Society for Cryobiology 2017 Election
Candidate Biographies and Vision Statements

This election is to elect President-Elect, Treasurer, and Secretary (2018-2019) and 3 Governor-at-Large positions (2018-2020).

The candidates are:

President-Elect (2018-2019)
- Adam Higgins
- Tiantian Zhang

Secretary (2018-2019)
- Yuksel Agca
- No Confidence

Treasurer (2018-2019)
- Zhiquan (Andy) Shu
- Yuansheng (Tony) Tan

Governor-at-Large (2018-2020)
- Ido Braslavsky
- Ram Devireddy
- Igor Katkov
- Peter Kilbride
- Krishnaa Mahbubani
- Estefania Paredes
- Barbara Reed
- Erik Woods
- Peter Wilson
- Gang Zhao

Candidates for President-Elect

- Adam Higgins
- Tiantian Zhang

Adam Higgins, PhD
Oregon State University, USA
Biography: Adam Higgins is an Associate Professor in the School of Chemical, Biological and Environmental Engineering at Oregon State University. He received a Bachelor of Science in Bioengineering and a Bachelor of Arts in International Studies from Oregon State University in 2002, and then began graduate studies at the Georgia Institute of Technology under the guidance of Dr. Jens Karlsson. He received a PhD in Bioengineering from the Georgia Institute of Technology in 2008. His PhD research focused on measurement and modeling of cell membrane water transport in adherent cells and the effects of water transport on the kinetics of intracellular ice formation. His current research focuses on the development of mathematical optimization strategies for the design of preservation procedures, and microfluidic processes for cell preservation. He has received research funding from several sources, including an NSF CAREER award. Dr. Higgins has been a member of the Society for Cryobiology since 2003. He has served on student awards committees during several annual meetings, contributed to conference planning as a member of the Program Committee and served on the Board of Governors from 2013-2014. He currently serves as treasurer. He was co-chair for the 48th annual meeting of the Society for Cryobiology, which was held in Corvallis, Oregon in 2011. His student, Allyson Fry, was the recipient of the Peter L. Steponkus Crystal award in 2011 for her work on mathematical optimization of cryoprotectant addition and removal procedures for the vitrification of adherent cells. Dr. Higgins has also been active with the International Young Cryobiology Researchers (ICYR) group. He organized the ICYR activities during the 2010 Cryobiology meeting, and he was actively involved in organizing the ICYR barbeque during the 2011 meeting, along with local students. His former student, Allyson Fry Davidson, served as director of the ICYR and organized a networking event during CRYO 2013.

Vision Statement: I believe that the strong sense of community the Society has cultivated

is one of its most valuable assets. Originally, I became involved in the Society because of opportunities to share my research and advance my career goals. Over the years, my continued membership has been driven as much by the opportunities the Society affords for growth of my career as the friends and colleagues in this community I have gained. In my mind, the goals of the Society should be to both promote the science to outside groups and to continue to create a welcoming environment for new cryobiologists. If we are able to attract new members, I believe our strong sense of community will do the work to keep them. There are several activities that would support the goal of attracting new members: (1) continued support for the annual meeting to ensure that it is the premier scientific event in the field, (2) incentives for first time meeting attendees in the form of reduced conference registration or travel grants, (3) sponsorship of symposia or workshops on cryobiology at other meetings. To retain the existing members, particularly young cryobiologists, we should also engage in activities specifically devoted to community building. The networking events organized by the ICYR are useful in this regard and should continue, as should the student awards program. It will also be important to encourage continued participation of young cryobiologists who complete their work as a student and pass into the next phase of their career. This could be done by offering a Young Investigator Award, similar to awards offered by other scientific societies such as the Biomedical Engineering Society. Young scientists who are just starting their independent academic career have to choose an annual meeting and a scientific community to support their career advancement. A Young Investigator Award would help attract and retain these scientists in our community.

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

Tiantian Zhang, PhD
Bournemouth University, UK

Biography: Professor Tiantian Zhang obtained her Environmental Biology degree from Liaoning University (P.R. China) in 1982 and worked as a research scientist in the area of environmental biology before obtaining an MPhil degree in Environmental Biology at Middlesex University (UK) in 1990 and a PhD degree in Cryobiology at University of Bedfordshire in 1994 (UK). She worked as a post-doctoral research fellow and a senior research fellow at University of Bedfordshire before she was made Reader in 2003 and Professor in 2005. She was appointed Director of Institute of Research in the Applied Natural Sciences at University of Bedfordshire in 2008 before joining Bournemouth University in 2012 as the Head of the Graduate School. She was subsequently appointed as the Deputy Dean of Research and Professional Practice in the Faculty of Science and Technology at Bournemouth University in 2017. She is also a member of the Executive Committee of the UK Council for Graduate Education.

Professor Tiantian Zhang is a leading figure internationally in research on cryopreservation of gametes and embryos of fish species and her research interests have been in the areas of cryopreservation of reproductive cells and the effect of cryopreservation on genome integrity and cellular metabolism. Her research activity has led to over 140 publications and over 90 presentations at international conferences and workshops. Professor Tiantian Zhang has obtained substantial funding from funding bodies such as the UK Research Councils, Wellcome Trust and EU. She has supervised over 30 PhDs and other research degree students and has been an editor or referee of

over ten scientific journals including the leading journals in the field of cryobiology such as CryoLetters and Cryobiology. She served as a member of the Board of Governors of the Society for Cryobiology from 2013 to 2015 and was the elected Chairman of the Society for Low Temperature Biology (SLTB) from 2005 to 2008 following serving as General Secretary, Treasurer and Committee Member of SLTB for 10 years. She received an award from Society of Cryobiology for her service in 2016 and was re-elected as a member of the Board of Governors of the Society for Cryobiology in 2017.

