018 Evaluation of Data-Independent Acquisition (DIA) for Protein Quantification in Academic and Core Facility Settings.

2018



2020: Empowering Team Science

February 29 - March 3 | Palm Springs, CA



Cross Site Evaluation of Sanger Sequencing Dye Chemistries



Molly J. Zeller¹, Fred W. Kolling², Jessica W. Podnar³, Yanping Zhang⁴, Jyothi Thimmapuram⁵, Yuriy O. Alekseyev⁶, Alex Deilulo⁴, Jeremy Niece¹, Heather Deiderick³, Jun Fan⁷, Xiaoling Xue⁸, Lorena Pantano⁹, Jan Kieleczawa¹⁰, Stuart S. Levine¹¹, Zachary T. Herbert¹², Marie Adams¹³

1. University of Wisconsin Biotechnology Center 2. Geisel School of Medicine 3. UT Austin 4. University of Florida 5. Purdue University 6. Boston University 7. Marshall University 8. Indiana University School of Medicine 9. Harvard T.H. Chan School of Public Health 10. Wyzer Biosciences 11. Massachusetts Institute of Technology 12. Dana-Farber Cancer Institute 13. Van Andel Institute

Abstract

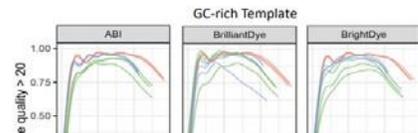
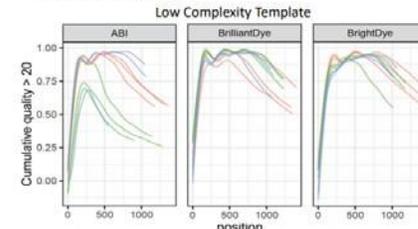
Sanger sequencing remains an essential tool utilized by researchers. Despite competition from commercial providers, many sequencing core facilities continue to offer Sanger sequencing services to their customer base. By reducing costs and providing rapid turnaround times, in-house Sanger sequencing remains a viable core service, often helping to subsidize more costly services such as next generation sequencing. While Applied Biosystems' BigDye™ Terminator chemistry was once the only solution available for Sanger DNA sequencing, several new products employing novel dye chemistries and reaction configurations have entered the market. Currently, it is unclear how these new chemistries perform on various DNA templates, including difficult templates or their amenability to commonly employed cost-saving measures such as dye dilution and reaction miniaturization. With this goal in mind, we compared the quality of Sanger sequencing data produced by kits available from several vendors using control and difficult-to-sequence DNA templates under various reaction conditions. This study will serve as a valuable resource to core facilities conducting Sanger sequencing, providing guidelines on appropriate protocols to use with each kit and determining the most cost effective solutions for Sanger sequencing while maintaining high quality results.

Experimental Variables



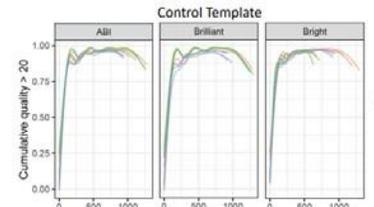
Difficult to Sequence Templates

- Protocol 1 from Kieleczawa et al*



Drop In Ready

- Each site swapped **ONLY** the dye!
- Each core used their own SOP.



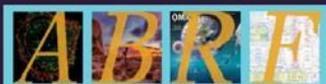
COMMUNICATION

ABRF Proteome Informatics Research Group (iPRG) 2016 Study: Inferring Proteoforms from Bottom-up Proteomics Data

Joon-Yong Lee,¹ Hyungwon Choi,² Christopher M. Colangelo,³ Darryl Davis,⁴ Michael R. Hoopmann,⁵ Lukas Küll,⁶ Henry Lam,⁷ Samuel H. Payne,¹ Yasset Perez-Riverol,⁸ Matthew The,⁵ Ryan Wilson,¹ Susan T. Weintraub,⁹ and Magnus Palmblad^{10,*}

