



**Society for Cryobiology 2023 Election**  
**Candidate Biographies and Vision Statements**  
**Election Dates: October 2<sup>nd</sup> – October 16<sup>th</sup>, 2023**

## Voting Instructions

All members in good standing will receive an email in advance of the election to the email address listed in their member profile. The email will contain a personalized one-time use voting link to cast your vote anonymously at [simplyvoting.com](https://simplyvoting.com). If you do not receive your voting email within 24 hours of the election opening please check your spam folder and then contact [admin@societyforcryobiology.org](mailto:admin@societyforcryobiology.org).

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### Candidates for President (President-Elect 2024 – 2025; President 2026 – 2027)

- John M. Baust
- Charles Y. Lee

### Candidates for Secretary (2024 - 2025)

- Robert N. Ben
- Shannon N. Tessier

### Candidates for Treasurer (2024 - 2025)

- Nilay Chakraborty
- Huiping Yang

### Candidates for Governor-at-Large (2024-2026)

- Fernanda Fonseca
- Robyn Osborne
- Matthew J. Powell-Palm
- Arun Rajamohan
- Mohsen Sharafi
- Zhiquan (Andy) Shu

### Officers Ranked Voting Method

Each voter must rank the candidates in order of preference. The highest ranked candidate is the winner.

### Governors Voting Method

Each voter is assigned 100 points to allocate to one or more candidates e.g. a voting member could give one candidate all 100 points, or divide points between any number of selected candidates. All candidates are ranked by cumulative points. The winners are the three top ranked candidates.

*Candidates are alphabetized by surname.*

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## President-Elect Candidates (2024-2025)

**John M. Baust, PhD**  
CPSI Biotech, USA

**Biography:** John M. Baust, Ph.D. is the President and Lead Scientist of CPSI Biotech. He received his BS in Entomology from Cornell University (1998) followed by a Ph.D. in Biological Sciences (Cell and Molecular Biology) from Binghamton University (2001). Dr. Baust's Ph.D. research focused on the molecular response of cells to cryopreservation and how control of this

response can improve cell survival and function. This research led to the discovery of cryopreservation-induced delayed-onset cell death, for which he was awarded the Peter L. Steponkus Crystal award in 1999. During this period, he was also a member of the founding team of BioLife Solutions, Inc. and developed BioLife's flagship cryopreservation media, CryoStor. Baust completed post-doctoral studies under Dr. Mehmet Toner at the Center for Engineering in Medicine (Harvard Medical School and Massachusetts General Hospital) where his focus shifted to investigating the initiation of cell stress and death signaling cascades during dry state

*Disclaimer: Biographies and vision statements were provided by each nominee and have not been checked for accuracy. Any opinions are those of the nominees, not of the Society for Cryobiology.*

preservation. Upon completing his post-doc, Dr. Baust founded CPSI Biotech, a bio/medtech greenhouse technology development company, focused on the integration, development and translation of cryobiological principles and discoveries in engineering and life science from the R&D bench to the bedside. Baust's current work focuses on the development of new cryoablation devices and strategies for the treatment of pancreatic, bladder and breast cancer. This research includes the development of next generation anticancer treatments incorporating the combination of low dose chemotherapy and/or immunotherapy with cryoablation. Additionally, he is developing several new devices and strategies for the improved cryopreservation of stem cells. Baust has served as PI on over 20 NIH, DOD, NSF and corporate research grants. Dr. Baust has been instrumental in the advancement of the field of cryobiology into the molecular biological era concentrating on signal transduction and apoptosis. He has authored over 100 papers, reviews, and book chapters and is an inventor on over 75 issued patents on cryoablation and cryopreservation technologies. These efforts have resulted in CPSI twice receiving the Small Business Technology Council National Tibbetts Award (2006, 2013) as well as Baust being named to the America's Registry of Outstanding Professionals (2003 and 2014) and Cryogenics Society of America, Young Faces - Next Generation in Cryogenics. Dr. Baust has been a member of the Society for Cryobiology (SfC) since 1998. In service to the SfC, he has served on the Board of Governors (2003-2010 & 2020-2023), annual meeting Scientific Committees (2002, 2006, 2019-2023), the membership committee (2006-2010) and the Program Committee for Cryo2002. He also served on the Board of Governors and as Treasurer for the American College of Cryosurgery (2013-2016).

**Vision Statement:** My vision is simple: The SfC must establish a leadership position in the ever-growing fields of biotechnology and biomedicine so as to guide the development and use of cryobiological-based

