



The Association of  
Biomolecular Resource  
Facilities

# New Members' Welcome and Orientation



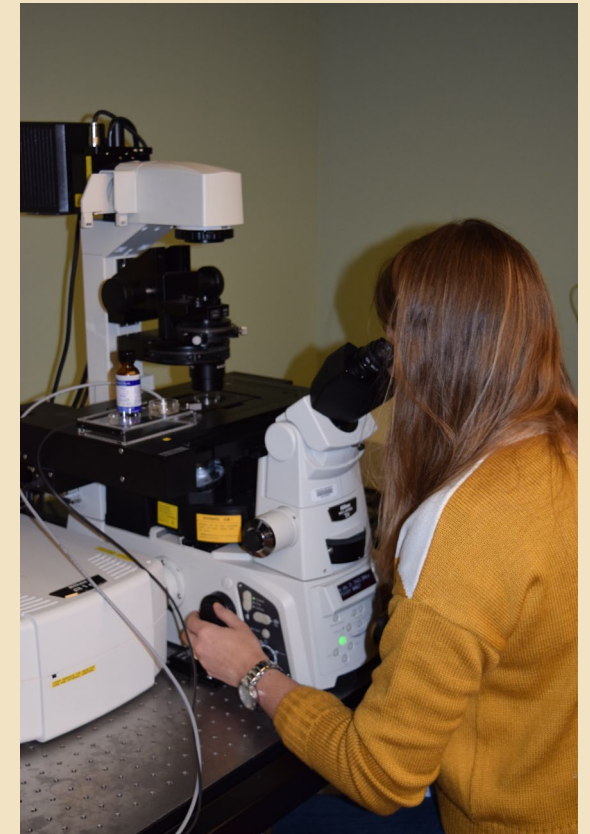


# What is ABRF?

*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 **1200** 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

<https://abrf.org>





# What's Your Role?

Academic  
Researcher

Core Director/  
Manager

Core Facility  
Technologist

Corporate  
Researcher

Principal  
Investigator

Staff  
Scientist



## 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

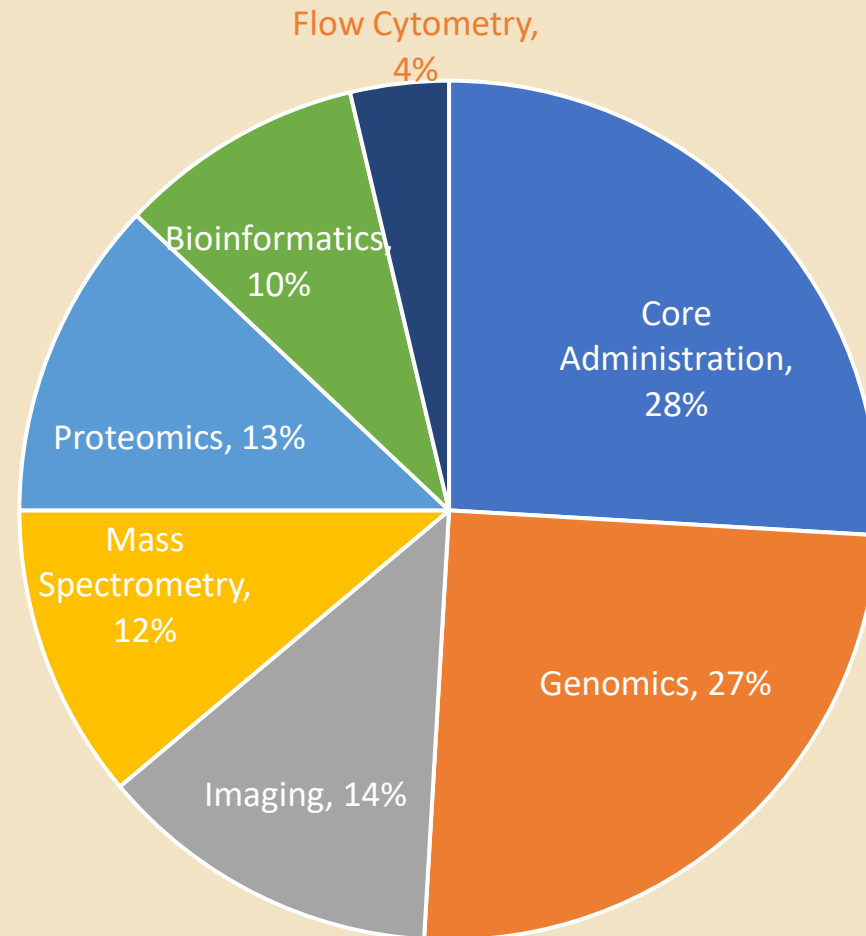




# Composition of the ABRF Membership

- *ABRF includes more than **1200** researchers, scientists, technologists, and core facilities leaders from nearly **200** academic institutions and biotechnology innovation companies.*

