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SOCIETY FOR IN VITRO BIOLOGY

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SIVB ANNUAL 2020 REPORT



PRESIDENT'S REPORT



Allan Wenck
President

2020 was an “interesting” year for SIVB and the world. At the beginning of 2020, none would have predicted that we would be facing a global pandemic. This pandemic has not only paralyzed the world with fear and concern but has cost the lives of millions of people across the globe. It is at a time like this that science, scientific communication and scientific collaboration are so important. The Society for In Vitro Biology stands for all of these things and I am proud of all

that we do to help not only with the science and understanding moving forward, but also our commitment to communicating and helping society. It is so critical to have respected points of truth — such as the SIVB — for those searching for answers.

As the extent and impact of the pandemic became clear, a task force (**Barbara Doonan, John Harbell, Kan Wang, Dwight Tomes, Marietta Wheaton Saunders** and myself) was asked to analyze the situation and come forward with recommendations for the 2020 meeting. As it became more clear that there could not be a meeting due to the fact that California had already restricted such meetings as well as due to the concerns for the

health and welfare of our members, we started to reach out to the Town and Country. Marietta and her **New Beginnings Management** staff were able to negotiate with the Town and Country for a no cost change to our meeting. The final decision was ratified by the full board.

Marietta was able to quickly assemble a list of virtual solutions along with the Program Committee. The on-line virtual meeting was kicked off at its regularly scheduled time and was viewable for 20 days. While not having the attendance level of our previous meetings, it was a success in many ways, especially given its quick format change and uncertainty. Commendations again go to Marietta and her team at New Beginnings, and to the meeting committee members: **Michael Dame** (Program Chair), **Raj Deepika Chauhan** (PB Program Chair), **Mae Ciancio** (IVACS Program Chair), **Brett Hale** (PB Student Co-chair), **Cristofer Calvo** (IVACS Student Co-chair), **Albert Kausch** (Education Chair), **Savannah St. Clair** (Local Organizing Committee Co-Chair), **Cecilia Zapata** (Local Organizing Committee Co-Chair), **David Songstad** (Local Organizing Committee Member) and our associated societies for this World Congress — the Japanese Society of Alternatives to Animal Experiments (**Prof. Yasuyuki Sakai**, President) and the Japanese Tissue Culture Association (Prof. **Isao Asaka**, President). So many of the speakers and especially our Keynote speaker — Professor **Alysson Moutri** — were amazingly flexible in putting together a very strong, pre-recorded program. I was especially amazed to attend the student committee meeting. It appeared that the virtual environment actually created a situation where more students participated than in any other student committee meeting that I have attended. 2021 will be another challenging year. Though the pandemic seems to be waning somewhat, it became clear that, once again, we would need to go to a virtual format in support of the science and safety. The Executive Committee (**Barbara Doonan, John Harbell, Addy Alt-Holland, Piero Barone, Sukhpreet Sandhu, Marietta Wheaton Saunders** and myself) brought forward a proposal including alternative arrangements with the hotel that limited the damages incurred from cancellation to manageable amounts. Again, the Program Committee (**Raj Deepika Chauhan, Kristina Martinez-Guryan, Angela Labrum, Max Jones, Annie Saltarikos, Evan M. Hill, Alperen Ozturk**, and **Brad L. Upham**) has really stepped up to the challenge and we have a program ready that will be a hybrid between virtual — but interactive — and completely virtual. We hope that this format will allow for much better engagement with the amazing set of speakers. We will also have a virtual social so be ready to meet and greet! I hope for a turnout that even exceeds our previous meetings!

During all of these challenges, our committees have continued with their missions — see included reports. I especially appreciate the work done to keep our journals running. Lock down and lock outs have meant some work has stopped, but in other cases it has contributed to people having a chance to submit their work to our journals. Thanks to the

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Editors and Publications Committee Chair Michael Fay as well as New Beginnings Management's Michele Schultz for their continual efforts especially as we moved towards an age of potentially greater open access demands around the world and from various institutions. I would also like to acknowledge the work of our Development Committee ((Sukhpreet Sandhu (2020 Chair), Piero Barone (2021 Chair)) for amazing efforts in fundraising during this difficult time as well as Barbara Doonan (Treasurer) for wise investment of funds. Throughout the pandemic, Marietta and her staff at New Beginnings Management have helped us to keep it all together!

Lastly, I would like to thank the Public Policy Committee. I pointed to the importance of a scientific society as being a source of information and inspiration to the public. Under the guidance of Wayne Parrott (Chair) this committee has been extremely active. This year was no exception. Wayne put together a well-documented example of what a scientific response should be to EPA's requests for comments on proposed changes to rules on plant incorporated protectants created through gene editing which it was my pleasure to submit for the SIVB. John Harbell followed on with an incredible response to USDA's proposal for changes in rules for gene edited animals used for agricultural purposes. Again, as president, it was a pleasure to submit such a well-researched response to the regulatory authorities. I would like to further acknowledge all of you who are active in various social forums helping to communicate science and the positive impact it has on society.

ALLAN WENCK
President
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SECRETARY'S REPORT



Sukhpreet Sandhu
Secretary

What an honor it is to serve the esteemed Society for In Vitro Biology. After two terms as Vice President, I'm looking forward to stepping into my new role as Secretary. 2020 brought a lot of challenges, but the strive commitment of its Board and Members is a personally inspiring and humbling experience. Thanks to all their efforts, we are thriving in a new pandemic world. Today, most of us are looking to enrich ourselves, learn and build networks. SIVB is a great place if you are a student, postdoc, faculty or industry professional. Another interesting trend that I've noticed is the interest and support from VC's in cell-based technologies, where it is for human therapy, food, agriculture or natural product. It is almost like a renaissance of Cell Biology, particularly in Ag. With all the cutting-edge science, and ideas that are presented in the In Vitro Biology meeting, you would not want to miss this annual event. But it gets better, we are starting to bring webinars all year round for our members. So,

make sure you don't miss the latest events. Sign up, become a member. And if you are already a member, Thank You! We are very grateful for your support. Please reach me or any Board member directly if you would like to get engaged with the Society. From my own experience, I can tell you, it is what brings me not only great connections, but the most fulfillment. Looking forward to hearing from you.

SUKHPREET SANDHU
Secretary
sukhpreet.sandhu@hmclause.com

TREASURER'S REPORT



Barbara Doonan
Treasurer

As we all know we entered 2020 anticipating an in-person annual meeting in San Diego and due to the global onset of SARS-CoV-2, more commonly known as COVID-19, had to alter course drastically to enter into a major learning experience — a virtual meeting, and the prospect of major financial loss to the SIVB. Once the hard decision was made to have a virtual meeting, we had to begin the cancellation process with the Town and Country site in San Diego, with the threat of significant cancellation related fees. However, with Marietta Saunders at the helm of NBM as the negotiator, we were able to work out a very favorable no cost agreement with the Town and Country site via a new contract to hold our 2022 meeting there.

The annual meeting is one of two mainstays for the SIVB and transition to a virtual meeting in comparison to an in-person event did eliminate room, food, and beverage costs, but added charges for such as providing the platform to house the virtual program with provision for uploading presentations to be viewed by the virtual audience, and, due to its nature, required reduced registration fees. In spite of the difficulties encountered, expenses were controlled and a successful and profitable meeting occurred. This was made possible due to hard work and the collective efforts of Marietta Wheaton Saunders, our much-valued Managing Director and Meeting Secretariat, our Board members, the Executive Committee, the 2020 Program Chair, Committee members, Conveners and meeting participants. It turned out to be quite a successful annual meeting! The Treasurer's Summary Report, which is included as part of this SIVB Annual Report, shows that 2020 to have ended in a positive financial position. We learned a lot along the way, as due to the pandemic not abating to the degree desired, 2021 will be our 2nd virtual meeting.