Vision Statement: Cryobiology is an important area of science and its applications in biomedicine, conservation and agriculture have significant economical, medical and environmental benefits. I would like to stand for election of Chair of the society because I believe Society of Cryobiology has an important role to play in making increased impact in these areas and I have the experience and skill required for taking on the role. I believe it is important that we have a clear vision and strategy for 21st century operation of the society and a longer term financial and operational plan. Building on our successes so far, I believe we need to engage more widely in academic and political debate relevant to our remit in order to promote our science and raising the profile of the Society. If elected, I will focus on these priorities as well as providing excellent business services such as membership services, conferences, journal publications, and newsletters and through effective board and finance management. I would very much like to promote our society's collaborative activities with other scientific societies and organisations through joint meetings, workshops and seminars and especially in less represented regions. I also believe that education and training in cryobiology is important in promoting our science and public engagement should be an important part of our activities. I will actively support young scientist and promote widening participation of society's activities by women and other under represented groups.

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Candidates for Secretary

- Yuksel Agca
- No Confidence

Yuksel Agca, PhD
University of Missouri, USA
Biography: Dr. Yuksel Agca received his doctor of Veterinary Medicine degree from University of Ankara, Turkey. His first acquaintance with Cryobiology began in 1992 at the University of Wisconsin Madison and continued during Ph.D program at the Cryobiology Research Institute at the Methodist Hospital of Indiana investigating fundamental cryobiology of mammalian oocytes. Dr. Agca spent 3 years in Indiana University School of Medicine as a post-doctoral fellow from 1999 to 2001. Dr. Agca is currently an Associate Professor with tenure at the University of Missouri College of Veterinary Medicine. His NIH funded research program focuses on germplasm cryobiology and genetic modification in rats. To date, he had the opportunity to collaborate with outstanding group of scientists who have been working on better understanding of cryobiologic properties of cell and tissue *(e.g.* gametes, ovarian tissues, and stem cells) of biomedically and agriculturally important species. These interactions have provided him with a comprehensive perspective of the field of cell and tissue cryobanking. Throughout his career development he has had the opportunity to work with many mammalian species including mouse, rat, pig, cattle,

sheep, cat, human and primates. To date, he has over 60 publications in 30 different journals and he has also contributed to 6 book chapters. He has mentored and trained many students, research fellows, national and international visiting scholars. He is currently directing reproductive and cryopreservation services of two NIH funded national rodent genome resources centers, namely Rat Resource and Research Center and the Mutant Mouse Resource Center. He has been a member of the Society for Cryobiology (SfC) for over 20 years, and is currently serving as a Secretary and Chair of the membership committee.

Vision Statement: I believe that Cryobiology in conjunction with the other disciplines in life sciences and engineering has no boundaries. I have always believed in the importance of basic research effort and its translation into biomedical and agricultural fields. The interaction of cross-disciplinary knowledge and technology is crucial for the development of new tools and methodologies that will ultimately serve the wellbeing of humans and animals. Currently, biomedical, agricultural and conservation biology communities are extensively utilizing cryo- and low temperature storage of biomaterials for various reasons. Furthermore, as the field of bioengineering is advancing at a rapid pace, our mission as cryobiologists is also becoming more complex. Science in general is adding new disciplines and thus becoming more and more competitive. Thus, we must find resources to seize young brilliant minds and encourage them to be part of the prospects of our field in order to uphold our society to the new frontiers in the future. I think our society is aware of this fact and should continue to develop endowment arrangements which will provide long-term support for young researchers. I believe we should play a more active role interacting with regulatory agencies and related societies in order to have more visibility and voice.

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Candidates for Treasurer

- **Yuansheng (Tony) Tan**
- **Zhiquan (Andy) Shu**

Zhiquan (Andy) Shu, PhD
Washington State University, USA
Biography: Dr. Shu is a Clinical Assistant Professor at the Washington State University, Associate Director of the Center for Cryo-biomedical Engineering and Artificial Organs and an Affiliate Assistant Professor at the University of Washington. Dr. Shu received his Bachelor's degrees in both Mechanical Engineering and Computer Science from the University of Science and Technology of China in 2001, and obtained his Master and PhD degrees from University of Washington in 2009 and 2013, respectively. After that he worked as a postdoctoral researcher at the University of Washington from 2014 to 2015 with funding supports from NIH and Bill & Melinda Gates Foundation. Dr. Shu's research has been focusing on fundamental and applied cryobiology, development of novel methods, technology, and instruments for cryobiology study and cryopreservation applications, and optimal biopreservation of various types of cells and tissues. His work involved the biopreservation of red blood cells, hematopoietic stem cells, adipose-derived stem cells, peripheral blood mononuclear cells, mucosal immune cells, sperm, mycobacterium complex cells, islets, adipose tissues, mucosal tissues, carotid arteries, and others, by freeze-thawing, freeze-drying, or vitrification. Dr. Shu has published 3 book chapters, authored/co-authored about 50 peer-reviewed journal papers, and numerous conference papers and abstracts. He is now serving as a Section Editor for the journal of *Biopreservation and*

Biobanking, Editorial Board Member of a few journals, and reviewer for about 10 scientific journals. Dr. Shu has been a member of the Society for Cryobiology since 2004. He has served the society on the conference Program Committee, Student Awards Committee, and Scientific Review Committee.