advancements. To accomplish this, the SfC needs to embrace, recruit and welcome industry, clinical medicine, and researchers from other disciplines to engage with the SfC through meetings, membership and publishing in our journal. Recent advances in the biomedical areas of reparative and regenerative medicine (i.e. tissue engineering, cell therapy, etc.) as well as cancer therapy have placed new demands on the cryobiological sciences (Cryo). As a result, we are experiencing new challenges and undergoing notable changes due to Cryo serving as an enabling platform for numerous disciplines. Unfortunately, all too often, outside groups do not turn to the SfC for guidance but seek out ad-hoc assistance from select individuals, the majority of whom are not involved with the SfC. As a long standing SfC member, I believe we have a duty to encourage, foster, and guide this development proactively and position the SfC as the "go to" experts for researchers and industry alike. Accordingly, I will work with the Board to accomplish goals that serve the Society's and discipline's best interests in the future. As President, I will develop an agenda to enhance our discipline's visibility and work towards implementation of the following initiatives. First, it is critical for the SfC to establish and strengthen relationships with other societies, journals, and the bio/medtech industry segments. Expansion will not only increase SfC exposure but will also help expand our membership base. Second, it is in the SfC's long-term interest to systematically expand our corporate membership base. Involvement and training of industry dependent on cryobiological principles such as cell and gene therapy, reparative medicine, cell and tissue repositories and tissue ablation is critical for our future. This is a lofty goal and one the SfC has been working towards for several years. As the exponential growth in use of cryo in the areas of cell therapy, cancer ablation, and cardiac arrhythmia management is being led by industry, we have a unique opportunity to engage industry, encouraging their R&D and clinical personnel to become involved with the SfC through membership,

meeting attendance/ presentations and publishing in our journal. Make no mistake, industry and clinical medicine will lead the translation of cryobiological discoveries in the next decade and as a Society we must engage now or become an afterthought. Third, I intend to work with fellow BOG members to move the satellite workshop program forward with the goals of introducing, educating, and training researchers in a broad scope of new methodologies being utilized in cryopreservation and cryoablation today. While disciplinary involvement and training are important to support the diverse group within biotechnology, education of SfC members is equally important. One of my goals is to work to establish pre-meeting workshops which are attractive to industry and/or clinicians as a mainstay at the annual meetings for years to come. Fourth, engagement of clinical medicine has now reached a critical point. Cryo is now being used clinically to treat hundreds of thousands of patients annually globally. New devices, therapies, clinical trials, etc. which incorporate Cryo now appear quarterly yet few of these developments are presented at our annual meeting or published in our journal. One of my goals is to increase the clinical medicine component of Cryo at our annual meeting. As a society we do an excellent job featuring discovery science across a broad scope of areas from plants to gametes to cell and tissue research. My hope is that this can be supplemented with presentations and/or sessions highlighting the clinical translation of our labor of love, cryobiological research, “from the bench to the bedside”. As a member of the Scientific Committee and Session Chair for the last few annual meetings, we have laid the groundwork for this initiative – now we must expand. Fifth, as we have entered a new era of financial challenges, strong stewardship of the SfC’s financial position is paramount. As President, fiscal responsibility to the Society will be a top priority as the Board continues to work to cement long-term financial security for the Society. Equally important however is being a strong fiscal advocate and steward for

each and every SfC member. To this end, as President I will work with the SfC Board and Conference Planning Committees on initiatives to increase annual meeting attendance with an eye on increasing scientific impact, information availability, access and promotion as well as working to reduce cost barriers associated with in person attendance for all members. Lastly, Membership, Membership, Membership! The overall success of these initiatives and long-term stability of the SfC is only as strong as our membership. Expansion and, importantly, retention of our young and new researcher base is critical to Society growth. The SfC has embraced this in recent years providing motivation and incentives to students to become members and stay involved with the SfC. This must continue to be encouraged to further increase the level of enthusiastic involvement in the SfC for not only students, but also new investigators from other disciplines. As membership grows, so will the presence and stature of the SfC.

**Declaration of Competing Interest:** I have no actual or perceived competing interests in relation to the position for which I am a candidate.

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**Charles Y. Lee, PhD**

University of North Carolina, USA

**Biography:** My first Cryobiology meeting was in 1985 in San Diego. I was very fortunate to have met many of the Society’s luminaries who pioneered our field. Having Co-Chaired this year’s 60<sup>th</sup> Annual Meeting with Dr. Shannon Tessier, I am greatly encouraged by the young researchers in our field. Our Society’s future is bright and has great potential for growth.

**Vision Statement:** I believe the next 60 years of our Society should be focused on translating our research and technologies. My main goal as President is to get our young researchers excited about translating their work via Cryobiology focused companies. I would like to setup a group that can be a

resource for our young researchers with monthly virtual meetings on topics on how to start up biotech companies, sources of funding, business management, etc. In addition, for next year's meeting, I will organize a workshop with presentations from NIH SBIR Program Administrators, FDA officials, Small Biotech CEOs, and others on specific entrepreneurship topics along with a spirited Q&A panel discussion. Our Society has a bright future ahead of it and I would be honored to serve as the Society's next president. Thank you.

**Declaration of Competing Interest:** I am a part owner of a biotech startup, VitriStor LLC.

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## Secretary Candidates (2024 – 2025)

**Robert N. Ben, PhD**

University of Ottawa, Canada

**Biography:** Professor Ben obtained his undergraduate degree in Biochemistry from Laurentian University in 1990. He then pursued graduate studies in synthetic organic chemistry at the University of Ottawa under the supervision of Professor Tony Durst and obtained his PhD in 1994. After a postdoctoral position at the University of Toronto from 1994-1996 under the supervision of Professor Mark Lautens, he accepted a Research Associate position at the Steacie Institute of Molecular Sciences (SIMS) at the National Research Council of Canada in Ottawa. In 1998, he started his independent research career as an Assistant Professor in the Department of Chemistry at the State University of New York (SUNY) at Binghamton. During the summer of 2003, he joined the Chemistry Department at the University of Ottawa as a Canada Research Chair in Medicinal Chemistry (Tier 2). In 2013, he accepted the Directorship for the Biopharmaceutical Sciences (BPS) and Biomedical Sciences (BMS) programs at the University of Ottawa. Since his tenure at the University of Ottawa Dr. Ben has established a