The other mainstay, our journals, has continued to provide a solid revenue stream and our investments also continue to be on track, increasing in value even with pandemic challenges. The gift of \$50,000 for the new Gordon Sato and Wally McKeehan Student Award has been added to our investment

portfolio which is set at rates well in excess of those offered by banks with minimized risk always in mind.

We were severely tested during 2020, with continuance into 2021, making it ever more important for us to remain focused on two major efforts, increasing membership and fundraising. In that vein, please remember as members to take advantage of donation opportunities such as those offered by AmazonSmile and YourCause. The SIVB is a unique society, with members from a broad range of disciplines who care deeply about the society, therefore may we do all we can to keep it alive and growing!

The Treasurer's Summary Report can be found at the end of this Annual Report.

BARBARA B. DOONAN
Treasurer
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BUSINESS OFFICE REPORT



*Marietta
Wheaton Saunders
Managing Director*

2020 was an extremely busy year for the Business Office. While we continued to support the Society's initiatives and programs assisting in membership retention programs, board and committees initiatives, and addressing the day-to-day management of the SIVB's publications, the projects that took their greatest focus in 2020 included the transition and management of the 2020 World Congress on In Vitro Biology from an in-person event to a Virtual Pre-recorded Meeting; planning for the 2021 In Vitro Biology Meeting and preparing to transition that program from a live to a virtual event; contracting for the 2022, 2023, 2025 and 2029 In Vitro Biology Meetings; maintaining the SIVB Membership and managing the organizations Publications and Website.

Much of the year was focused on addressing the current pandemic and its effect on our members, our meetings, and the Society as a whole. COVID-19 has affected all of us in one way or another and the Business Office worked diligently to protect the organization's health both physically and financially, from transitioning from in-person board meetings to Zoom events, negotiating contracts, and looking for better ways to reach out to our membership. As I write this, I hope that each of you and your families are staying safe and healthy and that we will all soon see the light at the end of the tunnel.

2020 WORLD CONGRESS ON IN VITRO BIOLOGY VIRTUAL PRE-RECORDED MEETING

The 2020 World Congress on In Vitro Biology was scheduled to run from June 6–10, 2020 at the Town and Country San Diego. In the first few months of 2020, the Business Office

continued to prepare for an in-person meeting. The Program Committee had organized special poster presentations advertising the event at the PAG Conference in January of 2020 and worked toward advertising the event at the Maize Genetics conference later that same year which was unfortunately cancelled. With the Committee's help, special social and scientific events were planned, including tours of the Plug Connection Lab and the Sanford Consortium for Regenerative Medicine. In addition, group tickets were secured for attendees to visit the San Diego Natural History Museum and final arrangements were made for a special Tuesday evening event at the Maritime Museum of San Diego where guests could see the historic ship, the Star of India.

With the outbreak of COVID-19 and the continuing restrictions placed on travel and gatherings over 20 people, the Business Office began in earnest to work with the Executive Committee on Contingency Planning to determine how to safely offer a program in June. After intense negotiations with the hotel, it was agreed that SIVB would invoke a force majeure clause in their contract to cancel the in-person event, but, to continue in good faith, would renegotiate a new agreement for our 2022's annual meeting.

The next step was to determine the mechanism in which the program would be provided to the attendees. After reviewing options available, including potentially cancelling the meeting in its entirety, additional services were purchased to allow all presenters to upload and pre-record their presentations for attendees to watch on demand from June 6 through June 22, 2020. The staff worked with conveners converting sessions, gathering their speakers, confirming details and reaching out to speakers to gather their abstracts and presentations. There were a number of special programs that were scheduled for Saturday, June 6, 2020 which were postponed until the 2021 meeting including the 15th International Conference on Invertebrate and Fish Cell Culture Conference and the "Creative Change on Advanced Flow Cytometry" workshop. In addition, some sessions that required audience participation or interactive discussion were cancelled or postponed until 2021.

In the end, a highly informative and interesting program was presented to the registrants of the World Congress Highlights from meeting included the keynote presentation from **Alysson Muotri**, PhD, of the Sanford Consortium for Regenerative Medicine on the "Emergence of Spontaneous Oscillatory Networks from Human Brain Organoids"; a joint symposium on "New Approach Methods for Drug Discovery in Japan" presented by the meeting's Co-Sponsors, The Japanese Tissue Culture Society (JTCA) and the Japanese Society of Alternatives to Animal Experiments (JSAAE); a special student presentation on "Biology at True Resolution"; and the new virtual poster sessions where authors were able to both upload a poster of their work AND record audio to describe their presentation for attendees to get a better insight into the research. There were also Q&A and discussion opportunities available on all presentations so all student and Post Doc competitions could be held and attendees could interact with authors from all presentations.

SIVB was pleased to present a number of awards to some very deserving members. Most recipients provided acceptance speeches as part of the Opening Ceremony that was prerecorded, but their physical awards will not be given to the recipients until 2022 when we meet in person in San Diego again. During the Opening Ceremony, SIVB presented the 2020 Lifetime Achievement Award to **Dwight T. Tomes**, PhD, honoring him for the significant contributions he has made during his career. For their support of the Society and its activities, outgoing SIVB President, **John Harbell**, PhD, thanked **Barbara B. Doonan**, PhD; **John F. Finer**, PhD; **Sukhpreet Sandhu**, PhD; **Dwight T. Tomes**, PhD; **Harold N. Trick**, PhD; **Brad L. Upham**, PhD; **Kan Wang**, PhD; and **Allan R. Wenck**, PhD by awarding them Distinguished Service Awards. Additional awards presented during the Opening Ceremony included: 2020 Distinguished Scientist Award presented to **Fredy Altpeter**, PhD and **Michael J. Fay**, PhD; the 2020 Fellow Award presented to **Michael K. Dame**, **William Gordon-Kamm**, PhD, and **Lucila E. J. Lee**, PhD; and the 2020 Young Scientist Award presented to **Yiping Qi**, PhD.

With the support of the Development Committee, the Business Office submitted a grant to the USDA-NIFA to support the 2020 program. While it was originally developed to support the program, speakers and travel expenses, with the transition to a virtual meeting, it was revised to support the virtual program expenses and speaker registration fees. The total grant funds organized through the grant was \$7,000. Special thanks are due to Sukhpreet Sandhu and **Sadanand Dhekney** for their support in providing materials for the application.

We are pleased to encourage the growth of our emerging new scientists. This is the 20th year that SIVB has offered our Student Initiative Program in which students have received discounted abstract submission fees, free registration to attend the meeting, and free membership the year after they attend that meeting. For the 2020 World Congress, students were provided with free registration to attend the Virtual Pre-recorded World Congress and received free membership in the Society for 2021. We are pleased at how the student's educational program has grown each year with the student members organizing their own sessions focused on their specific needs. If you would like to support the Student Initiative, you can contribute to the Sponsor-a-Buddy program. It only takes \$25, but it can make a huge difference in a student's career.

Attendance was lower than in prior years, mostly likely due to the uncertainty of what a virtual meeting would be like and financial concerns of organizations and individuals alike. The 2020 Exhibition was cancelled and exhibitors had the option to have their funds held for the 2021 Meeting. Group registration was offered and 2 organizations utilized this reduced registration rate opportunity in 2020. Final registration came to 344 which included 108 member, 34 group, 13 non-member, 14 research technician, 18 post doc, 101 student, 5 emeritus, 4 guest, and 45 speaker registrants. There were also 2 staff registrants.

The Business Office would also like to take a moment to thank all those who worked so hard to make the 2020 World

Congress successful. While we missed being in person and working with our volunteers, we are looking forward to when we can see everyone again face-to-face.

SIVB 2021: IN VITRO ONLINE

While the initial planning for the 2021 Meeting, originally scheduled for Norfolk, VA from June 5 – 9, 2021, began in 2019 with securing a city and venue to hold the 2021 meeting, plans began in earnest to prepare the program and set the final details with the Hilton Norfolk The Main in 2020 for an in-person meeting. The Program Committee worked hard during the summer to formalize a diverse and interesting program of sessions that focused on timely perspectives on genome editing, transformation, infectious diseases, and more.