Vision Statement: Nowadays, almost everybody talks about cellular therapy, gene therapy, regenerative medicine, etc., but very few know that a kind of "cold" support, biopreservation at low temperatures, is essential to all these "hot" fields. I believe that the vital force in cryobiology is because of its interdisciplinary nature and its applications in many other fields. Therefore, in order to keep/promote the dynamics of cryobiology science and the cryobiology society, we need to keep working hard at least in the next a few aspects. (1) We should reach out to people working in other disciplines and explore new applications of cryobiology in other fields. Ever since the early years of my PhD program, I have been very lucky to interact with many researchers in different fields, such as biology, immunology, chemical engineering, and clinical medicine. Every time we started from knowing almost nothing about each other's work to understanding a little more, and then being able to collaborate to solve a problem, and even sometimes finally we worked together to receive a research grant. (2) We should attract more people from different disciplines and fields to attend our conferences or join our society. This would be very helpful to solve the longtime existing problems in fundamental cryobiology, and explore new opportunities to apply cryopreservation. These goals may be achieved by setting up new sessions and inviting keynote speakers from other subjects but related to cryobiology to the conference every year, organizing joint meetings with other societies, providing workshop or training program in the meetings of other societies, increasing the exposure of our website and newsletters to others, etc..(3) We need to enhance the collaborations in our community to raise funding from national or international agencies and address some of the most challenging problems in cryobiology, for example, organ preservation.

For the position of treasurer, if elected, I would first of all fully commit myself to all the relevant duties such as spreadsheets, pay checks, taxes, and banking. Besides the regular reports to the Board of Governors of our society, I would try to make it transparent to all members if allowed by the society by-laws and the policies for non-profit organizations. I would also explore any opportunities to increase the revenue to keep the society healthy and dynamic in finance, for example, solicit donations from industries.

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

Yuansheng (Tony) Tan, PhD
21st Century Medicine, USA

Biography: Yuansheng (Tony) Tan, Ph.D., is the chief neurophysiologist spearheading 21st Century Medicine's neurologic tissue preservation research project. He designs, oversees and performs neurophysiology based experimental protocols. In last 5 years, his research has been focusing on vitrification of precision tissue slices and reproductive tissues.

Dr. Tan came to 21st Century Medicine from Princeton University in Princeton, N.J., where he completed a post-doctoral program in experimental neurophysiology, studying the neuronal basis for learning and memory.

A native of Inner Mongolia, Dr Tan holds a B.S. from Nankai University, China, a Masters degree in Biometry and Statistics, and a Ph.D.

in Environmental Health and Toxicology from SUNY Albany.

Vision Statement: I joined 21st Century Medicine in late 2003 as a Senior Scientist and am now the Chief Technology Officer. I have successfully developed the methodology and protocols to cryopreserve full functionality of brain slice tissues. In collaboration with engineers and physicists, a device was designed and developed,
enabling us to fully automate the entire process with temperature and gradient control. We also developed another apparatus to efficiently screen perfusion protocols for cells or embryos. From a newbie to a cryobiologist, I am honored to be a part of the Society.

In wake of mounting demand of biobanking, bioengeering and precision medicine, we are embracing an exciting era for cryobiology. Cryobiology is a multiple-discipline field. I strongly believe that the society should be spend more efforts in broaden collaboration with other discipline, both
attracting new talents and broadening the collaboration and interactions with other organizations and societies. The further development of cryobiology is
impeded by lack of applicable solutions in physics, chemistry and engineering disciplines.

I am strong in biostatistics with R and have deep enthusiasm for computing technology – from simple scripting for data analyses to device control and home automation. In addition, I am a likable, honest, and energetic person with an inquisitive mind and a multitude of interests.

I will be honored to be elected as the treasurer the Society of Cryobiology and contribute back to this wonderful Society.

Declaration of competing interest:
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Candidates for Governor-at-Large

- Ido Braslavsky
- Ram Devireddy
- Igor Katkov
- Peter Kilbride
- Krishnaa Mahbubani
- Estefania Paredes
- Barbara Reed
- Peter Wilson
- Erik Woods
- Gang Zhao

Ido Braslavsky, PhD
Hebrew University of Jerusalem, Israel
Biography: Ice growth and its control is at the focus of my research since the time of my PhD studies in Physics at the Israel Institute of Technology. After postdoctoral positions at Weizmann Institute and Caltech, where I conducted biophysics studies on DNA – proteinss interations, I initiated a study on ice binding proteins biophysics at the Ohio University Physics department. Today, I am an Associate Professor at The Hebrew University of Jerusalem, The Robert H. Smith Faculty of Agriculture, Food and Environment, working on the biophysics of ice binding proteins and their applications in cryobiology, on ice growth manipulation by electromagnetic irradiation and development of directional freezing methods. In the last ten years, my group has published more than 25 papers on ice binding proteins and ice growth control.