## ABRF Membership by Professional Interest Areas





- Annual Meetings (national and regional)
- Research Groups
- Professional Development Programs
- Leadership Opportunities
- Peer Groups

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# ABRF Regional Chapters

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

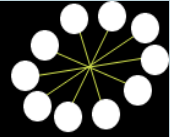


THE MIDWEST ASSOCIATION OF CORE DIRECTORS

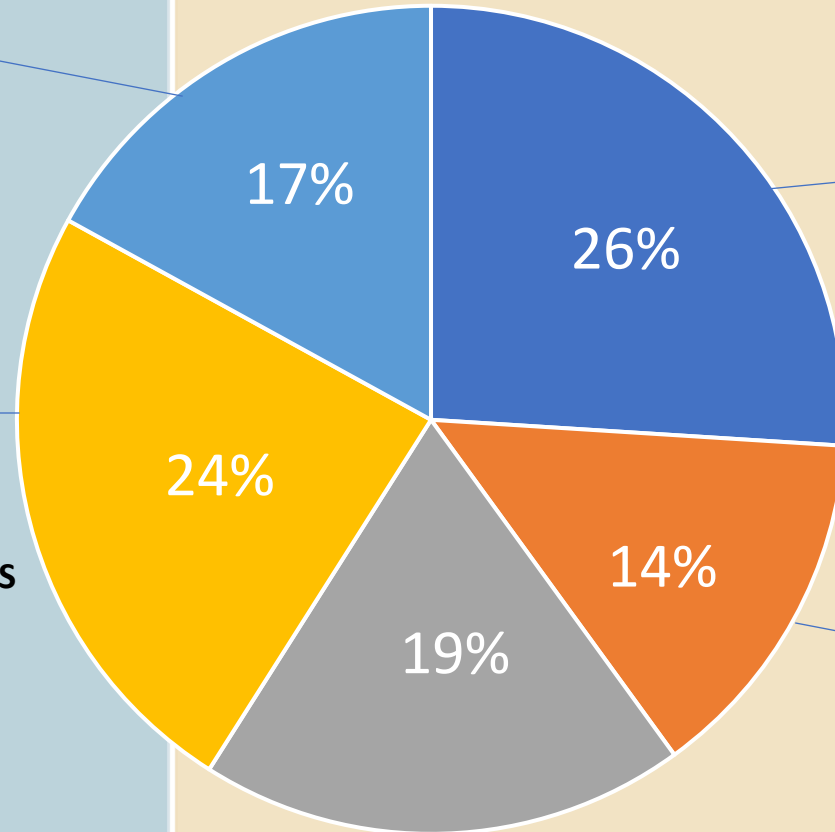




# ABRF Members by Regional Chapter



THE MIDWEST ASSOCIATION OF CORE DIRECTORS



**NORTHEAST  
REGIONAL**  
Laboratory Staff & Core Directors





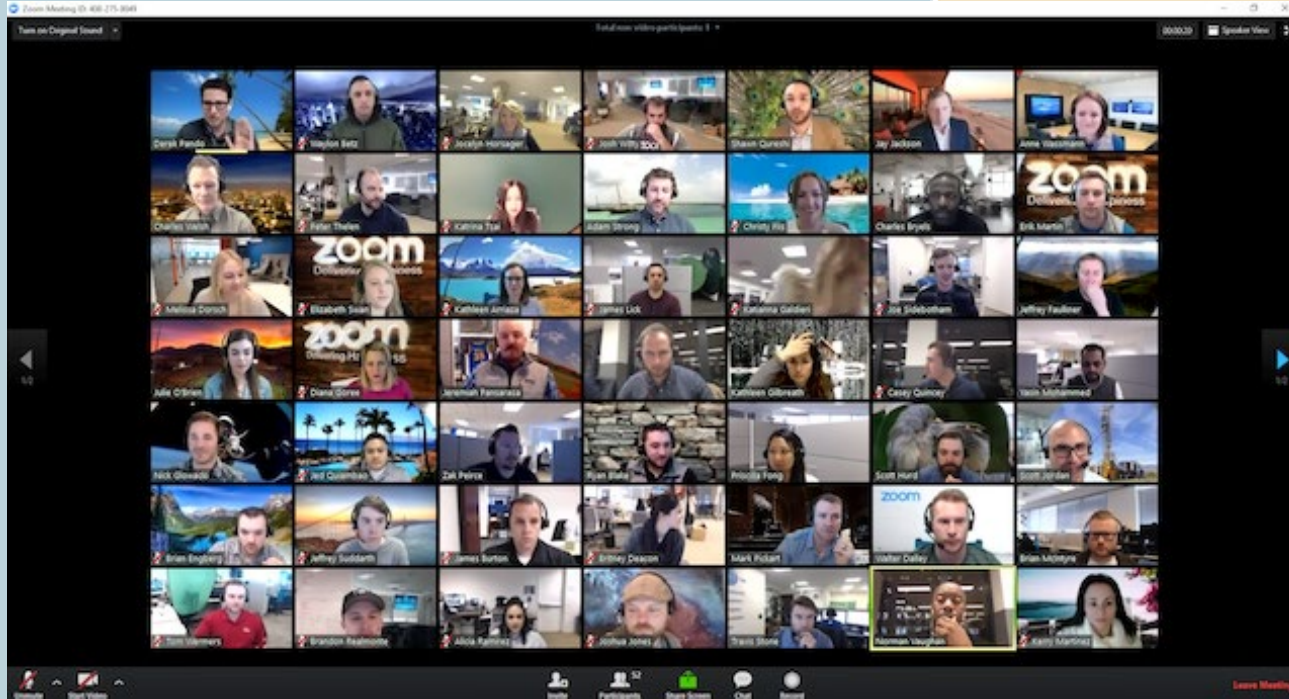


# ABRF Calendar of Events



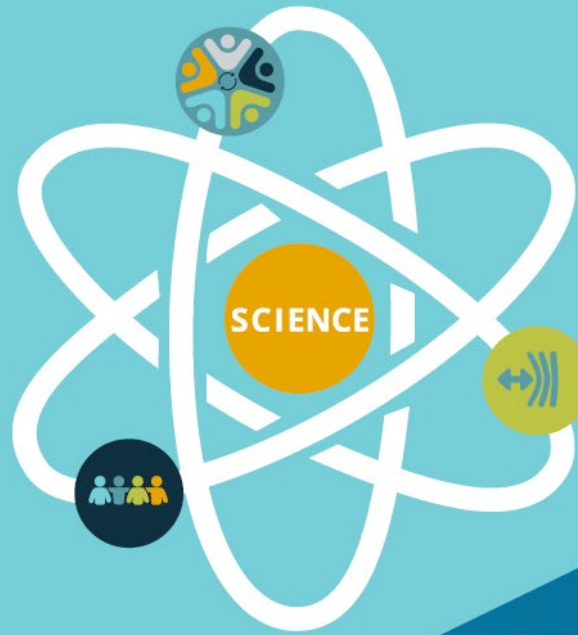


# The Association of Biomolecular Resource Facilities





The Association of  
Biomolecular Resource  
Facilities



# ABRF 2022 Annual Meeting

March 27-30

*Celebrating science, community,  
synergy, and resiliency*

SAVE THE  
DATE



[www.abrf.org](http://www.abrf.org)



**UCSF** **MULTI-Seq: Universal sample multiplexing for single-cell RNA sequencing using lipid-tagged indices**

Eric Chow<sup>1</sup>, Chris McGinnis<sup>2</sup>, Dave Patterson<sup>2</sup>, Juliane Winkler<sup>3</sup>, Daniel N. Conrad<sup>2</sup>, Vasudha Srivastava<sup>2</sup>, Jennifer L. Hu<sup>2</sup>, Marco Hein<sup>4</sup>,  
<sup>1</sup>Center for Advanced Technology <sup>2</sup>Department of Pharmaceutical Chemistry <sup>3</sup>Department of Anatomy <sup>4</sup>Department of Cellular and Molecular Pharmacology <sup>5</sup>Chan-Zuckerberg Biohub <sup>6</sup>Center for Advanced Technology