nationally and internationally recognized research program at the interface between organic chemistry and biology. Specific research interests encompass organic synthesis, bioorganic chemistry, carbohydrates, peptides, glycoconjugates and cell biology with the main focus being the rational design of new and improved cryoprotectants. As such, the students in his laboratory get extensive training in modern synthetic organic chemistry and also modern cell culture techniques, live cell imaging, flow cytometry and various cell assays. Much of the work in his laboratory utilizes cultured cells (liver, kidney) as well as primary cells such as hematopoietic stems cells (HSCs) from cord blood and human red blood cells (RBCs). In the last fifteen years, Dr. Ben's research program has focused on the rational design of novel ice recrystallization inhibitors that can serve as new cryoprotectants. Conventional cryoprotectants such as dimethyl sulfoxide (DMSO) and glycerol fail to control the growth of ice during freezing and warming. This results in extensive cellular damage and decreases both post-thaw viability as well as functionality. Given the rapid development in the fields of regenerative medicine and tissue engineering there is an urgent need for improved cryoprotectant and cryopreservation protocols. Dr. Ben is an invited reviewer for more than 10 scientific journals. He was an editorial board member for the *Future Medicinal Chemistry* from 2008-2012 and Associate Editor for the interdisciplinary journal *RSC Advances* (2013-2017). He is a member of the *American Peptide Society (APS)* and the *American Chemical Society (ACS)*, *The Canadian Society of Chemistry (CSC)*, *Chemical Institute of Canada (CIC)* and has been an active member of the *Society for Cryobiology* for the approximately eleven years. During this time, he has been actively involved in the society and has served two consecutive terms as Governor.

**Vision Statement:** The field of cryobiology is very applied and it is this aspect that uniquely positions the Society for Cryobiology for

growth. This is especially relevant with the many exciting advances in the field of regenerative medicine as cryopreservation of progenitor cells for cellular therapies and products is essential to commercialization. This represents a tremendous opportunity for the Society as the current membership is very interdisciplinary in nature and is the current authority on issues relating to cryopreservation. As a new member attending this first meeting in 2012, I was extremely impressed with the breadth of expertise and willingness of researchers in the Society to collaborate together and address key issues and problems in the field of cryobiology. I believe that the future of the Society will be dependent upon its ability to engage other scientific societies, regulatory agencies, and commercial partners in a similar manner to actively promote the research mission and apply our collective expertise to new and emerging areas of development. In addition, graduate students are one of the greatest resources that the society possesses as they have the potential to be the future researchers of the Society. To remain a viable scientific society, I believe that we need to re-focus our efforts at attracting new members from the many interdisciplinary fields that benefit from knowledge of low temperature biology.

**Declaration of Competing Interests:** No actual or perceived competing interests in relation to the position for which I am a candidate.

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### Shannon Noella Tessier, PhD

Harvard Medical School; Massachusetts General Hospital; Shriners Children's Hospitals, USA

**Biography:** Shannon Tessier an Assistant Professor with the Center for Engineering in Medicine and Surgery at Harvard Medical School and Director of Surgical Research in the Department of Surgery at the Massachusetts General Hospital.

In 2007, she received her B.Sc. in Biology from Carleton University with an area of

concentration in molecular genetics. Subsequently, she received her M.Sc. and Ph.D. in molecular biology and biochemistry from Carleton University. While both her Master's and Doctoral thesis focused on understanding the molecular mechanisms which support natural suspended animation in a rodent model, the thirteen-lined ground squirrel, she also studied multiple forms of suspended animation across diverse phylogeny including squids, primates, frogs, and turtles. Dr. Tessier used a classical molecular biology and biochemistry approach and as a result acquired adept skills in physiology, proteomics, transcriptomics, bioinformatics, and immunohistochemistry, to name a few. For her next step as a postdoctoral fellow, she wanted to significantly diversify her expertise and focus on translational research that would impact society. As a result, in 2014, she entered the field of biomedical engineering at the Center for Engineering in Medicine and Surgery to translate lessons from nature to human cells that are important for diagnostics and therapeutics. Currently, Dr. Tessier is leading a research profile aimed at overcoming barriers in cryopreservation and organ transplantation, including introducing a new model system to interrogate the molecular mechanisms of cryopreservation injury, creating solutions for quantitative assessment of viability post-cryopreservation, and developing new approaches to extend preservation duration of livers and hearts for transplantation.

Dr. Tessier has received several scholarly awards, including NIH K99/R00 Pathway to Independence award, American Heart Association Career Development Award, MGH Dept. of Surgery Eleanor and Miles Shore Fellowship, MGH Claflin Distinguished Scholar Award, and MGH Dept of Surgery Polsky Family Foundation Award. She has served on many national and international review panels (e.g., National Institute of Health) and editorial boards, such as review and editorial team members (e.g., *Frontiers in Transplantation*). Recently, she has served the

Society for Cryobiology as Governor and Executive Co-Chair for Cryo2023. Dr. Tessier also serves in a leadership position at the Massachusetts General Hospital as the Director of Surgical Research for the Department of Surgery. In this role, she is (1) supporting all faculty and trainee academic efforts (includes over 200 investigators), (2) collecting and organizing information to better leverage collective resources, (3) identifying areas of growth and development, and (4) reviewing and providing advice on strategic goals as well as research policies and procedures for the department.