Since I joined the Society for Cryobiology in 2008, I have focused my research on understanding the activity of ice-binding proteins in relation to cryobiology. Examples are ice recrystallization inhibition, the possible influence of ice-binding proteins on vitrification, the large scale production and purification of ice binding proteins for cryobiology research, and the development of methods to improve cryopreservation of

adherant cells. Next year in Madrid, will be my 10th active participation in the annual Cryo meeting.

Vision Statement: Cryobiology research emerges as a crucial part in future biotechnology and medical practice. The successful preservation of tissue samples, blood, stem cells, and organs will be at the core of effective distribution and storage of the next generation of diagnostic and therapeutic cell base medicine as well as a means to resolve the shortage of organs for transplantation. As such, I anticipate a growing interest in cryobiology research and encourage new researchers from multiple disciplines to join the Society for Cryobiology and the society's activities. I am looking forward to contributing to the success of the Society for Cryobiology.

Ram Devireddy, PhD
Louisiana State University, USA

Biography: Dr. Ram Devireddy is the DeSoto Parish Chapter University Alumni Professor (2015) and the Louisiana Land & Exploration Company Endowed Chair Professor (2013) of Mechanical Engineering at Louisiana State University (LSU). Dr. Devireddy earned a Bachelor's degree in Mechanical Engineering from the University of Madras, India in 1993, followed by a Master of Science in the same field in 1995 from the University of Colorado at Boulder. Subsequently, he was awarded the Doctor of Philosophy degree in Mechanical Engineering from the University of Minnesota at Minneapolis (UMN) in 1999. During his doctoral work Dr. Devireddy determined the membrane transport properties of non-spherical cells and opaque tissue sections during freezing and in the presence of extracellular ice utilizing a new calorimetric method. Subsequently during his postdoctoral fellowship in the Department of Chemical Engineering and Materials Science also at UMN, he performed some of the earliest work on understanding the link between mechanical properties and cell viability in artificial tissues pre- and post-freeze/thaw insult. He subsequently joined Louisiana State University (LSU) in the Fall of 2001. His initial research endeavors at LSU were performed in collaboration with the late Prof. Leibo and had relevance to cryobiological storage of reproductive tissues and cells for endangered species. Dr. Devireddy is interested in a wide of variety of biological phenomena at low temperatures with particular emphasis on phase change phenomena. The multidisciplinary breadth of his research in heat and mass transport in biological systems is reflected in the diversity of his research areas: conservation of endangered species (frozen zoo), rational design of ovarian tissue cryopreservation protocols, adult stem cell biopreservation, tissue engineering, macro- and micro-scale simulations of biomembrane-cryoprotective agent interactions and nano- and macro-scale heat transfer phenomena. Dr. Devireddy has co-authored over 80 archival journal publications. The quality of his publications has been recognized by: best paper awards from the ASME Journal of Heat Transfer, Mid-West Thermal Analysis Forum, the Society of Cryobiology and the Material Research Society; cover articles for *Tissue Eng., J. Mat. Chemistry*; top 10 most cited articles for the year 2007 in *Mol. Reprod. Dev.,*; a h-index of 25 with over 1700 citations. Since, joining LSU, Dr. Devireddy has been funded continuously from a variety of sources including the Louisiana Board of Regents, the Whitaker Foundation, the NIH, the NSF, NASA and the LSU system office. Dr. Devireddy has advised or co-advised to graduation 20 students* in the last fifteen years, served as a

*One of which was recognized by the 2009 LSU College of Engineering Outstanding Ph.D. Dissertation Award.

committee member or a Dean's representative for another 40 students. Dr. Devireddy currently serves as an Associate Editor for *ASME Journal of Biomechanical Engineering* and on the editorial board of *Cryobiology.* Dr. Devireddy has been invited to present and participate in several national and international conferences, including: the 1st and 2nd *International Congress on Controversies in Cryopreservation of Stem cells, Reproductive cells, Tissue and Organs*; the *Bioprocessing Summit*, Boston (2011), the *International Stem Cell Summit*, India (2008), NIH Workshop on "*High Throughput Germplasm Cryopreservation*" (2007), *NATO Advanced Study Institute on Low-Temperature and Cryogenic Refrigeration*, Izmir, Turkey (2001) and at various academic institutions, including UC (Riverside), Rutgers, All India Institute of Medical Sciences (Delhi, India), Clarkson University, Université Catholique de Louvain (UCL), Brussels and Kyushu University, Japan.

Vision Statement: I still remember attending my very first meeting of the Society for Cryobiology in Indianapolis in 1997. I've since endeavored to attend as many of the Society meetings as my schedule and resources permit. I've also had the opportunity over these years to observe and interact with various cryobiologists working around the world, including the EU (the University of Catholique de Louvain with Dr. Amorim and Dr. Donnez) and Japan (at the Yokohama National University with Prof. Mori). I have come to realize and strongly believe that cryobiology with its broad international membership from academia and industry is uniquely positioned to offer leadership in such diverse fields as banking of endangered species, minimally invasive surgical procedures, regenerative medicine/tissue engineering, to molecular mechanisms of cold adaptation. If elected, my aim would be to help the society build on its already impressive track record. My vision for our society is to maintain a member-centered approach. This includes keeping the annual conferences structured toward inclusion of member-initiated workshops and symposia and bring together people of similar special interests. I would also focus on expanding the international vision, strengthening the support for students, and strengthening the interactions with medical device and biological interest groups.