While in January the 2021 In Vitro Biology Meeting was officially transitioned to SIVB 2021: In Vitro OnLine, a virtual annual meeting, in 2020, the Business Office was making all the preparations normally required for an in-person event. SIVB members from Virginia, North Carolina and the DC area were approached and agreed to become part of the Local Organizing Committee (LOC) with support from the 2021 Program Committee. The Development Committee discussed local companies and universities who might benefit by participating in our event and reviewed materials prepared by the Business Office to be distributed to spread information about the program. Toward the end of 2020, when it became clear that COVID numbers and vaccines distribution would not have been at a level that would allow for the SIVB members to travel to and attend an in-person meeting in June, the Business Office began negotiations with the hotel to look to cancelling the current contract. While SIVB did have to pay a penalty up front, due to the efforts of the Business Office, SIVB was able to apply over 80% of the incurred fee as deposits toward new contracts at the same venue for 2023, 2025 and 2029. This will help in our goal to keep the SIVB in the black for our annual meeting.

There are a number of special programs that were scheduled for Saturday, June 5 which will be held during this year's virtual program. The 15th International Conference on Invertebrate and Fish Cell Culture Conference that occurs only once every 4 years and a 1-day workshop on "Creative Change on Advanced Flow Cytometry" will both take place as live-streamed programs on June 5. **J. Keith Joung**, MD, PhD, Robert B. Colvin, M.D., Endowed Chair in Pathology, Desmond and Ann Heathwood Research Scholar, Pathologist at Massachusetts General Hospital (MGH), and Professor of Pathology, Harvard Medical School will speak on "Optimizing CRISPR-based Technologies for Targeted Gene Editing." His presentation will be live streamed to all registrants as part of the Opening Ceremony and Keynote Symposium being held on Sunday, June 6, 2021 from 3:15 – 5:30 pm EDT.

We are also pleased to announce the following people have been named as recipients of the 2021 SIVB Awards: Lifetime Achievement Award Recipient, **Cynthia L. Goodman**, PhD; Fellow Award Recipients **Addy Alt-Holland**, PhD, and **Vivian R. Dayeh**, PhD; and Early Career Award Recipients, **Daysha Ferrer-**

Torres, PhD, and **Jessica L. Rupp**, PhD. While their physical awards will be presented to them next year in San Diego at the 2022 In Vitro Biology Meeting, they will each provide an acceptance speech for their award during the Opening Ceremony on Sunday afternoon, June 5.

As it became clear that SIVB would need to not only look to transition the 2021 meeting to a virtual event but focus on transitioning it to a more robust program that what we were able to offer last year, the Business Office spent the fall researching additional opportunities on how to potentially offer the 2021 program should a change be required. They met with various Audio-Visual production companies and discussed live stream and other virtual options with Cadmium CD with whom we had already contracted for our abstract scorecard, speaker data collection systems, event website, and mobile app. These programs have become essential with the transition to a virtual program. Upon the transition, the staff had been working with conveners confirming their speakers, reaching out to speakers to gather their abstracts and presentations, and coordinating with EZ AV, the production company to provide some of this year's content live streamed.

This is the 21st year that SIVB is encouraging the participation of our youngest members through our Student Initiative Program. We are pleased to support the growth of our up-and-coming new scientists. Since its inception, students have benefitted by the Student Initiative program by receiving discounted abstract submission fees, free registration to attend the meeting, and free membership the year after they attend that meeting. For SIVB 2021, students will receive free registration to attend the virtual annual meeting program and will receive free membership in the Society for 2022.



2022 AND 2023 IN VITRO BIOLOGY MEETINGS

As part of the transition of the 2020 World Congress into a virtual pre-recorded meeting, SIVB worked with the hotel to create a new contract to hold the 2022 In Vitro Biology Meeting at their venue. We are pleased to announce that the 2022 In Vitro Biology Meeting will take place from June 4- 7, 2022 at the Town and Country San Diego. We are looking forward to meeting with everyone face to face again in San Diego next year and even welcoming virtual attendees. Next year's scientific program will run from Saturday through Tuesday with Wednesday scheduled as scientific tours around the area. This is a new arrangement for an SIVB annual meeting and we are excited about the opportunities that are available to us at this newly renovated resort.

Prior to the change to a virtual event, the Business Office spent much of 2020 reviewing potential venues in multiple cities under consideration to hold the 2023 meeting. With the transition of the 2021 meeting to a virtual program, the Business Office renegotiated a new agreement with the Hilton Norfolk the Main using the same terms to hold the 2023 In Vitro Biology Meeting at their venue from June 10 – 14, 2023. This will be the first time we have held the SIVB annual meeting at this riverfront location and we are quite excited to welcome our members there in 2023.

MEMBERSHIP

Membership is greatly affected by attendance at our annual meetings and with the uncertainty of 2020, SIVB membership numbers were regretfully affected. SIVB's regular and Post-Doctoral membership numbers ended up significantly lower than we have had in many years. We are proactively looking to find ways encourage the return of previous members as well as bringing in new members while retaining members who have already renewed with us. The number of members who are taking advantage of 2-year renewal option has continued to grow and many who did register for the meeting utilized the combination membership and meeting registration options provided for 2020. Non-member speakers from the 2020 meeting were invited to join at a discounted rate as were authors who published in the IVA and IVP journals. To address the need to engage and retain new members and younger members, the Business Office has begun to share notifications regarding CAST webinars to the membership so that they can receive active benefits with the organization. This has paved the way for a new webinar series created by SIVB for the membership in 2021.

You, as members, also have the ability to encourage others to join the organization. As one who truly understands the benefits of membership, you can help your colleagues to join through the Member-get-a-Member program. In this program, you can go to our website or email our office to recommend a new potential regular member. If that person joins, you would be entered into a drawing for a gift card and the new member receives \$10 off membership dues for their first year. We also held a drawing during the 2020 Congress for members who renewed their membership by December 31, 2019 and are pleased to announce that the winners were: **Chunsheng Lu**, who was awarded with free registration to the SIVB 2021: In Vitro OnLine, and **Ubaldo Armato**, who received free 2021 membership. If your 2021 renewal was sent in by December 31, 2020, you could win membership in 2022 or registration to the 2022 In Vitro Biology Meeting.

SIVB is grateful to our members who have stayed with the organization throughout their career and continue to be active in the organization even after they have retired from full time employment. In addition to participating as Officers and members of various committees, they find ways to give back to the Society both through personal contributions and via estate planning, such as setting up gifts and/or endowments for the

future. The SIVB thanks some of our extraordinary members who have made charitable gifts or estate contributions to the SIVB via their Qualified Charitable Distribution (QCD) in 2020. We acknowledge **Delia Bethell, Barbara Doonan, John Harbell, Robert and Gale Lawrence, and Dwight Tomes** for their exceptional generosity. To learn more about how you can make a charitable contribution to the SIVB, please contact the Business Office at marietta@newbeginningsmanagement.com.

Even if you aren't retiring, there are other ways you can give back to the SIVB. You can sign up for Amazon Smile and choose SIVB as your recipient. Just visit <https://smile.amazon.com/ch/56-0844407> to start the process and shop as you normally would through the smile.amazon.com site to have a portion of each of your purchases allocated to SIVB. Additionally, individual contributions of any amount can be made directly on our website by clicking on the "Donate" button on the home page at sivb.org, then choosing any one of the funds available which support the future of the organization. You can contribute \$25 to the Fund for the Future when you renew your membership dues each year or even support us through contributions made with your company via yourcause.com.