**Vision Statement:** This is an exciting time to be working in the field of cryobiology since preservation approaches are critical enabling technologies for diverse sectors, including human health, biodiversity, and food supply. For example, stopping biological time holds the promise of making transplantable organs/tissues available to those who need them, decreasing the time and cost of drug development, helping to feed the world, protect living organisms from extinction, and enable planetary missions to Mars and beyond, to name only a few of the broader impacts. As such, I truly believe we are on the precipice of our greatest era of cryopreservation research. I am dedicated to being a Steward for the Society and larger cryopreservation community to enable this launch into the future.

Since cryobiology and biopreservation plays such a significant role in diverse fields, one area I would like to emphasize and develop further is **engagement of diverse research scientists, clinicians, for profit and not for profit organizations**, etc. This would grow the profile of the society and increase membership, but would also build new international relationships, foster interdisciplinary collaborations, and ultimately promote innovation. Of course, the Secretary has an important role to play in the active recruitment of new members. As a candidate for Secretary, I will make these engagement efforts a major priority. Through this process,

I will focus on effective communication and dissemination, and prioritize transparency, clarity, and accessibility of information. For example, this could include identifying new ways for information exchange, providing new platforms for networking, or launching a new membership campaign. Another important role for Secretary is keeping the minutes of meetings, and ensuring reports are shared for the Executive Committee and Board of Governors. In this capacity, I would focus on meticulous organization and record-keeping to not only promote effective communication during meetings, but to ensure the wisdom from now is preserved for our future generation.

In addition to these important priorities, I also recognize the future of our society rests in the hands of the next generation of brilliant cryobiologists, so I would like to focus on **work force development**, including several career development initiatives and training opportunities. Specifically, this would include opportunities for trainees to engage with senior scientists, taking part in conference planning, workshops for grantsmanship, faculty applications, or CV preparation, etc. Finally, I aim to **improve diversity and create a sense of inclusion** to every race, religion, gender, sexual orientation, age, socio-economic status, physical disability, etc. Therefore, I aim to promote diversity in the Society, ensure equal opportunity, and remove socioeconomic barriers in participation. Specifically, this could include developing international exchange programs with restructuring countries or funding for under-represented minorities and women to explore a cryobiology-centered summer research project.

**Declaration of Competing Interest:** I have no actual or perceived competing interests in relation to the position for which I am a candidate.

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## Treasurer Candidates (2024 – 2025)

### Nilay Chakraborty, PhD

American Type Culture Connection; BioNexus Foundation, USA

**Biography:** Nilay Chakraborty is the Director of Cryobiology at ATCC and a BioNexus Foundation Principal Scientist. Nilay received his Bachelor of Engineering in Mechanical/Production Engineering from India and received his MBA degree from Indian Institute of Engineering Science and Technology. He received his PhD degree in Mechanical Engineering from University of North Carolina, Charlotte. He did his post-doctoral work and research fellowship at Center for Engineering in Medicine at Massachusetts General Hospital and Harvard Medical School. Nilay currently holds an additional faculty appointment with the Dearborn Mechanical Engineering Department at University of Michigan.

At ATCC Nilay is leading a core group of scientists focused on advancing ATCC's core competencies and capabilities in preservation sciences and developing products of strategic importance.

Prior to joining ATCC in 2021, Nilay was an Associate Professor with tenure at the Dearborn Mechanical Engineering Department at University of Michigan. During his tenure at University of Michigan Dearborn, he served as Provost Fellow to the University in 2019 and was the Chair of Engineering Research Committee from 2018-2021. He has designed and developed several programs and courses at University of Michigan that focused on success of first-generation college students. Nilay served as PI of several Federal Research Grants. He has multiple patents and has actively worked on technology translation by creating two successful startup businesses.

Nilay is passionate about practical translation of preservation technologies – his current work in the area of Cryobiology focuses on understanding of cellular injury, use of micro-spectroscopy techniques to characterize

molecular stability and metabolic modulation to improve preservation outcome.

**Vision Statement:** The Society for Cryobiology has provided to me with a sense of community for last twenty years. Interactions I have had within the Society over the years were key to shaping my scientific trajectory. As I derived my sense of identity as a scientist and researcher from the society, I realized that effective translation of preservation technologies is key to expansion and wider acceptance of the field of Cryobiology. Cryopreservation remains a significant bottleneck in effective translation of several cell-based technologies and on occasion it is the only constraint that prevents wider acceptance of a technology. In that vein, I believe we should reach out to a wider audience of closely related fields to help deliver the message how the field of Cryobiology can be the partner of choice to help successfully translate a technology from bench to bedside.

I believe with the important discoveries in our field over last couple of years, our Society is now in a better position than ever to play an important role of being a facilitator of cross-disciplinary collaboration, communication, and discovery. A strong financial strategy supporting such initiative would be the key to success. It could then support annual meetings with participants from other closely related fields and workshops supporting cross-disciplinary work. While we focus on collaboration amongst closely related fields, we should also focus on encouraging and rewarding outstanding scientists early in their career in Cryobiology. As the treasurer, I am happy to support the financial side of such initiatives through careful planning with a focus on strategic realization.