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Igor Katkov, PhD
CELLTRONIX, USA/ Belgorod National Research University, Russia

Biography: Igor Katkov is a cryobiologist with more than 30 years of experience in the field. His PhD thesis was on the correlation between the tolerance of bovine sperm to electroporation and freezing. He was the first person, in the early 1980s, to use electroporation both as a surgical tool (introduction of sugars) and as a diagnostic tool (predicting the cell resistance to freezing). He later moved to Canada and pioneered thawing human sperm in boiling water, which improved its quality. Later, he joined Peter Mazur and studied osmotic and cryo tolerance of mouse sperm. He then moved to San Diego, California and joined Victor Bronstein's team where he studied high temperature vitrification by drying without lyophilization. He then worked at UCSD and Burnham Institute and developed a technique of freezing adherent pluripotent stem cells directly in multi-well dishes. In parallel, he developed a novel Relativistic Permeability approach, which calculates the EXACT level of maximum shrinkage during freezing and swelling during dilution. He has been the first person to show that a permeable solute may behave paradoxically and have a bi-phasic

pattern: moving in and then out during addition (hypersaturation effect) and out and back in the cell during dilution (hyperdiliution effect). Prof. Katkov's most recent contribution is the development of the concept of and building equipment for KINETIC vitrification by hyperfast cooling. He has recently accepted a professorship in the Belgorod National Research University in Russia, where he is doing basic research while his business, a company CELLTRONX, remains in USA. He has more than 160 publications and 5 patents issued in the USA and Russia.

Vision Statement: I received my education as a Biophysicist in the former "Cryobiological Capital of the World" Kharkov, Ukraine. There were several hundreds of postgraduate students, post-docs, senior PhD's, Doctors of Science and even several Academicians in those times; it was an unprecedented environment in which to practise cryobiology. I have enjoyed working in cryobiology since then - it has been *"very cool"*, both literally and metaphorically. Unfortunately, I have noticed that despite the previous importance and output from Eastern Europe, the number of members of the Society and participants in our cryomeetings from this area has sharply declined in the last two decades. I have noticed only ONE other presentation from Russia in the largest cryo meeting I have ever attended, and I have not seen any Ukrainian and other former USSR countries presented in the CRYO2017. Neither have I seen many participants from Eastern Europe. These two regions definitely have great potential to attract more members to the Society for Cryobiology. If elected, I will focus in recruiting members to our Society from those regions where I have connections and affiliations by working in the Society as a member of the Membership Committee.

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Peter Kilbride, PhD
Asymptote Ltd., UK

Biography: Dr Peter Kilbride has been the Senior Research Scientist at Asymptote Ltd., now a subsidiary of General Electric Company, since 2015. In his position he has been involved in and managed a range of projects, including: Non-Newtonian cryopreservation techniques; Developing large volume freeze-drying protocols for entomopathogenic fungi; Developing optimal cryopreservation techniques for regenerative medicine applications such as T-cell therapies; Working with GMP compliant cold-chain delivery; and Designing and constructing state-of-the-art cryolab facilities. These projects have received internal and external funding from the Medical Research Council (UK) and Innovate UK.

Dr Kilbride obtained his Ph.D from University College London in the field of "Mathematics and Low Temperature Biology", in a joint program with Asymptote. His Ph.D focused on large volume cryopreservation of a bio-artificial liver for clinical delivery. His undergraduate program was in Physics at King's College London, with his final project examining the detection of oral cancers using novel spectrographic techniques. A principal aim of his research involves linking together developments from different fields to benefit cryopreservation problems.

Dr Peter Kilbride has published eight first author papers in journals including *Cryobiology*, *Tissue Engineering*, *PLoS One*, *PeerJ*, and *BioResearch Open Access*.

Since 2013 he has been actively involved in the Society for Cryobiology including organising the International Cryobiology Youth Researchers (ICYR) events for the 2016 conference and organising student moderator sessions for the 2017 meeting. He has been sitting on the Student and Publication committees of the Society since 2017.

He has been awarded the 1st prize at the 2015 Organ Banking Summit; 1st prize for the

Medical Research Council's Centenary Challenge writing competition in 2013; and best student presentation at the 2013 Society for Low Temperature Biology Annual Meeting.

Vision Statement: If elected to the position of Governor in the Society for Cryobiology there are three primary areas I would like to develop further.

The first is to develop a career development programme that focuses on students and early-stage researchers. I would do this through designing career focused online content and organising career-led events during the Society's meetings. I think it is important to connect junior cryobiologists to senior scientists as it can be a mutually beneficial relationship.

The second strand would be to help standardise the field and cement the Society as the go-to experts in cryobiology, through an increase in publishing general cryopreservation protocols and gold standard techniques to develop new protocols (such as criteria for post-thaw tests, time points, regulatory approval etc.). There are many cryo groups not involved in the society and as well as helping to standardise the field, this would increase the profile and perhaps membership of the society.