The Business Office spent much of 2020 focused on projects for the SIVB Board of Directors and Committees. Some projects that the Business Office supported included working with the Development Committee in preparing and closing a USDA NIFA grant to support the 2020 World Congress Program; participating in conference calls to discuss fundraising and designing meeting advertisements for the Development and Local Organizing Committees; working with the Ad Hoc Michael Horn Endowment Fund Committee to make arrangements for the fund's support of the SIVB Annual Meeting program; and assisting the Awards Committee in reviewing requests from board including the change of the name of the Young Scientist Award to the Early Career Award and reviewing the possibility of a Team Award.

In 2020, we were saddened to learn of the passing of long-time members **Bruce Casto, Noel R. Rose, William J. Thomas, Trevor Thorpe, and Valerie Williamson Weed**. We were also saddened to hear belatedly of the passing of Honorary member **Renato Dulbecco** and Emeritus members **Frances E. Arrighi, Ernest H. Y. Chu, Norman S. Cooper, Ronald D. Fletcher, Jane Kaltenbach, Harold Lane, Man C. Niu, and Frank Talamantes**.

PUBLICATIONS

The Publications Department of the SIVB manages activities supporting the Society's the print publications and online organizational presence. This department supports both *In Vitro Cellular and Developmental Biology – Animal*, *In Vitro Cellular and Developmental Biology – Plant*, and the *In Vitro Report* newsletter plus maintains SIVB's website and our presence on social media.

We have continued to review and update Editorial Manager, the online manuscript submission system used since our transition to Springer. Changes are to better address to our journal's needs, such as requiring authors acknowledge the requirements to submit a copyright form and make sure they have not submitted the same work elsewhere and updating the submission categories that are not included in our journals' matrix and article types.

There were additional staffing changes at Springer with a transition of our Publishing Editor in early 2020. During the June Publications Committee Meeting, it was learned that our journal's focus is being transitioned from page budgets to manuscript counts. Since most content is shared



online, the physical page count is becoming less important and how many papers are listed in a Table of Contents are of more concern. The Publications Committee also discussed any possible concerns regarding Plan S and the possibility of transitioning our journals to "transformative" publications, meaning that they are working toward becoming open access. Springer informed us that they made the decision to move all their hybrid journals (which includes ours) to transformative status in fall of 2020. As an 'official' transformative journal, this means that Springer Nature will more actively promote open access publication in our journal to authors in countries where they have agreements in place that provide funding for authors to publish OA. They have noted that we will be able to review this transition again in around 3 years to see if this is still the direction in which we want to proceed and that the transition to OA could take upwards of 10–15 years during which time we would be fully compliant with being transformative. By listing the journals as transformative now, this will provide our journals with more visibility and accessibility to authors who are part of Plan S and could not publish with us before. With this change, they have shifted us to their OASIS system which allows authors who are part of those agreements to have a streamlined process to publish OA in our journals.

The Business Office also looked at the current copyright transfer form and were starting to process to transition them to a License to Publish where the authors will keep ownership of their content but sign an agreement which gives us exclusive rights to publish it. The Business Office worked with the Publications Committee to come up with a draft which is being reviewed by Springer at this time. It is hoped that this transition can occur in 2021. Additionally, contracts for both journals are set for renewal in 2021 and the Business Office began working with Springer to determine the terms for the upcoming agreements.

The *In Vitro – Animal* journal's impact factor increased again in 2019 from 1.645 to 1.665, the highest it has been in over 16 years. While submissions were high, due to the closing of many labs in Asia from the pandemic, there was a significant reduction in

submissions received, though we did manage to publish a similar number of papers as in 2019. Dr. **John Harbell** began work on a special review series on 3D Organotypic and Organoid Culture Models. **Tetsuji Okamoto** accepts suggestions for new special issue topics that would be of interest to our readers.

In Vitro – Plant has been steadily improving their page flow and significantly improving the impact factor for the journal which rose from the 2018 level of 1.454 to 1.814 in 2019, released in July of 2020. This is their highest Impact Factor since 2004. Due to the efforts of both EIC, the journal met its paper budget for 2020 and issues continue to look healthy for the 2021 volume.

Both new and senior members of the SIVB are encouraged to submit their work to the *In Vitro – Animal* and *– Plant* journals whenever possible. The benefit is doubled as you can share research directly with colleagues at SIVB and, at the same time, support the journal and your Society.

Published 4 times a year, the *In Vitro Report*, SIVB's online newsletter, is your connection to your membership when you aren't at the annual meeting. The publication offer updates about your fellow members; information from various SIVB Officers, Committee Chairs and members of the organization; news and updates; and acknowledgements of SIVB Award Winners. This publication represents all our members, including you, and we encourage you to participate in its publication. Share your news with the Editors-in-Chief **Michael Fay** and **Sylvia Mitchell** when requested and provide updates of your accomplishments along with your picture so we can include it in the next Members News article. Every member's news is important! You can also reach the Editors by using the links found on the "Submissions" tab on the new website (<https://www.sivb.org/InVitroReport/>) or contact me at marietta@newbeginningsmanagement.com.

The 2021 In Vitro Biology Meeting website was released in July and designed to be clean and easily accessible. The site very mobile and tablet friendly as the formatting is dynamic, meaning when you adjust the size of your screen, the pages adjust to fit your screen size. The design offers expandable session listings for the program, colorful exhibitor pages, and additional content of interest, including the weather widget for the meeting city and the later added time converters with our transition to a virtual program. Pages also offer links to share any of the pages through your favorite social media.

The Business Office is updating the Committee pages to include images of the committee chairs and is planning on adding descriptions of each committee's purpose in 2021. We have been working heavily to improve our site's analytics and SEO to allow for greater availability in page searches. With the addition of headers, alt text for images and other fixes, we have begun to see sivb.org show up higher and more frequently in searches where they are expected to be visible. We are continuing this research to continue to improve the site.

Social media continues to be one of the essential points of contact with our members, especially with the limitations imposed by the pandemic. SIVB shares articles from all of our publications, tweeting highlighted articles from both journals

and sharing links to articles in the IVR. In addition, we are including "Shared-it" linking which provides an open, but not downloadable version of an article to allow those clicking on it to view the article. SIVB continues to improve how we engage with our members. We utilize Facebook and LinkedIn to share content on both scientific and social topics and share articles of interest recommended by the Board and are enhancing our company presence online. Event deadlines and membership reminders are included to encourage members with a gentle reminder including links to take action and we share articles of scientific interest from our journals, by our members, or about our upcoming speakers. Broadcast emails are focused specifically to our membership with reminders for upcoming deadlines, pending renewals, and urgent news specifically for our members. We encourage you to follow us through your preferred social media outlet and share our posts: **@SIVBiology** for the organization, **#SIVB2021** for the SIVB 2021: In Vitro OnLine; **#SIVB2022** for the 2022 In Vitro Biology Meeting in San Diego next year; **#SIVBIVAN** for *In Vitro – Animal*, and **#SIVBIVPL** for *In Vitro – Plant*.



New Beginnings Management, Inc. (NBM) has managed the SIVB's Business Office since 2004. NBM maintains the daily operations for the Society. As the President of NBM, I would like to offer my deep appreciation to all those members who volunteer their time on behalf of the SIVB and support its future. I especially wish to thank the Executive Committee, Board of Directors, Committee Chairs, and Section Officers, who worked intently to support the SIVB through a very difficult year and continue to guide us into the future. This Society could not exist without their support and commitment to the organization and its mission. Additionally, on behalf of NBM, I thank each of you for supporting my company and recognizing the efforts to which my team and I go to provide you with the best possible experience.

If you have thoughts or suggestions on how to enhance SIVB's membership or encourage the growth of the membership, please feel free to reach out to me at the Business Office directly by sending your suggestions to marietta@newbeginningsmanagement.com. My goal is to help SIVB continue to grow stronger each year and together, I believe we can accomplish that goal.