**Declaration of Competing Interests:** I have no actual or perceived competing interests in relation to the position for which I am a candidate.

## Huiping Yang, PhD

University of Florida, USA

**Biography:** Dr. Yang is currently holding an associate professor position at the School of Forest, Fisheries, and Geomatics Sciences at the University of Florida (UF). Dr. Yang obtained her Bachelor's (1987) and Master's degrees (1994) in Aquaculture from the Dalian Ocean University, and her PhD degree in 1997 in Aquaculture from the Ocean University of China. Dr. Yang worked as a postdoc, research fellow, and research assistant professor at Rutgers University, City University of Hongkong, and Louisiana State University until 2014 when she joined the faculty team at the University of Florida. Currently, Dr. Yang's research program at UF is on Molluscan Shellfish Aquaculture and Restoration to advance and support the aquaculture industry. Dr. Yang's research program covers two highly connected areas: 1) **Aquaculture Genetics**, focusing on aquaculture genetics, reproduction, immunology, and restoration. The overall goal is to create and produce superior strains through breeding programs to enhance aquaculture production. 2) **Germplasm Cryopreservation** - focusing on the development of germplasm (sperm, oocytes, embryos, or larvae) cryopreservation technologies for aquaculture species, including molluscan bivalves, shrimps, fish, and algae, and application of this technology to aquaculture breeding programs. Since 2004, Dr. Yang has been working on germplasm cryopreservation in different aquaculture species, including zebrafish, *Xiphophorus*, medaka, *Fundulus*, catfish, salmon, flounder, whiteleg shrimp, hard clams, oysters, and *Tetraselmis*, published over 30 peer-reviewed publications on cryopreservation. Dr. Yang is the first to report the production of live young from cryopreserved sperm in live-bearing fishes, revision of zebrafish sperm cryopreservation, and large-scale oyster larval cryopreservation.

**Vision Statement:** I believe that the germplasm cryopreservation technology will have a great application in aquaculture breeding and production. The application

would include, but is not limited to, serving aquaculture breeding programs, preservation of superior strains, and conservation of endangered and wild populations. The overarching goal of my research program is to establish genetic stock resources for aquaculture species by combining genetic breeding and germplasm cryopreservation technology. Due to the diversified aquaculture species, most of the research on germplasm cryopreservation is still at the stage of development of reliable and streamlined protocols for the cryopreservation process. I have been working on germplasm cryopreservation for aquatic species for almost 20 years with hands-on experience, meanwhile, I have a solid background in aquaculture biology and genetics. In recent years, I started to participate in the society meeting and wish to interact with the colleagues in biomedical research field to enhance my knowledge and vision about the development of cryobiology research. I wish I could contribute back to society by serving as a committee member, such as Treasurer. I would work closely with the board members to manage and safeguard the finances of the society with data-driven decisions to increase funding, encourage growth, and achieve missions.

**Declaration of Competing Interest.** I have no actual or perceived competing interests in the position for which I am a candidate.

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## Governor-at-Large Candidates (2024 – 2026)

### Fernanda Fonseca, PhD

Université Paris-Saclay, INRAE, AgroParisTech, UMR SayFood, France

**Biography:** Dr. Fernanda Fonseca, both Uruguayan and French citizen received her PhD in Biotechnology and Process Engineering in 2001, from AgroParisTech, France. She has been working a scientist for more than twenty years at the National Research Institute for

Agriculture, Food, and the Environment (INRAE), in the Paris-Saclay Food and Bioproduct Engineering research unit (UMR SayFood AgroParisTech-INRAE), Palaiseau, France, France. Since 2015, her position is Research Director at INRAE.

Dr. Fonseca has been an active member of the Society of Cryobiology since 2004. At Cryo 2015, she organised and co-chaired a symposium on “Cryopreservation and Freeze drying of bacteria”, which discussed the response of bacteria to environmental freezing through to industrial preservation.

Her research field is biotechnology and process engineering, with particular emphasis in fermentation, formulation, and stabilization of biological products by freezing and freeze-drying. The principal models of study have been lactic acid bacteria, but also proteins, mammalian cells and food products. As a result, she has developed several collaborations with industrial producers of ferments and the pharmaceutical industry. Dr. Fonseca has been the coordinator of a European project on the preservation of micro-organisms by ecofriendly processes (PREMIUM project-MSCA 777657, 2018-2023).

Her research interests focus on the thermophysical and chemical changes taking place within biomaterials during freezing and freeze-drying. She has collaborated during last decade with SOLEIL synchrotron scientists for developing FTIR spectroscopy and fluorescence microscopy approaches for studying bacteria at the single cell level and during process. She has also contributed as a reviewer of FTIR proposals for the ALBA synchrotron. Her recent research has focused on membranes and vitrification of the intracellular environment and on relating these events to biological and functional outcomes. The main objectives are to identify and quantify the mechanisms governing the degradation and/or the preservation of bioproducts during their manufacturing processes, predominantly freezing and freeze-drying. The ambition is also to find general principles for simplifying and rationalising the

development of new formulated products and the stabilization process optimization. Furthermore, for proposing alternative and sustainable strategies relevant to industry, the environmental impact must be considered, in addition to the product quality and the process conditions (c.f. PREMIUM).