The third area I would like to pursue would involve increasing the profile of the Society in disparate cryopreservation groups, and increase industrial sponsorship of the Society in areas such as regenerative medicine where the criticality of cryopreservation is becoming more widely appreciated.

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Krishnaa Mahbubani, PhD
Cambridge University, UK
Biography: Krishnaa is currently a Post-Doctoral Research Associate in the Department of Surgery at Cambridge University, UK. A native of Hong Kong, Krishnaa received her education at the University of Sheffield, UK where she gained an MEng in Chemical Engineering (20XX). After a period in industry, Krishnaa realized that research was her passion, and returned to academia at Cambridge University to pursue a PhD in Chemical Engineering and Biotechnology (20XX). Since then, she has held an MRC Proximity to Discovery research fellowship, at the Department of Chemical Engineering and Biotechnology at Cambridge, in partnership with Asymptote Ltd, before moving full time to the department of Surgery. As a rising cross-disciplinary scientist, versed in chemical and process engineering, and now embedded in regenerative medicine, Krishnaa is establishing herself within this field whilst leveraging unique process engineering skills to develop innovative and novel solutions to ensure the extensive cellular therapies being developed transition from the laboratory into the clinic.

Working in the transplantation team of the department of surgery, Krishnaa has come to see the need to respect a patient's sacrifice, and utilize deceased organ donor tissues to the full extent of consented research and donation. Her primary research focuses on using secondary lymphoid tissues as a novel source for cellular therapies, and requires that volumes of extracted cells have their functionality and viability preserved to ensure their use as a research tissue in cellular therapy.

Further to that, she strives to develop processes that may contribute to whole organ cryopreservation in the future which could one day lead to a global organ transplantation network, ensuring donor organs are received

by patients with the greatest chance of successful transplantation, regardless of geography.

She has been a member of the Society of Cryobiology since 2015.

Vision Statement: Having benefitted by both gaining knowledge and developing fruitful collaborative relationships, through my involvement in the Society of Cryobiology, I feel passionate about continuing this work and contributing to the society by helping other young researchers gain as much as I have.

I see a real opportunity for growth in the cryobiology community by engaging with young and emerging scientists, supporting these scientists to develop a new generation of collaborations either with each other, or utilizing the depth of knowledge and experience already available within the field.

My vision would be to dedicate time to emerging young scientists by exploring the possibilities of supporting exchange programmes between research centres, and encouraging cross-disciplinary exchange to occur. In addition, to really integrate new members, I believe it is vital that we leverage the depth of knowledge and range of skills available in the society and would propose to investigate setting up a mentoring programme between established scientists, and those looking to further their careers and research in the field.

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Estefania Paredes, PhD
University of Vigo, Spain

Biography: Estefania Paredes is a young Research professor at the Universidade de Vigo, Spain. She received a degree in Oceanography from Universidade de Vigo in 2008. Estefania received her PhD in Oceanography in 2014 with several awards and honours from her own university and the Royal Academy of Doctors of Spain as well as a patent.

Her PhD focussed on the Cryopreservation of marine invertebrate early-life stages and the development of applications for Ecotoxicology and Aquaculture. During her PhD years she enjoyed several research stays in New Zealand at Cawthron Institute under the direction of Dr. Serean Adams and in the USA at the University of Tennessee under the direction of Dr. Peter Mazur and his research fellows, Dr. Stanley Leibo and Dr. Fritz Kleinhans.

She moved to Mazur´s lab in 2014 for her postdoctoral Fellowship until 2016. Here she focussed her interest on vitrification and ultra-fast laser warming working in several test organisms like mice, zebrafish or yeast. During her postdoc years she participated in projects funded by the NIH or SBIR from the US government.

In 2017 she moved back to Spain and became involved in several projects that obtained H2020 European funding to start her own lab at the marine research station ECIMAT that belongs to the Universidade de Vigo. She presently leads the Marine Biological Resource Functional Preservation Service at the Universidade de Vigo, which is tightly involved in the EMBRC “European Marine Biological Resource Centre”.

After being in the research field of cryobiology since 2008 when she started her PhD, Estefania’s current research interests are: the development of cryopreservation protocols for marine organisms using the latest technology and methods available within the cryobiology community; studying the specific challenges of applying vitrification to aquatic species; and furthering the basic knowledge on marine organism’s cells and behaviour

during cryopreservation both from the theoretical and practical point of view. Estefania has worked in developing cryopreservation protocols for 6 species of marine invertebrates, more than a dozen species of marine microalgae, mice, zebrafish and yeast.

She has been a member of the Society for Cryobiology since 2010 and she has been awarded with the student travel award several times and later she has organized, chaired and co-chaired several sessions in the 2015 and 2016 meetings in Ostrava and Ottawa. Dr. Paredes has also been active with the International Young Cryobiology Researchers (ICYR) group, she was involved in different parts of the organization of the ICYR activities in 2016 and 2017. She currently serves on the Awards committee and the Student committee.

Vision Statement: The cryobiology research community has two very unique qualities, first of all it is highly interdisciplinary which is a source for new approaches and ideas. Secondly, but not less important, the cryobiology research community is quite tightly interconnected and interrelated and that is mostly due to the role of the Society for Cryobiology and its efforts to provide an open environment for researchers to interact, exchange ideas and work together. I believe these two factors must be treasured by encouraging all those who approach Cryobiology from a side discipline to become members, interact and stay in the field so we all can benefit from new technologies being developed, new points of view, new approaches. Everyone in the Society has/knows something that will contribute to the advancement of the field and that makes us stronger as a discipline.