MARIETTA WHEATON SAUNDERS

Managing Director

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IN VITRO ANIMAL CELL SCIENCES SECTION



Mae J. Ciancio
In Vitro Animal Cell
Sciences Section Chair

The 2020 World Congress In Vitro Biology Meeting was a successful virtual meeting thanks to the hard work and creative talents of **Marietta Wheaton Saunders, Michele Schultz**, the Program Committee, and the Local Organizing Committee (LOC): **Michael Dame** (Program Chair), **Mae Ciancio** (IVACS Program Chair), **Pierluigi Barone** (PB Program Chair), **Raj Deepika Chauhan** (PB Sr. Co-Chair), **Angela Labrum** (PB Jr. Co-Chair), **Albert Kausch** (Education Chair), **Christopher Calvo** (IVACS Student Co-Chair), **Brett Hale** (PBS Student Co-Chair), **Savannah St. Clair** and **Cecilia Zapata** (LOC chairs). Over 352 registrants attended the virtual meeting from June 6–10, 2020, signifying a unique cross-section of scientists and educators representing universities and industries from around the world.

The Keynote Speaker in our 2020 World Congress on In Vitro Biology was Dr. **Alysson R. Muotri**, PhD, of the Sanford Consortium, Departments of Pediatrics/Cellular & Molecular Medicine, University of California, and San Diego. He delivered an outstanding virtual Keynote lecture titled, “Emergence of Spontaneous Oscillatory Networks from Human Brain Organoids.” Highlighting exciting, groundbreaking work employing neural organoids to understand the complexity of neurological diseases, his presentation received rave reviews from the many attendees at the meeting. The presentation topics of the In Vitro Animal Cell Sciences section included emerging in vitro technologies; organoids as experimental models; new approaches to drug discovery in Japan; single cell technologies; miRNA; regenerative medicine; cannabinoids; and the microbiome. In addition to four plenary sessions that included topics relevant to IVACS and PBS, there were five IVACS symposia, 1 Japanese sponsored symposium, and one joint PB-IVACS symposia. Furthermore, the IVACS Contributed Papers session included six exciting presentations. The IVACS poster sessions included 4 interactive posters and 23 regular posters. In addition, four silent abstracts were included in the Program.

Students are an important component of the SIVB meetings, and the IVACS section had 24 student abstract submissions. **Addy Alt-Holland** (Tufts University) and **Kolla Kristjansdottir** (Midwestern University) moderated the IVACS Student and Post-doctoral IVACS Oral Competition. **Mae Ciancio, Kristina Martinez-Guryn, Barbara Doonan, Michael Fay, Debra Esposito, John Harbell, and Brad Upham** judged the competition together with the session moderators. **Evan Hill** (University of Michigan) received 1st place for his presentation, “Sulforaphane Inhibits Colon Adenoma Organoid Formation and Induces Differentiation in a Dose-dependent Manner.” **Sepideh Mohammadhosseinpour** (Arkansas State

University) received 2nd place for her presentation, “Prenylated Stillbenoids as Potential Therapeutic Agents for Triple Negative Breast Cancer.” **Connor Dyer** (Midwestern University) received 3rd place for his presentation, “Decellularized Plant Biomaterials are Adaptable 3D Scaffolds to Study Cellular Growth, Invasion, and Ex Vivo Tissue Regeneration.” The student presenters did an excellent job adjusting to the virtual format of the meeting. Congratulations to all of them!

IVACS recognizes the tireless efforts of the 2018–2020 team.

- **Kolla Kristjansdottir** – Chair
- **Mae Ciancio** – Vice Chair – Meeting
- **Vivian Dayeh** – Vice Chair – Membership
- **Matthew Desrosiers** – Secretary.

IVACS recognized the leadership and dedication of the 2018/2020 Board of Directors: **John W. Harbell** – President, **Dwight Tomes** – Past President, **Allan Wenck** – President Elect, **Sukhpreet Sandhu** – Vice President, **Barbara Doonan** – Treasurer, **Harold Trick** – Secretary, **Michael J. Fay** – Publications Chair, **Wayne Parrot** – Public Policy Chair, **John J. Finer, Michael Dame, Brad Upham** – Members-at-large, **Michael Dame** – 2020 Program Chair. Our Section also recognizes the IVACS members who helped to raise funds for the 2020 virtual World Congress in Vitro Biology Meeting. We sincerely thank and appreciate the following sponsors for their generous financial support: Agbiome, Alternatives Research & Development Foundation, BASF Agricultural Solutions Seed US LLC, Barbara and John Harbell, Delia R. Bethell, International Foundation for Ethical Research (IFER), JV Biolabs LLC, MilliporeSigma, Mae J. Ciancio, and National Anti-Vivisection Society. The World Congress was also co-sponsored by the Japanese Society of Alternatives to Animal Experiments (JSAAE), and The Japanese Tissue Culture Association (JTCA).

Special awards and recognitions were given to the following SIVB members and students: **Dwight T. Tomes** was awarded the Lifetime Achievement Award. **Michael Dame** and **Lucila E.J. Lee** were presented with the Fellow Award. **Michael J. Fay** received the Distinguished Scientist Award. The Young Scientist Award was granted to **Yiping Qi**. Three IVACS members were presented with the Distinguished Service Award; **Brad L. Upham, Barbara Doonan, and John F. Finer**. The following student awards were also presented: 2020 SIVB Cellular Toxicology Award to **Sepideh Mohammadhosseinpour** (Arkansas State University), the Honor B. Fell and Student Travel Awards to **Caroline L. McCarthy** (University of Michigan Medical School), and the Gordon Sato and Wally McKeenan Award to **Evan M. Hill** (University of Michigan) and **Kateryna Karpoff** (University of Michigan Medical School). A Student Travel Award was granted to **Md Rokib Hasan** (Arkansas State University).

The 2021 In Vitro Biology Meeting, originally scheduled to occur in Norfolk, Virginia, will occur virtually on June 5–9, 2021 due to the ongoing COVID-19 pandemic. Thanks to the tireless efforts of the leadership team, the 2021 virtual meeting will have more opportunities for question and answer discussions in real time. The Keynote Speaker for this meeting is **J. Keith Joung**, MD, PhD, who is a Robert B. Colvin, M.D., Endowed Chair

of Pathology, Desmond and Ann Heathwood Research Scholar, Pathologist at Massachusetts General Hospital, and Professor of Pathology, Harvard Medical School. Dr. Joung will be presenting on “CRISPR-based Technologies for Targeted Genome Editing and Gene Regulation.” We know that the 2021 SIVB meeting will be outstanding due to the tireless efforts of the meeting leadership and session conveners: **Allan R. Wenck** (President), **Raj Deepika Chauhan** (Program Chair), **Kristina Martinez-Guryn** (IVACS Program Chair), **Angela Labrum** (PB Program Chair), **Max Jones** (PB Sr. Co-Chair), **Annie Saltarikos** (PB Jr. Co-Chair), **Brad Upham** (Education Chair), **Evan M. Hill** (IVACS Student Co-Chair), **Alperen Ozturk** (PB Student Co-Chair), **Marietta Wheaton Saunders** (Meeting Secretariat), and **Michele Schultz** (Publications Manager). Special thanks to the 2020-2022 Board of Directors for their guidance and support: **Allan Wenck** – President, **John Harbell** – Past President, **Addy Alt-Holland** – President Elect, **Pierluigi Barone** – Vice President, **Sukhpreet Sandhu** – Secretary, **Barbara B. Doonan** – Treasurer, **Michael J. Fay** – Publications Chair, **Wayne Parrott** – Public Policy Chair, **Todd Jones**, **Kan Wang**, **Cynthia Goodman**, and **Michael Dame** – Members-at-Large, and **Raj Deepika Chauhan** – 2021 Program Chair.

2020–2022 IVACS OFFICERS. We would like to welcome and thank the IVACS officers for their continued dedication and service to SIVB in the following roles: **Mae J. Ciancio** (Midwestern University) – IVACS Chair, **Kristina Martinez-Guryn** (Midwestern University) – IVACS Co-Chair Meeting, **Vivian Dayeh** (University of Waterloo) – Co-Chair Membership, and **Matthew Desrosiers** (Worcester Polytechnic Institute) – IVACS Secretary. IVACS would like to thank **Marietta Wheaton Saunders** (Managing Director), **Michele Schultz** (Publications Manager), and the entire staff of *New Beginnings Management* for their hard work, creative talents, and flexibility in conducting the daily functions of the Society for In Vitro Biology and to make our annual meetings successful.