¹Pacific Northwest National Laboratory, Richland, Washington 99352, USA; ²National University of Singapore, 117547 Singapore, Singapore; ³Agilent Technologies, 121 Hartwell Ave., Lexington, MA 02421; ⁴Janssen Research and Development, LLC, Spring House, Pennsylvania 19087, USA; ⁵Institute for Systems Biology, Seattle, Washington 98109, USA; ⁶Science for Life Laboratory, KTH - Royal Institute of Technology, 171 65 Solna, Sweden; ⁷Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, China; ⁸European Molecular Biology Laboratory, European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 1SD, United Kingdom; ⁹Department of Biochemistry and Structural Biology, The University of Texas Health Science Center, San Antonio, Texas 78229, USA; and ¹⁰Center for Proteomics and Metabolomics, Leiden University Medical Center, 2300 RC Leiden, The Netherlands

This report presents the results from the 2016 Association of Biomolecular Resource Facilities Proteome Informatics Research Group (iPRG) study on proteoform inference and false discovery rate (FDR) estimation from bottom-up proteomics data. For this study, 3 replicate Q Exactive Orbitrap liquid chromatography-tandem mass spectrometry datasets were generated from each of 4 *Escherichia coli* samples spiked with different equimolar mixtures of small recombinant proteins selected to mimic pairs of homologous proteins. Participants were given raw data and a sequence file and asked to identify the proteins and provide estimates on the FDR at the proteoform level. As part of this study, we tested a new submission system with a format validator running on a virtual private server (VPS) and allowed methods to be provided as executable R Markdown or IPython Notebooks. The task was perceived as difficult, and only eight unique submissions were received, although those who participated did well with no one method performing best on all samples. However, none of the submissions included a complete Markdown or Notebook, even though examples were provided. Future iPRG studies need to be more successful in promoting and encouraging participation. The VPS and submission validator easily scale to much larger numbers of participants in these types of studies. The unique "ground-truth" dataset for proteoform identification generated for this study is now available to the research community, as are the server-side scripts for validating and managing submissions.





- Publishing in ABRF's *Journal of Biomolecular Techniques (JBT)*
 - Offers a platform for publication of research pertaining to core facilities
 - Provides an opportunity for publication of best practices in core facility management and operations
- Annual Education Programs
 - Learn from peers and experts on the latest best practices for core facilities management, including financial benchmarking and staff leadership
 - Hear from researchers about new and emerging scientific advances
 - Engage with corporate partners to understand how to maximize the return on investment for core facilities technology





Engage with Corporate Technology Partners

- ABRF members collaborate with leading biotechnology instrumentation providers to make the most of their investments in shared resources. Partners share current and upcoming technology advances and want to hear from ABRF members about their needs and challenges.

The ABRF **Corporate Relations Committee** manages these vital connections. Contact them (abrf@abrf.org) to learn how to get involved.





<https://abrf.connectedcommunity.org>

- Connect with peers
- Exchange information
- Library resources
- Engagement
- Q & A
- Recommendation

The screenshot shows the homepage of the Core Community website. At the top, there are links for 'Terms and Conditions' and 'Contact Us', a search bar, and a user profile icon. The main navigation menu includes 'Home', 'Communities', 'Directory', 'Events', 'Browse', and 'Participate/Help'. The central banner features a blue-tinted image of a scientist using a microscope, with the text 'Welcome to the Core Community' and a sub-headline: 'Collaborate with peers to share strategic advice, solve challenges and develop new approaches.' Below this is a button that says 'Click here for a tutorial on how to use the Community'. The main content area is divided into three white boxes with blue icons and text: 'Explore' (with a magnifying glass icon) for discovering communities, 'Connect' (with a network icon) for finding others to share challenges, and 'Engage' (with a speech bubble icon) for joining discussions. At the bottom, there are links for 'Recommended for You' and 'Quick Links'.



Meeting Your Needs

Have you asked yourself these questions?

- *How do I connect with other people who work in Cores?*
- *What's the best way to evaluate new technology options for my facility?*
- *How can my Core be recognized in publications or research reports?*
- *Whom can I turn to for help to manage my Core's business operations?*
- *Are there any standard rates for shared resource services?*
- *Where can I learn more about how to advance my career?*



ABRF Regional Chapters

- Connect with colleagues in your area
- Exchange ideas and network with peers
- Identify local resources and technology partners



THE MIDWEST ASSOCIATION OF CORE DIRECTORS





ABRF Calendar of Events





The Association of
Biomolecular Resource
Facilities

Save the Date: ABRF 2025 Annual Meeting



MARCH 23 - MARCH 26

Horseshoe Las Vegas Hotel, Las Vegas, NV





Finding A Voice



FASEB Maximizing Shared Research Resources Report Part III

- Improve institutional stewardship
- Expand access
- A diverse, equitable and inclusive workforce
- Increase investment
- Prioritize sustainability in decision-making



- Benchmark your salary and benefits
 - Administrators
 - Bioinformaticians
 - Directors
 - Staff Scientists
 - Research Staff
- Data cover over 1600 positions from more than 200 core facilities across 26 states
- Report is **complimentary** for ABRF members



How Can You Get Involved?