I would be honoured to serve the Society as a Governor-at-Large. If elected, I will pursue the following initiatives: I would like to keep promoting and caring for the role of the student members and those new ones approaching the Society as part on my involvement with the committees I am currently working on paying special attention to ICYR, student awards and communication. I would also like to reinforce the presence of the Society in Social Media and Media in general, as a means for the members to keep in touch and minimizing the gap between professors and students to facilitate interaction. Finally, I am also interested in enhancing the role of postdocs and young faculty in the society with the purpose of providing chances for moving forward their career and or keep collaborations in the field of cryobiology in their future research. I strongly believe that Investing in the actual students, postdocs and young faculty that, will become the leaders of their fields in the future, is a good way to ensure the long term good health of the Society.

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

Barbara Reed, PhD
USDA/ARS (Retired), USA

Biography: Barbara M. Reed has been involved in plant science research for over 30 years. She is now retired, but still actively editing for journals and collaborating with former students and colleagues. From 1985 - 2015 she conducted research at the USDA-ARS National Clonal Germplasm Repository on alternative storage techniques for clonal germplasm, including *in vitro* culture, *in vitro* cold storage, and cryopreservation of shoot tips of temperate fruit and specialty crops. Dr. Reed has authored or co-authored 190 publications with 130 in peer-reviewed journals, most of which are first author or with graduate students. She has also authored or co-authored two books, 13 book chapters, 19 proceedings papers, two theses, four

handbooks of laboratory protocols, and six web-based educational tools. Dr. Reed is internationally recognized as an authority on clonal germplasm culture, cryopreservation, and storage techniques. She developed *in-vitro* conservation methods and long-term storage techniques for plant genetic resources that are used worldwide. She has advised nine M.S. and five Ph.D. students, and provided short-term training to over 40 visiting international scientists.

Vision Statement: As a longtime member of the SfC, I see a need for the society to continue the successful parts of society operation, while adding and expanding other sectors. When I first joined SfC I found the annual meetings to be an exceptional educational experience. All the basic science and theoretical cryobiology presented at the meeting provided a great background at the beginning of my career. I think this aspect should be highlighted both on our webpage and in meeting advertising. Biomedical and physical cryobiology are the major contributors at our meetings and our membership while industrial, microbial, plant and ecological based disciplines are less visible. I would like to see a continued strong presence of biomedical and physical cryobiology, along with a greater participation by these less represented groups. Sessions that highlight the important basic principles of cryobiology should always be present as an educational service to students and those new to the field. Our healthy fiscal status gives us the opportunity to try some novel approaches to attracting and keeping our membership. The board needs to find ways to have greater engagement from a wider section of the membership. Eliminating the page charges for members provided increased value to the membership, but additional products or services may also be valuable for attracting and retaining members. The Society for Cryobiology is the most prestigious society of its kind and the journal, Cryobiology, is a premier journal in the field. Continuing and strengthening those legacies are important to the continued success of the SfC and I hope to have the opportunity to contribute to the future success of the society.

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Peter Wilson, PhD
University of Tasmania, Australia

Biography: During my PhD in physics I met Art DeVries and he took me to Antarctica five times to study polar fishes and antifreezes proteins. Subsequently I took up biophysics, undertook three postdocs looking at cold tolerance and ice nucleation, including two in the Physiology Department at Otago University. In 2015 I gained an earned DSc from Roskilde University, Denmark for my work on cryobiology. In 1999 I began the company Otago Osmometers and since then have manufactured the world's only nanolitre osmometer to measure thermal hysteresis. I have sold these to perhaps 250 cryobiologists around the world.

Vision Statement: I have been involved with the SfC for many years, have worked closely with DeVries, Jack Duman, Hans Ramlov, Karl Eric until his death, Serean Adams, Tony Haymet, John Leader and many more. I see a more rigorous and analytical approach to cryobiology into the future and would like to see more physics and chemistry articles in the journal. I would like to see closer ties to thermal engineers and to physical chemists who often do not yet appreciate the intricacy of cryobiology, so better communication is required also.

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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.

Erik Woods, PhD
Ossium Health, USA

Biography: Dr. Woods studied Biology and Classics at Indiana University in Bloomington, Indiana, USA and then went on to study cryobiology at the Hillenbrand Center for Biomedical Engineering at Purdue University in West Lafayette, IN where he earned his PhD developing methods of cryopreservation of encapsulated human and canine pancreatic islets. He then completed a Post Doctoral Research Fellowship at the Herman B Wells Center for Pediatric Research at the Indiana University School of Medicine in Indianapolis, IN, developing enhanced methods of umbilical cord blood stem cell cryopreservation.