**Vision Statement:** The Society for Cryobiology offered me the opportunity of meeting with experts in the field of Cryobiology and exchanging views and ideas with them, thus helping me and my co-workers to progress in research with exciting new collaborations. I am convinced of the strong impact of the cryobiology field on biotechnology and medicine advances and on the necessity of promoting this interdisciplinary science. In my opinion, the Society for Cryobiology has a significant role to play by supporting and encouraging young researchers from the different disciplines involved in cryobiology for networking. I believe efforts should be strengthened to bring new members from different backgrounds via, for example, broadening the invitations to the Annual Meeting to other societies, universities, and industries.

If elected for the Board of Governors, I would be happy to help in supporting young researchers, encouraging interdisciplinary collaborations, and expanding the visibility of the Society.

**Declaration of Competing Interests:** I have no actual or perceived competing interests in relation to the position for which I am a candidate.

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### Robyn Osborne, PhD

Duke University Medical Center, USA

**Biography:** Robyn Osborne serves as the Assistant Director of Substrate Services Core and Research Support (SSCRS) in the Department of Surgery at Duke University, North Carolina. Her career in basic scientific, clinical, and translational research spans almost three decades and is influential in her understanding and passion for pre-analytical

variables and the impact they have on downstream assays and results. She was instrumental in spearheading Good Clinical Laboratory Practices (GCLP) at SSCRS and serves as the quality lead in the Department of Defense Surgical Critical Care Program (SC2i). She worked with the SC2i laboratories in the Department of Surgery at Duke University, Walter Reed Medical Center and Emory University and guided them to GCLP compliance to ensure that quality samples are available to support precision medicine in wounded warriors. She is currently responsible for managing all quality control aspects for Substrate Services Core and Research Support and is working towards Biorepository Accreditation through the College of American Pathologists.

Robyn spent her early years at Trimeris, INC evaluating and characterizing peptide fusion inhibitors for a variety of human viruses including Human Parainfluenza, Respiratory Syncytial Virus, Hepatitis C and then, as part of the team that identified HIV fusion candidates, helped to send Fuzeon® (Enfuvirtide) to the market. In 2008 she joined the Duke University Translational Research Institute where she performed multi-color flow cytometry including T-cell intracellular cytokine assays, maturation and activation panels, MDSC panels and worked to develop PhosFlow assays that can be used to examine phosphorylation of intracellular proteins in cell signaling pathways. In 2015 she had the opportunity to help build a centralized bioprocessing and storage core facility and joined the team which is now known as SSCRS and regularly represents SSCRS and the Department of Surgery at conferences where she speaks about the importance of sample integrity and quality and works to educate investigators on the impacts these variables have on assay data fitness and reproducibility.

Robyn earned her BS at the University of California, Davis and her MS at North Carolina State University.

**Vision Statement:** As a biobanker, my perspective towards cryobiology may be a

little different than others within the society; my primary focus is not on the research analysis being executed, but, instead, on the pre-analytical variables that impact the quality and integrity of the samples that are being tested, monitored or measured. It is the whole “Garbage In – Garbage Out” mantra; for without quality components, an assay may fail or produce erroneous results that cannot be repeated.

As a governor for the Society of Cryobiology, it will be my responsibility to utilize the talents I bring with me to work for the betterment of the society as a whole. My primary goal will be to use my knowledge and experience to promote the importance of sample integrity and quality and to educate members on the impacts these variables have on assay data fitness and reproducibility. I see this as a two-step process. The first step will be to provide more education and knowledge of quality metrics and practices; ISBER’s Best Practices and Good Clinical Laboratory Practices (GCLP) are both great resources and by increasing the presence of experts in these areas at our annual meetings and webinars we can provide more opportunity for our members to learn the best ways to implement these in their labs. The second step focuses on the importance of standardization. A key component of any quality management plan is the standardization of operating procedures and protocols. This step will involve identifying the general protocols that are most commonly utilized by the society and compile what would be considered “Gold Standards” for each method. The ultimate goal will be to create a resource of gold-standard protocols that can be accessed by all society members.

**Declaration of Competing Interests:** I have no actual or perceived competing interests in relation to the position for which I am a candidate.

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**Matthew J. Powell-Palm, PhD**  
Texas A&M University, USA

**Biography:** Professor Matthew Powell-Palm, PhD, is a widely recognized expert on low-temperature aqueous thermodynamics and isochoric cryopreservation, having authored more than 35 journal publications on the topic and possessing multiple patents in the field. Powell-Palm completed his PhD at UC Berkeley under the advisement of Boris Rubinsky, and now serves as principle investigator of the Public Thermodynamics Lab in the Texas A&M Department of Mechanical Engineering. His group leverages cutting-edge aqueous thermodynamics to develop novel cryopreservation techniques across thermodynamic regimes, including supercooling techniques for human organs and tissues, vitrification techniques for conservation of endangered marine organisms, freezing techniques for sustainable storage of fresh foods, and etc. Dr. Powell-Palm currently mentors students from the high school through graduate levels, and works to maintain a diverse and interdisciplinary laboratory at Texas A&M. He is also the co-founder and CEO of BioChoric Inc., an early-stage medtech startup working to translate isochoric supercooling technologies to the clinic for organ and tissue preservation. Dr. Powell-Palm and his group won the 2022 Arthur W. Rowe Best Paper Award from the Sfc, and he is proud to advise several student members of the society.