**Introduction**

Economic and technical limitations of current single cell platforms limit the number of samples and restricts projects to descriptive experiments. Sample multiplexing facilitates a costs and common artifacts such as cell doublets. However, universal and scalable sample barcoding strategies have not been described. We therefore developed MULTI-seq: lipid-tagged indices for single-cell and single-nucleus RNA sequencing. MULTI-seq reagents can barcode any cell type or nucleus from any species with an accessible plasma method involves minimal sample processing (no fixation required), and thereby preserves cell viability and endogenous gene expression patterns. MULTI-seq enables robust and increases the number of cells processed by 2.5 fold. Additionally, the MULTI-seq sample classifications identify cells with intrinsically low RNA content that would otherwise standard quality-control workflows. We use MULTI-seq to track the dynamics of T-cell activation, to perform a 96-plex perturbation experiment with primary human mammary multiplex cryopreserved tumors and metastatic sites isolated from a patient-derived xenograft mouse model of triple-negative breast cancer.

**MULTI-Seq Overview, Doublet Detection**

**Scaffold Architecture**

**Generic Workflow**

**Effects of Lung Metastasis on Immune Composition**

**MULTI-seq Workflow for Cryopreserved Primary Tumor Models**

**Flow Cytometry Testing**

**Label Stability @ 4C**

**BSA quenches LMOs**

**Low-RNA Cell Recovery**





# 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.*

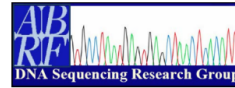




# Research Groups

<b>Genomics</b>	<b>Proteomics, Metabolomics &amp; Mass Spectrometry</b>	<b>Imaging/ Flow</b>	<b>Bioinformatics</b>	<b>Interest Networks</b>
Next Generation Sequencing	Glycoprotein	Flow Cytometry	Genomics Bioinformatics	Antibody Technology
Genome Editing	Metabolomics	Light Microscopy	Proteome Bioinformatics	Workflow Interest Network
DNA Sequencing	Protein Sequencing			
Genomics	Proteomics			
Metagenomics	Proteomics Standards			

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



Molly J. Zeller<sup>1</sup>, Fred W. Kolling<sup>2</sup>, Jessica W. Podnar<sup>3</sup>, Yanping Zhang<sup>4</sup>, Jyothi Thimmapuram<sup>5</sup>, Yuriy O. Alekseyev<sup>6</sup>, Alex Deiluo<sup>4</sup>, Jeremy Niece<sup>1</sup>, Heather Deiderick<sup>3</sup>, Jun Fan<sup>7</sup>, Xiaoling Xue<sup>8</sup>, Lorena Pantano<sup>9</sup>, Jan Kieleczawa<sup>10</sup>, Stuart S. Levine<sup>11</sup>, Zachary T. Herbert<sup>12</sup>, Marie Adams<sup>13</sup>

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

Sample Research Group activities:

- New studies
- Posters
- Presentations
- Publications

Abstract

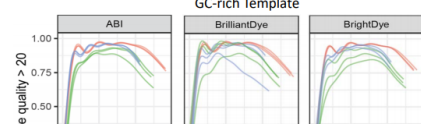
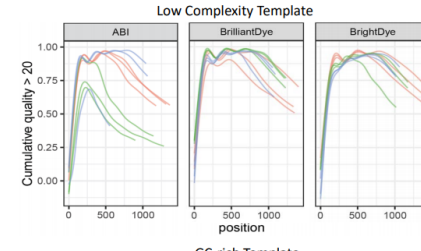
Sanger sequencing remains an essential tool utilized by researchers. Despite competition from commercial providers, many sequencing core facilities continue to offer Sanger sequencing services to their customer base...