In 1997 Dr. Woods co-founded General BioTechnology LLC (GBT), an R&D company devoted to advancing cell culture and cryopreservation to facilitate mainstream clinical use of cellular therapies. Dr. Woods was the first full-time employee of the company and in 2000 became President and CEO, ultimately leading it through successful acquisition by COOK Medical in 2012 and integration into COOK Regentec where he served as Senior Vice President. In his years of service with the company, he held administrative roles, ran a continuous research endeavor with numerous scientific grants awarded through the U.S. Department of Defense, the U.S. National Institutes of Health and the State of Indiana, designed, oversaw construction and directed clinical laboratory operations and cell manufacturing operations as a board certified High Complexity Clinical Laboratory Director (HCLD). In 2016 Dr. Woods co-founded Ossium Health, a company dedicated to developing the first cryopreserved bone marrow bank from deceased organ and tissue donors, where he currently serves as Chief Science Officer.

Dr. Woods has actively continued research in cryobiology and contributes academically as a Visiting Professor at the Indiana University School of Medicine, where he is overseeing development of a GMP gene and cell therapy facility. Dr. Woods holds multiple patents related to cryopreservation, and has published numerous scientific articles, reviews and book chapters in the field.

Dr. Woods has been a member of the Society for Cryobiology for over 20 years, and served on the Board of Governors from 2005 until being elected President in 2012. While President, he sponsored several key initiatives which have helped guide the Society into a better position for a sustainable future, including increased Executive Committee/Board of Governors communication and meetings, initiation of the by-laws revision process, and development of enhanced management staffing for general continuity as well as meeting organization. As Past President, he leads the Fund-Raising committee where he is currently instituting mechanisms for developing a general endowment for continued financial sustainability of the Society.

Vision Statement: If elected to the Board, I would focus on continuing the initiatives developed by the outgoing President and the President Elect to further modernize our Society, particularly through continued outreach to other Societies to bridge the evidence-practice gap that exists in users of cryobiology at an applied level. I believe our Society needs a voice with groups like the OPA (Organ Preservation Alliance), AABB, AATB, ISCT and others, particularly those that accredit cell banking programs and/or provide guidance to groups that actively apply cryobiology. Groups such as these have asked for our help as experts, and by providing that help we can rapidly see the results of our collective research applied. Interrelations such as dual meetings and guidance committees in tandem with other organizations, as well as position papers and

invited reviews through our Journal would make our Society even more attractive to students as well and help developing cryobiologists find lifelong careers in industry as well as academics. This plan would promote and continue culturing the interdisciplinary approach that has made the Society for Cryobiology such a unique organization with the potential to develop solutions to problems in medicine, engineering, agriculture and untold future areas, and allow young investigators to build careers in our field and remain life-long members.

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Gang Zhao, PhD
University of Science and Technology of China, China

Biography: Dr. Gang Zhao has been a professor at University of Science and Technology of China (USTC), the director of Laboratory of Cryobiomedical Engineering and the deputy director of Biomedical Engineering Research Center at USTC. Dr. Zhao received his doctoral degree in 2004, studying cell cryopreservation under the guidance of Dr. Dayong Gao, and completed a postdoctoral fellowship with Prof. Jiming Yang, working on the thermodynamics of cryobiology. He was a JSPS (Japan Society for Promotion of Science) research fellow with Prof. Takamatsu Hiroshi at Kyushu University working on cryobiophysical properties of endothelial cells. In addition, Dr. Zhao received the Anhui Provincial Award for Science and Technology in 2010 and the Career Award for Young Teachers of USTC in 2013. His research interests include cryobiology, micro/nanotechnologies, biomedical microsystems and intelligent instruments. He has published over 110 research papers and holds more than 20 patents.

Dr. Zhao has been an active member of the Society for cryobiology, ASME, IEEE, and TERMIS. He is a member of the editorial board for Biopreservation and Biobanking, and he was also the Guest Editor of CryoLetters. Currently, Dr. Zhao is serving as a member of the Board of Governors (Class of 2017) for our Society for Cryobiology, and he also belongs to both the SfC Membership and the Publication Committees. During his term in office, he successfully hosted CRYO2017, as the Conference Co-Chairman, where he mobilized more than 30 volunteers to ensure that everything went efficiently during the meeting. Under the great effort of Dr. Zhao and the local committee, the annual meeting has been very successful. He was also the deputy secretary general for the 41st Annual Meeting of the Society for Cryobiology in 2004 (Beijing). More recently, he was an invited keynote speaker and session chair at the 54th Annual Meeting of the Society for Cryobiology (2017, Hefei), an invited speaker and session chair at the 51st Annual Meeting of the Society for Cryobiology (2014, Savannah, Georgia). Dr. Zhao is also an active member and one of the main leaders for several BME related Chinese academic societies.

Vision Statement: The Society for Cryobiology has made a profound impact on the exploration of life in the frozen world since its founding. A new generation of young scientists is attracted to this amazing subject Cryobiology. Many of you may have observed the increasing submissions of research articles by Chinese authors to the journal of Cryobiology and CryoLetters, which is ultimately a bright spot for the Society of Cryobiology and also prompt the new opportunity for developing our scientific discipline in China. I believe we need to attract more Chinese colleagues to join the society for a prompt advance of Cryobiology.

After successfully hosting of CRYO2017, I am utterly optimistic that we can drive smart brains into the field of Cryobiology, which will eventually serve our Society and produce advanced development in the low-temperature science and technology. If I am elected to serve on the Board of Governors, I can be in a better position to support the young researchers interested in cryobiology, and be able to better promote co-operation of the Society for Cryobiology and the relevant Chinese academic societies. I wish to share my experience in promoting the development of cross disciplinary technologies.

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