**Vision Statement:** The field of cryobiology is at a pivotal cross-roads. On one hand, many of the hallmark efforts of our field are bearing significant fruit: the long-running dream to develop clinic-ready sub-zero preservation techniques for whole organs and complex tissues appears increasingly within reach; the proliferation of transformative stem cell therapies is hinged upon advancements in cryopreservation; cryo-conservation at the whole-organism level is offering new ways to battle the vanishing of global biodiversity; and on into the night. On the other hand, many new and different applications that intersect our field are emerging as international research priorities: the search for life within the cryospheres of icy planets in our solar

system; the preservation of astronauts en route to Mars via biostasis; the transformation of the global food cold chain to feed a growing world; and etc. As such, with the recent critical fusion of increased interest, increased opportunity, and increased available funding, the field of cryobiology as we know it stands to expand significantly. As the Society for Cryobiology, I believe we must embrace and lead this expansion.

As a member of the Board of Governors, I will work to reach across the vast-and-growing multidisciplinary space that intersects our Society's core expertise in order to establish new connections with emerging cryo-focused fields of research. Through our conference, webinars, and all the means by which we disseminate information, I will aim both to facilitate learning within our community about the myriad cryo-physical and -biological advances being generated by complimentary organizations (NASA Astrobiology Institute, USDA WRRRC, IIR, etc.), and to communicate to these organizations the rich opportunities for collaboration that our membership presents. Through society-to-society, researcher-to-researcher, and student-to-student outreach efforts, I believe our society can push the traditional boundaries of "cryobiology" as we know it to become the defining scientific organization driving progress in low-temperature thermodynamics, medicine, and biology.

The broadening of our cryobiological umbrella will also lead to meaningful new intersections with industry and government, providing not only new potential sources of funding to drive our foundational research efforts, but also ensuring faster and more powerful diffusion of our technologies out into the world. The ultimate goal of our work is to meaningfully improve life on Earth, and the realization of this goal requires buy-in from industry, government, and academia alike.

Finally, the lifeblood of our society is our student and trainee members, whose effort and enthusiasm much of our work relies on. As a member of the Board of Governors, I will work to expand our student recruitment and

support resources, build out our student-level educational materials, and invite students from an increasingly diverse and international array of institutions to join the wonderful world of cryobiology.

**Declaration of Competing Interests:** I am involved with an early-stage startup, BioChoric Inc., working in the field of organ and tissue biopreservation. For complete transparency, I will seek advisement from the President of the Society on any situation that may involve the appearance of a tangible conflict of interest.

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### Arun Rajamohan, PhD

The United States Department of Agriculture, USA

**Biography:** I was born in India near the historical southern town of Tanjore. I studied at multiple educational institutions as my parents shuttled from one city and job to another. However, when they settled in the seaside city of Madras (now Chennai), my interest in the marine sciences and faunal and floral conservation became apparent. This led me to join and complete my undergraduate education in Zoology at the Loyola College in Chennai and to continue to my Masters education at the University of Madras. When I garnered an University Grants Commission fellowship to continue my studies, I went on to obtain a Master of Philosophy (M.Phil.) in biological research methodology and a Ph.D. in Zoology researching the cryobiology and cryopreservation of marine shrimp larvae. Some of these studies were presented by me at the CRYO2000 at the MIT in Cambridge, MA. This led to an offer from late Dr. Roger Leopold to join a project at the North Dakota State University and the USDA-ARS in Fargo, ND to cryopreserve various dipteran fly embryos. I have since been studying insect embryos and their response to cold and cryopreservation procedures. I have been involved with various collaborators to successfully cryopreserve more than a dozen insects including lepidopteran and

hymenopteran species such as the honey bees. My current studies are focused on insect conservation and more specifically both the male and female germ plasm of agriculturally and ecologically important pollinators.

**Vision statement:** My primary interest is insect conservation via cryopreservation. I strongly believe that this is a very important subject that requires much more attention than it is being currently given. The current status of climate change and unrelenting anthropogenic landscaping of this planet applies enormous pressure on various species' daily and annual habits such as foraging and reproduction, and migration, respectively. This is independent of the population size of a species. This pressure is so intense that many of the species, especially the insects that play some of the most important roles in our ecosystem, are now either endangered or extinct. I believe that cryobiological studies and cryopreservation techniques could and must play a more intense role in conservation sciences than what is advertised currently. With respect to the society of cryobiology, if elected to serve, I would intensify my efforts to assemble more researchers in floral and faunal conservation sciences irrespective of whether they study the more economically important or the less flamboyant species. This gathering should not only discuss and broaden research collaborations but also play a bigger role in canvassing this very important field well beyond the academic circle and to the governing bodies.

**Declaration of Competing Interests:** I have no actual or perceived competing interests in relation to the position for which I am a candidate.

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### Mohsen Sharafi, PhD

Semex Alliance, Canada

**Biography:** Dr. Mohsen Sharafi has been serving as the Senior Research Scientist at Semex Alliance Canada since 2021. He earned both BSc and MSc degrees in Animal Science,

followed by a PhD in Animal Reproduction. His career journey led him to gain three years of experience through a postdoctoral fellowship, specializing in bovine semen cryobiology at the University of Saskatchewan, Canada. While he served six successful years as an assistant professor in animal reproduction, Dr. Sharafi made a transition to industry to actively apply research findings in the field of reproductive cryobiology, particularly semen cryopreservation in animal industry's technological advancements.