FUTURE ROLE OF IVACS. The coronavirus pandemic has reminded us of the need for continued cutting-edge research and discovery to promote growth, sustainability, and progress in our ever-changing world. IVACS is positioned to serve as a unique platform to engage the scientific community in multiple arms of the discovery process. By fostering active communication and collaboration among investigators in academics and industry to work collaboratively and efficiently, together we can tackle and conquer some of the most challenging questions facing our world.

MAE J. CIANCIO

In Vitro Animal Cell Sciences Section Chair

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PLANT BIOTECHNOLOGY SECTION



*Sadanand Dhekney
Plant Biotechnology
Section Chair*

The 2020 In Vitro Biology Meeting was scheduled to be held in San Diego from June 6–10. Due to COVID-19-related restrictions on in-person gatherings and inability of members to travel from different locations, the meeting was transitioned to a virtual meeting and was available to registered attendees from June 6–June 22. Despite these limitations, participants could access an outstanding program that covered diverse areas of in vitro biology.

The Plant Biotechnology Section Program Planning Committee included **Raj Deepika Chauhan** (Program Chair), **Angela Labrum** (Sr. Co-Chair) and **Max Jones** (Jr. Co-Chair). The plenary and plant symposia covered a wide range of topics on in vitro biology of interest to the attendees.

The keynote speaker for the 2020 meeting was **Dr. Alysson R. Muotri**, Professor, Sanford Consortium University of California, San Diego. Dr. Muotri gave a talk on Emergence of Spontaneous Oscillatory Networks from Human Brain Organoids. He provided insights into the complexity of the human brain and the use of brain model technology to study biological processes such as human neurodevelopment and evolution, measure the impacts of genetic variants in autism spectrum disorders and for evolutionary studies.

The Plant Biotechnology Section had 22 Plant Symposia Talks, 19 Contributed Papers, 18 Interactive Poster Presentations, 26 Posters and 20 silent abstracts. The plenary and plant symposia included 20/20 on 2020 and Beyond: Emerging In Vitro Technologies, Best practices for plant tissue culture, Genetic transformation and accelerated breeding in woody plant species, In Vitro technologies for clean plant production in *Cannabis*, Plan(t)s for the future planet, Frontiers in single cell technologies, Digital agriculture – sensors, machine learning and image analysis, Bioethics and public policy for benefits and concerns in plants and animals, Plant memory: the importance of assessing culture carry over effects during micropropagation protocol development, Imaging analytics, artificial intelligence and robotics in tissue culture and transformation, Current perspectives on Cannabis and cannabinoids, and Beyond KOs: emerging genome editing technologies. Additionally, a joint symposium titled Exploring microbiomes: application to humans and agriculture and two plant contributed sessions Gene editing and Micropropagation were also organized as part of the 2020 program.

The plant biotechnology post-doctoral oral presentation competition was moderated by **Carlos Hernandez-Garcia** while participants were judged for their presentations by **Alexandre Da Silva Conceicao**, **Massimo Bosacchi**, **Fei Zhang** and **Feng Zhang**. Among the various presenters **Ayman Eid** was awarded

the first prize while **Andika Gunadi** and **Hussein Abdullah Ahmed Ahmed** received the second and third prizes for their excellent presentations. The plant biotechnology graduate student oral presentation competition was moderated by **Veena Veena** and judged by **Sivamani Elumalai**, **Jeffrey M. Staub** and **Kan Wang**. The first prize was secured by **Tayebeh Kakeshpour** while **Adrian S. Monthony** and **Uddhab Karki** received the second and third prizes respectively for their research presentations.

The Plant Biotechnology Section recognized the following members in 2020 for their outstanding contributions in the field of *in vitro* biology. **Dwight Tomes** received the Lifetime Achievement Award for his research contributions as well as his service to the society. **William Gordon-Kamm** received the Fellow Award while **Fredy Altpeter** received the Distinguished Scientist Award. The Young Scientist Award was received by **Yiping Qi**. The Distinguished Service Award for 2020 was awarded to **John J. Finer**, **Sukhpreet Sandhu**, **Dwight T. Tomes**, **Harold N. Trick**, **Kan Wang** and **Allan Wenck** for their outstanding service to the society over several years.

A number of awards were presented to students for their presentations at the 2020 meeting. **Cristofer Calvo** received the Wilton R. Earle and SIVB Student Travel Award. **Xulyu Cao** received the Philip R. White Award, **Tayebeh Kakeshpour** the Hope E. Hopps and SIVB Student Travel Award. **Uddhab Karki** received the John S. Song Award while **Eveline Kong**, **Adrian Monthony** and **Ryan Murphy** received the SIVB Travel Awards in recognition of their research presentations.

Certificates of appreciation were presented to the following supporting organizations, Agbiome, BASF Agricultural Solutions Seed US LLC, Bayer U. S. Crop Science, Benson Hill, Inc., Cibus, Corteva Agrisciences, CTC Genomics, Inari Agriculture, Inc., Meristematic, Pairwise, The Scotts Miracle Gro Company and the Agriculture and Food Research Initiative [grant no. 2020-67013-31579/project accession no. 1022921] from the USDA National Institute of Food and Agriculture.

The *In Vitro – Plant* journal continues to publish high quality research work. **David Songstad** continues as the Editor-In Chief for the journal. A total of 482 manuscripts were received out of which 352 were rejected for their inability to meet the quality standards of the journal.

The 2021 SIVB Meeting was originally scheduled to be held in Norfolk, VA from June 5–9, 2021 but COVID-19 related restrictions have caused it to be held virtually. The Plant Biotechnology Section Program Committee consists of **Angela Labrum** (Program Chair), **Max Jones** (Sr. Co-Chair), and **Annie Saltarikos** (Jr. Co-Chair) have planned an outstanding program encompassing diverse areas of *in vitro* biology. All members are encouraged to attend virtually what will be an exciting meeting. On behalf of the officers of the Plant Biotechnology Section, I thank all members who have contributed their time and effort to make 2020 a successful year despite all the challenges we faced with program organization and implementation.

SADANAND DHEKNEY
Plant Biotechnology Section Chair
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HISTORY AND RECORDS

The History Society was established in 1979 at the Seattle Washington Tissue Culture Association (TCA) meeting as the Records and Historical Committee. The charge of the committee is to preserve historical information concerning the growth, maintenance and *in vitro* experimental use of cells, tissues and organs. The History Society, in conjunction with the Records and Historical Committee oversees contributions to the SIVB archives located in the main library of the University of Maryland, Baltimore, MD. This archived material is available to all that would like to acquaint themselves with the history of tissue culture and scientific application to *in vitro* biology.

Members of the History Society and Records Historical Committee include: **Sandra L. Schneider** (Chair), Research & Clinical Laboratory Systems; **Gertrude C. Buehring** (Co-Chair), University of California, Berkeley; **Barbara B. Doonan**, New York Medical College; **Cynthia L. Goodman**, U.S. Department of Agriculture, ARC, Biological Control of Insects Research Laboratory; **Leonard Hayflick**, University of California, San Francisco; **Wallace L. McKeehan**, Center for Cancer & Stem Cell Biology Institute of Biosciences and Technology (IBT) Texas A&M Health Science Center, Houston, TX; **Tetsuji Okamoto**, Department of Molecular Oral Medicine and Maxillofacial Surgery, Graduate School of Biomedical Sciences, Hiroshima University, Japan; **Jon Ryan**, Consultant Wheaton; **Yvonne Reid**, American Type Culture Collection and Global Biological Standards Institute (GBSI) Cell Authentication; **J. Denry Sato**, Manzanar Project Foundation, and **Guy Smagghe**, Ghent University, Belgium.