- **Join** a Research Group or Committee
- **Attend** a Regional Chapter or Annual Meeting
- **Register** for an Education session
- **Post** questions to ABRF Connected Community or Social Media



<https://abrf.org>



The Association of
Biomolecular Resource
Facilities

ABRF: Your Professional Community

POWERed by Members...

...to EmPOWER Team Science





The Association of
Biomolecular Resource
Facilities

ABRF 2013



The Association
of Biomolecular
Resource Facilities
www.abrf.org

EDUCATION
RESEARCH
TECHNOLOGY
COMMUNICATION

The Association of Biomolecular Resource Facilities is an international society dedicated to advancing core and research biotechnology laboratories through research, communication and education.



Research Groups

Advancing Core Technologies and Standards
ABRF Research Groups advance core biomolecular technologies by sponsoring research studies that help researchers and facilities evaluate analytical techniques and methodologies, as well as help establish good laboratory practices.

Connect to the World

The ABRF Electronic Discussion Forum
Share your expertise and seek answers from fellow researchers on technical subjects. Core administrative topics are also addressed through the ABRF Core Administrators Network. They are both free and Friendly to use!



Stay informed with science policy. ABRF is a FASEB member society and participates in FASEB's activities in science advocacy, policy and government affairs.

ABRF Core MarketPlace

Powered By Vermont Genetics Network
coremarketplace.abrf.org

List your core facilities services and get noticed when researchers are looking for quality core services. Find core facilities that provide the services you want. Post your needs for services or experiments. Offer limited-time services and reagents. It's free to use, and ABRF members get priority listing.

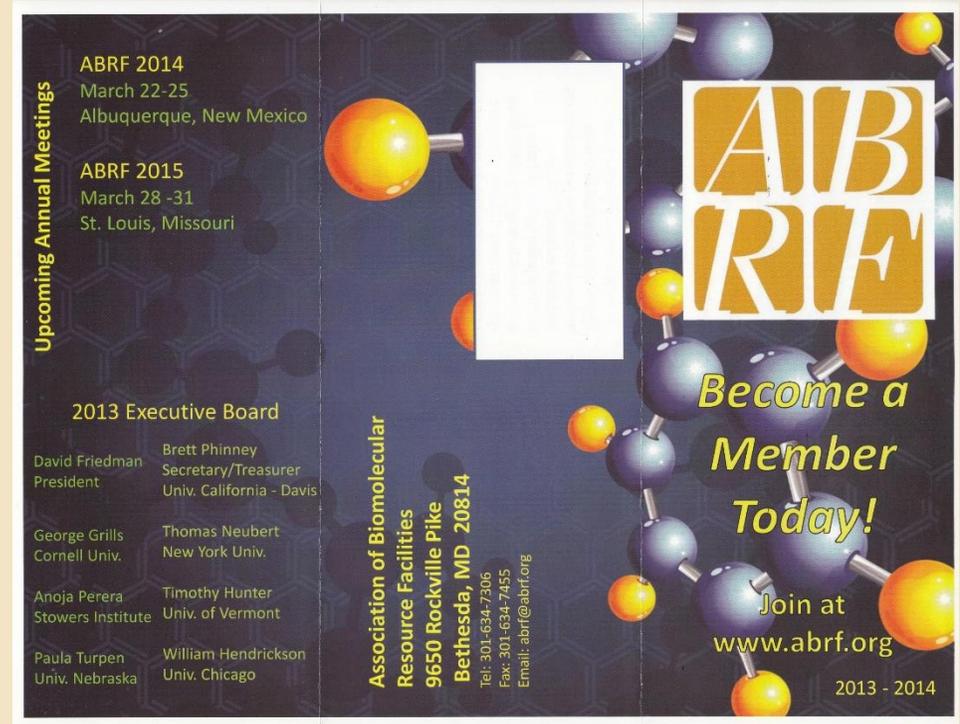
Experience the ABRF annual conferences, where science, education, core administration and a vibrant vendor exhibition all come together for 3+ days of networking and communication.