Experimental Variables



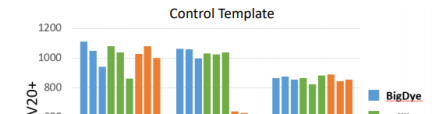
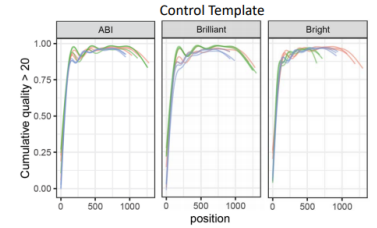
Difficult to Sequence Templates

Protocol 1 from Kieleczawa et al\*



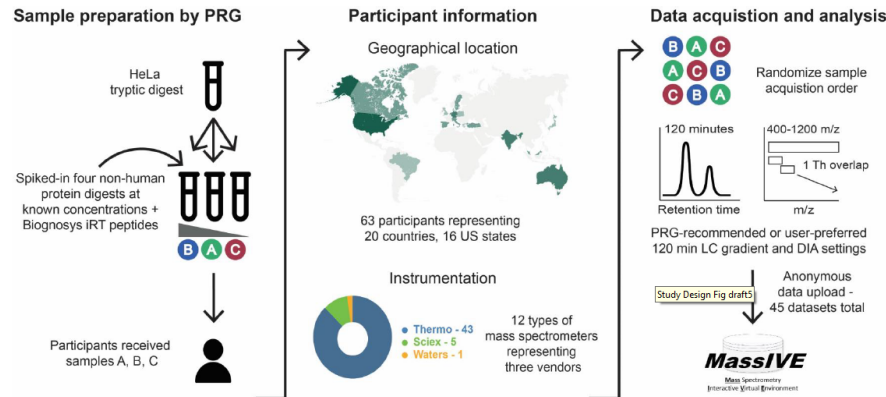
Drop In Ready

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



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

2018



COMMUNICATION

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

Joon-Yong Lee, Hyungwon Choi, Christopher M. Colangelo, Darryl Davis, Michael R. Hoopmann, Lukas Käll, Henry Lam, Samuel H. Payne, Yasset Perez-Riverol, Matthew The, Ryan Wilson, Susan T. Weintraub, and Magnus Palmblad

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









- 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





## New ABRF Mentoring Program To launch in 2021

### Benefits for Mentors

- Improve communication and personal skills
- Develop leadership and management qualities
- Reinforce your own study skills and knowledge of your subject(s)
- Increase your confidence and motivation
- Engage in a volunteering opportunity, valued by employers
- Enhance your CV

### Goals:

- Enhance career development for members
- Flexible program design: once matched, mentee establishes his/her own objectives and works with an assigned mentor to meet those objectives

For immediate assistance, or to answer questions about ABRF Mentoring, contact the ABRF Career Development Committee:

[careerdev@abrf.memberclicks.net](mailto:careerdev@abrf.memberclicks.net)

### Benefits for Mentees

- Learn from the experiences of others
- Increase your social and academic confidence
- Become more empowered to make decisions
- Develop your communication, study and personal skills
- Develop strategies for dealing with personal/academic issues
- Identify goals and establish a sense of direction
- Gain valuable insight into the next stage of your career



- As a member society of FASEB, ABRF members are part of a global community of more than **130,000** scientists across **27** organizations
- FASEB advances legislative, regulatory and executive policy initiatives that promote progress and education in biological and biomedical sciences
- 2020-2021 FASEB-wide Shared Research Resources Task Force – Co-chaired by two ABRF members



# Finding A Voice in Our Own Institutions

## *FASEB Maximizing Shared Research Resources Report*

Identified four key areas for  
improvement:

- Funding and business operations
- Discoverability and access
- Ability to meet evolving needs
- Facilitate career track and staff development



<http://tiny.cc/buw27y>



*Match your interests to contribute to the work of an ABRF Committee:*

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



<https://abrf.org/membership>



# Contribute to ABRF Committees

- Build leadership capabilities
- Expand your network
- Develop new resources and valuable programs for ABRF members
- Support the future of ABRF and core facilities



<https://abrf.org/committees>



# 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 [crc@abrf.memberclicks.net](mailto:crc@abrf.memberclicks.net) to learn how to get involved.





# 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 Discussion Forums or social media
- **Enroll** in the ABRF Mentoring Program



<https://abrf.org>





The Association of  
Biomolecular Resource  
Facilities

# ABRF: Your Professional Community

***POWERed by Members...***





The Association of  
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# ABRF: Your Professional Community

*...to EmPOWER Team Science*





The Association of  
Biomolecular Resource  
Facilities

# Why ABRF? Hear from Your Colleagues...



The Association  
of Biomolecular  
Resource Facilities

Research • Technology • Communication • Education



The Association of  
Biomolecular Resource  
Facilities

# Defining Excellence for Shared Resources Worldwide