The History Society and Records History Committee nominated and supported the 2021 Lifetime Achievement Award for **Cynthia L. Goodman**, PhD, Entomologist, United States Department of Agriculture (USDA), Agricultural Research Service (ARS), Biological Control of Insects Research Laboratory (BCCIRL). Dr. Goodman was honored for her significant pioneering contributions to the field of *in vitro* biology and applications to the fundamentals of *in vitro* insect cell biology, developmental of cellular and molecular baculovirus and insecticide discovery technologies. These contributions led to the establishment and characterization of >40 immortal insect cell lines, in addition to specialized and serum-free medium and cryopreservation technology to study and propagate insect species and biocontrol agents. The Lifetime Achievement Award for Dr. Goodman was generously funded by Bayer AG and BASF.

The History Society recognizes the passing of **Stanley Cohen**, PhD (1922-2020) and **John D. Gearhart**, PhD (1943-2020). Dr. Cohen, a biochemist and 1986 Nobel laureate discovered, with **Rita Levi-Montalcini**, the first growth factor that regulates cell proliferation and differentiation. In 1959, Dr. Cohen moved to Vanderbilt University where he



Dr. Stanley Cohen

discovered and purified epidermal growth factor (EGF) from mice. Decades later, Cohen identified the EGF cell surface receptor (EGFR) and the biological response mechanism for cell proliferation. Cohen's group then demonstrated that the EGF:EGFR complex was trafficked from the cell surface to intracellular lysosomes. Dr. Cohen's "contributions led to the identification of nearly 100 other growth factors and at least 50 receptors with important biological activity in humans... for which pharmacological blockade of the EGFR is a mainstay of treatment".



Dr. John Gearhart

Dr. John Gearhart a renowned developmental geneticist, professor and stem cell research pioneer lead a John's Hopkins University team that first identified and isolated human embryonic stem cells. Dr. Gearhart studied the role of stem cells and genetics in plants, animals and humans and served as the first director for the Institute of Regenerative Medicine. His studies on human primordial germ cells

led to advances in drug development, transplant therapy, and tissue growth. More important was Dr. Gearhart's work to set ethical standards in human embryonic stem cell research, to include ethics and public policy of stem cell science.

Recommended must reads which highlight the 1918 pandemic and complement the historical and pioneering accomplishments of vaccine development include: Barry, John (2004) *The Great Influenza. The Story of the Deadliest Pandemic in history*; Allen, Arthur (2007). *Vaccine. The controversial Story of Medicines Greatest Life Saver*; Krause, Richard M. (1998). *Emerging Infections*; Garrett, Laurie (1994). *The Coming Plague. Newly Emerging Diseases In A World Out of Balance*.

SANDRA L. SCHNEIDER

History and Records Committee Chair
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STANDING COMMITTEES

AWARDS



Maria M. Jenderek
Awards
Committee Chair

The 2020 Awards Committee consisted of **Randall Niedz** (Chair, Plant Biotechnology), **Jeffrey Beringer** (Vice Chair, Plant Biotechnology), **Kolbrun Kristjandottir** (Chair, In Vitro Animal Cell Sciences), **Mary Welter**, **Ian S. Curtis**, and **Maria M. Jenderek** (Chair) who discussed and recommended for approval the 2020 Award winners. The Committee made efforts to inspire all Society members to nominate their accomplished colleagues. The

Committee would like to express a deep appreciation to all those who submitted nominations and congratulate the 2020 Awardees on awards truly deserved. The Society has outstanding

members who make our organization successful and of interest to young scientists and students. To learn how to nominate someone for an award, review the awards criteria on the SIVB website: <https://sivb.org/awards.html>.

Life Achievement Awards

Dr. Dwight Tomes (PB) received the 2020 Life Achievement Award.



Dr. Dwight Tomes

Dr. Tomes is one of the pioneers in the agriculture biotechnology industry and has made great contributions to the Society for many years. Dr. Tomes has been an innovator and a strong advocate for agricultural biotechnology since the 1980s. He started his career in an academic institution as professor at the University of Guelph, Guelph, Ontario, Canada. In 1982, during the dawn of agricultural biotechnology he moved from academia to industry to become a research manager at Pioneer Hi-Bred International, Inc., in Johnston, Iowa, and establish a program in crop biotechnology. It took great courage to make the move from a tenured professorship to a seed company that did not have a program, personnel, or any foundation in plant biotechnology. Dwight spent over 40 years of his career at Pioneer, taking on many research leadership roles as Research Manager, Research Coordinator, Technology Director, Senior Scientist and Research Fellow-National and internationally recognized leading scientist in the development of maize embryogenic callus culture and genetic transformation. Dr. Tomes is an innovator. He is the inventor or co-inventor for 24 issued patents. He also published 35 peer-reviewed manuscripts, book chapters, and books. Dr. Tomes has made significant contributions to the development and/or understanding of *in vitro* biology of great historical importance and practical application. One of his chief contributions was the development of methodology for the initiation and maintenance of embryogenic callus cultures of maize suitable for genetic transformation of elite public and proprietary corn inbreds and hybrids from 1982–1989. Dwight played a critical role and was instrumental in the establishment of the early industrial scale transformation techniques (particle gun, particle gun + *Agrobacterium*, and *Agrobacterium*) for corn, soybeans, sunflower, and alfalfa starting in the 80's. His leadership resulted in one of first demonstrations of expression of a gene delivered via particle gun into intact plant cells and he established the first published (or patented) methods for transformation of corn, sunflower, alfalfa, and sorghum. Dwight, along with Arthur Weissinger and Ted Klein, received the first issued patent from the USPTO Department of Biotechnology Research for particle gun transformation of plant cells (patent #5,240,855).

Dr. Tomes was a professor in University of Guelph for 7 years before he moved to industry. During his tenure as an assistant and associate professor, he taught Plant Breeding classes to senior undergraduate students with average of 70 students per

class each year. Among students of this course, over 15 are or were professional plant breeders or professors in Genetics or Plant Breeding. This course has resulted in a textbook entitled "Plant Breeding Theory and Practice" (by Stoskopf, N.C., D.T. Tomes and B.R. Christie), 1993, by Westview Press. Boulder, CO. While he was at Pioneer, he continued to train and mentor many junior scientists. He was a valuable resource and mentor within the company for many topics including plant tissue culture, plant physiology, genetics, molecular biology, and plant breeding. He served as a chair of committee that administered an internal peer reviewed competitive research grant program within Pioneer-Dupont with an annual budget that varied from \$200K to \$1M per year.

Dr. Tomes is an active and longtime SIVB member. In the past 40 years, Dwight has made great contributions to the Society, both in science/technology and in organization/management. He served in several different officer positions and on numerous committees of SIVB from 1980 to the present. During 1986 to 2011, he served as an Associate Editor, Editor, and Editor-in-Chief for the Society's journal *In Vitro Cellular & Developmental Biology – Plant*. Dwight served on the Program Committee of Plant Biology from 1987 to 1992. He was elected Vice President of SIVB from 1988 to 1990, and from 2008 to 2012. Dwight became the President of SIVB in 2016 after serving two years as an Incoming President, and, following that, was the Past President of the Society through 2020. Dwight was also active in other scientific societies. He served as a chairman for Molecular and Cellular Biology Section of Crop Science Society of America from 1988 to 1989, and Associate Editor for Crop Science from 1991 to 1997. Dwight was Vice Chairman of the Biotechnology Section of Iowa Academy of Science in 1985 and 1994, and Chairman in 1986 and 1995.

Distinguished Scientist Awards

Dr. Fredy Altpeter (PB) and Dr. Michael J. Fay (IVACS) received the 2020 Distinguished Scientist Award.