His career has been driven by a vision of improved fertility preservation, reproductive technologies, cryobiology, as well as cryopreservation of semen in animals and humans. This field has significant implications in agriculture, where modern genetics have heightened the demand for improved fertility performance, as well as in human clinical settings where patients seek solutions to improve reproductive outcomes and preserve their fertility. He has explored semen physiology, fertility, and various aspects of cryobiology, including biology, physics, and biochemistry. The protocols and solutions he formulated as a result of his research are being used in academic and industry trials worldwide. His research in this area has been published in more than 100 published research papers and received over 3000 citations over the last 8 years. He became a regular member of the Society for Cryobiology in 2018 and has been actively collaborating with the society and journal in advancing the missions and priorities.

**Vision statement:** My vision is to not only apply the cryobiology and biobanking principals in the field of reproductive and fertility science, but also to support animal scientists and researchers to harness the modern multidisciplinary advancements of cryobiology and biobanking field. I believe that while cryobiology has made impressive advances across various areas, there is still significant room for progress in the preservation of animal reproductive biomaterials. I dedicate myself to facilitating the translation and integration of cryobiology

principles and advancements into farm animal technology settings. This includes crucial areas like commercial sperm and embryo cryopreservation.

In my view, a key component of success is building a pool of talented researchers who actively contribute to this pivotal field. I strongly believe in fostering a culture of multidisciplinary research networks that can cross geographical boundaries, connecting scientists, academic institutions, and private industries. This collaboration will be extremely important allowing a free exchange of ideas and knowledge. Moreover, I aim to take on a more active role as a representative within the farm animal society. I intend to create a bridge between these two vital areas. This synergy will facilitate the integration of cryobiology's expertise into various associations, enabling a broader outreach.

**Declaration of Competing Interest:** I have no competing interest in relation to the position for which I am a candidate.

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### Zhiquan (Andy) Shu, PhD

University of Washington Tacoma, USA

**Biography:** Dr. Zhiquan (Andy) Shu is an Assistant Professor in the School of Engineering and Technology at the University of Washington (UW) Tacoma, the Associate Director of the Center for Cryo-Biomedical Engineering and Artificial Organs, and an Affiliate Assistant Professor at the University of Washington (Seattle). Dr. Shu earned his dual bachelor's degrees in both Mechanical Engineering and Computer Science & Technology from the University of Science and Technology of China (USTC), and his Master and Ph.D. degrees in Mechanical Engineering (specifically in cryobiology) from UW Seattle. Dr. Shu's research has been focusing on fundamental and applied cryobiology. He has published 5 book chapters, authored/co-authored about 75 peer-reviewed journal papers, many conference papers and abstracts, covering various topics including the development of novel methods,

technology, and instruments for cryobiology study and biopreservation applications, optimal biopreservation of various cells, tissues, and organs. He is the recipient of the “Dayong Gao Young Investigator Award” from the Society for Cryobiology in 2023.

Dr. Shu actively serves the cryobiology and biopreservation communities. He was the Treasurer and an Executive Member of the Society for Cryobiology in 2018-2018, a Chair for the cryobiology webinar, a member of the Conference Program Committee, Student Awards Committee, Scientific Review Committee, etc. and a Session Chair for the annual CRYO meetings in the last 5 years. He is the Editor of a Special Issue (“Cryobiology in Biobanking”, August 2022) and a Section Editor for the journal of Biopreservation and Biobanking, an Editorial Board Member of several other journals, and an invited reviewer for about 30 scientific journals.

**Vision Statement:** Cryobiology stands as a shining exemplar of “converging science” that facilitates transdisciplinary integration of life sciences, physics, chemistry, engineering, mathematics, and beyond, merges expertise to address complex problems in biopreservation and others. The inherent interdisciplinary nature infuses this dynamic subject with enduring vitality, and at the same time, underscores the imperative for contributions and collaborations among people with different backgrounds to surmount the multifarious challenges in cryobiology. The Society for Cryobiology serving as the home to researchers, educators, students, entrepreneurs, and all stakeholders engaged in related fields, should function as the nexus that interconnects varied individuals together. The Society should establish itself as a vibrant community that fosters an open, supportive, and inclusive environment for people to interact, exchange ideas, and collaborate.

If elected to the Board, I would like to work with fellow board members to pursue the following goals: (1) Actively enhancing the Society’s engagement in academia and industry and attracting more people with

diverse backgrounds or expertise to the Society. Initiatives to achieve these may include leveraging social media and various media channels to promote the visibility and impacts of the Society, inviting more speakers outside of the cryobiology community to the annual conferences and seminars, further establishing stronger connections with other organizations, societies, companies, and institutions related to cryobiology, and meanwhile, continue optimizing the services to existing members. (2) Fostering interactions and collaborations in the community. Efforts to promote connections between PIs and graduate students, women scientists, and underrepresented groups through the use of social media platforms, hosting social events, organizing discussion panels, etc. can help young talents on their professional growth and career development. Moreover, we should encourage and support researchers, particularly early-stage investigators, to collaborate on fundraising initiatives and grant applications, nurturing a culture of cooperation within the cryobiology community.

**Declaration of Competing Interest:** I have no competing interests in relation to the position for which I am a candidate.

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