conf.abrf.org

ALBUQUERQUE CONVENTION CENTER
ALBUQUERQUE, NM

TEAM SCIENCE AND BIG DATA:
CORES AT THE FRONTIER
MARCH 22-25, 2014



Upcoming Annual Meetings

ABRF 2014
March 22-25
Albuquerque, New Mexico

ABRF 2015
March 28 -31
St. Louis, Missouri

2013 Executive Board

David Friedman President	Brett Phinney Secretary/Treasurer Univ. California - Davis
George Grills Cornell Univ.	Thomas Neubert New York Univ.
Anoja Perera Stowers Institute	Timothy Hunter Univ. of Vermont
Paula Turpen Univ. Nebraska	William Hendrickson Univ. Chicago

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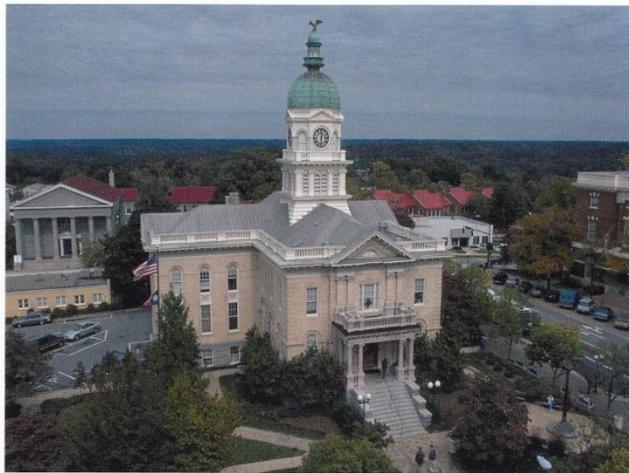
**Become a
Member
Today!**

Join at
www.abrf.org

2013 - 2014



**SouthEastern Association
of Shared Resources**



UGA Hotel and Conference Center
First Annual Meeting | June 13-15, 2013

Program and Abstracts
seasr.my.abrf.org



November 6-8, 2014

SEASR is proud to join the
MidWestern Association of Core Directors (MWACD)
to host a joint meeting in

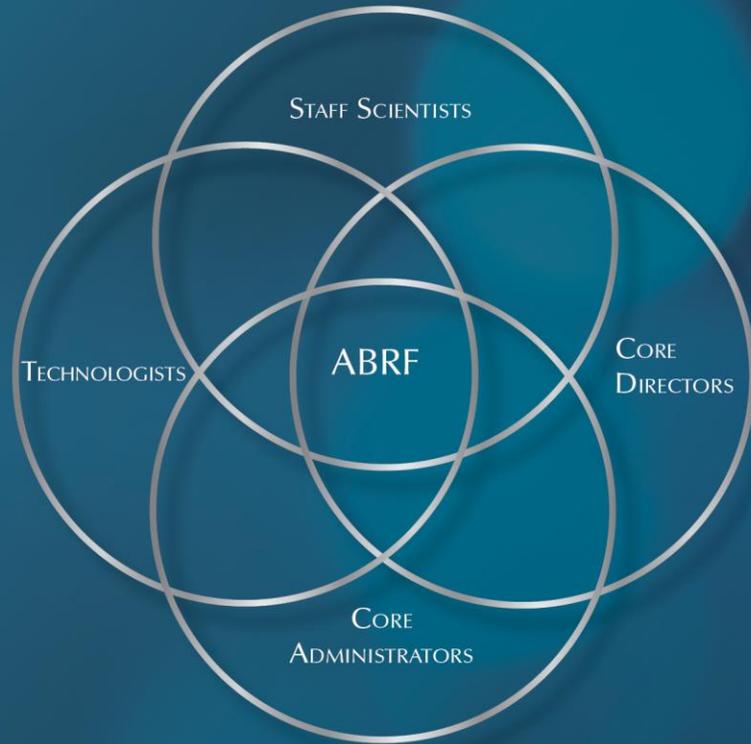
Nashville, TN







The Association of
Biomolecular Resource
Facilities



**ABRF: at the Core of Research
Excellence and Sustainability
(CORES)**