Dr. Fredy Altpeter

Dr. Fredy Altpeter is an internationally recognized expert on the transformation of grasses/turfgrasses and the use of gene editing to enhance the production of value-added products. His research focus is on identifying, isolating and engineering limiting factors for genetic improvement for biomass bioengineering grasses for the next generation of biofuels and chemicals.

Dr. Altpeter received his Dipl. Ing. Agr. degree in Crop Science in 1990; and Dr. sc. agr. in 1994 in Plant Breeding & Biotechnology both from the University of Hohenheim, Germany. He became a postdoctoral research associate working under Dr. Indra Vasil in cereal transformation at the University of Florida (UF) from 1994 to 1997. He left to become Group Leader of a crop biotechnology team at the Plant Genome Resource Center of the IPK Gatersleben, Germany through 2001 and returned in December 2001 to join the faculty

at UF. After returning, he became Associate Professor in 2008 and was promoted to Full Professor in 2012. Dr. Altpeter received the University of Florida Research Foundation Professorship award both in 2013 and 2018.

Most of Dr. Altpeter's work at UF is dedicated to crop improvement while the rest of his time is focused on teaching. To date, Dr. Altpeter has mentored more than 18 graduate students and supervised 25 postdoctoral research associates while at UF. Additionally, he has trained many undergraduate students and hosted numerous visiting scientists. His students have won more than 40 awards including several from SIVB. Many of his students gone on to become world-class scientists. Dr. Altpeter's consistently high student teaching and faculty peer evaluations over the last decade demonstrate his unwavering dedication to excellence in teaching. Students completing his courses consistently comment that he is a challenging but very fair teacher.

Dr. Altpeter has served as an associate editor for *The Plant Genome*, *Crop Science*, *Plant Cell Tissue and Organ Culture*, *Journal of Plant Biotechnology*, and subject editor for *Plant Breeding*. He has authored and co-authored more than 60 peer reviewed journal articles and 13 book chapters. In 2014, Dr. Altpeter was recognized with the University of Florida-IFAS High Impact Publication award. Dr. Altpeter has been awarded two patents and recently filed four more in the field of crop biotechnology. His research team pioneered targeted genome editing in sugarcane, a challenging crop with a complex genome. This included both targeted co-mutagenesis of more than 100 genes to obtain a loss of function phenotype, as well as precision nucleotide substitutions for gain of function. He succeeded in applying metabolic engineering to convert sugarcane into an oil-producing crop, a milestone that laid the foundation for the new Bioenergy Science Center funded with \$115M by DOE.

He has also been a very active SIVB member for more than 13 years including serving on the Board of Directors when he was the SIVB Program Chair in both 2012 and 2018. He has served as Chair for the Plant Section from 2010-2012, Chair, co-chair and Jr-chair of the Plant Program Committee from 2007-2009. As part of his duties as Chair, Dr. Altpeter served on the Awards, Long-Range Planning and the Membership Committees. He also contributed to numerous SIVB meetings by convening a number of symposia. In 2018, he also received the SIVB Fellow Award.



Dr. Michael J. Fay

Dr. Michael J. Fay received his B.S. from the University of Maine with distinction, with a major in Microbiology. He received his PhD from the University of Mississippi in 1992 and was a postdoctoral fellow in the Endocrine Physiology Training Program at the Geisel School of Medicine at Dartmouth University in New Hampshire from 1992-1997. Dr. Fay became Assistant Professor at Midwestern University in the Chicago College of Osteopathic Medicine in 1997 and remains on faculty at

Midwestern. He was promoted to Associate Professor with tenure in 2002, took on the role as Biomedical Science Program Director in 2006, was promoted to Professor in 2011, and recently was promoted to Associate Dean in the College of Graduate Studies.

Dr. Fay has contributed extensively to the field of in vitro cancer biology through his work on vasopressin and, later, the tumor suppressor gene *Cu15*. More recently he has shifted his focus to the role of microRNAs in cadmium nephrotoxicity. Dr. Fay has published 26 peer-reviewed manuscripts and has been an author on over 50 presentations at regional and national meetings. He was awarded two NIH R15 awards, a Research Career Enhancement Award from the American Physiological Society, a Department of Defense Postdoctoral Fellowship, and has served as co-investigator on several NIH funded grants.

Dr. Fay has been a member of SIVB since 1992. He has contributed significantly to the organization, including serving as the Chair of IVACS (2010–2012) and Secretary, Board of Directors (2014–2018). Other roles include Chair of the Publication Committee (2016 to present) and Co-Editor-in-Chief of the *In Vitro Report* since 2006. He has attended countless SIVB meetings since 1992, organized numerous plenary sessions and symposium, been author on posters presented by his mentees, judged the Student and Post-Doctoral Oral Presentations, and received two Distinguished Service Awards.

Dr. Fay has taught Pharmacology and other related courses at Midwestern since 1997. He has mentored over 45 students at Midwestern including medical students, pharmacy students, and biomedical students who have completed their thesis work in his laboratory. Dr. Fay was awarded the Littlejohn Award from Midwestern University in 2013. This award is given annually to a faculty member that exemplifies the values of service, caring, and commitment.

Fellow Awards

Mr. Michael K. Dame (IVACS), Dr. Lucy EJ Lee (IVACS), and Dr. William Gordon-Kamm (PBS) were awarded the Fellow Award.



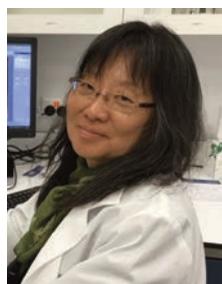
Michael K. Dame

Mr. **Michael K. Dame** has been a very active member of the SIVB and IVACS since 2008. Michael completed his Bachelor of Sciences in 1983 at the University of Michigan and started his career in fisheries biology with the Peace Corp. Since 1988, he has held positions of increasing responsibility at the University of Michigan, School of Medicine. He is currently the Associate Director of the Transitional Tissue Modeling Laboratory.

This highly recognized core facility has the mission of enabling the research community to implement a diverse range of in vitro grown primary human tissues for discovery-based research, as well as personalized and regenerative medicine. In addition to providing 3D and other human tumor cell models for research and therapy development, Michael provides training to graduate students and others in the development and application of these specialized tissue culture systems. Michael has over 57 publications cited as well as two book chapters. Many of us will

remember his several presentations to the SIVB meetings on 3D tissue systems and tumor modeling.

Michael has been a major contributor to our annual meetings. Over the past eight years, he has co-convened at least one if not two symposia or plenary sessions each year. His contacts within the scientific community are considerable and that has allowed him to attract really high-quality speakers. For the 2020, he is serving as the Meeting Program Director with all the challenges that entails. For the IVACS section, he has served as the Program Chair (2014–2016) and Section Chair (2016–2018). Finally, he is serving on the Board of Directors as Member-at-Large representing the IVACS section (2018–2022).



Dr. Lucila EJ Lee

Dr. Lucila EJ Lee is a pioneer and a leader in fish cell culture with over 25 years of contributions to teaching, research, and service in the field of in vitro biology. She is the Dean of Science at the University of the Fraser Valley in British Columbia, Canada with a tenured rank of Full Professor.

Dr. Lee's research has produced over 95 articles, 9 book chapters, and over 240 published abstracts at scientific meetings. She has trained over 150 graduate students, research associates, post-doctoral fellows and undergraduate students through numerous successful grants with a total of over two million dollars researching both basic and applied in vitro biology of fish cells in culture. Her expertise in in vitro biology is highly sought after as a consultant/collaborator. Most recently, these organizations include Finless Foods in California, Plant and Food Research in New Zealand, and Universidad Austral de Chile.

She has been involved with several scientific societies in various capacities and has received the Distinguished Service Award in 2012 and 2014 as well as a Service Award in 2019 for her contributions to the SIVB. Dr. Lee was president of the Canadian Society of Zoologists and the President of the Canadian Council of Deans of Science. She has also been of support to the SIVB in capacities such as program committee member (2008–2015) and a Board of Director Member-at-large (2010–2012). Dr. Lee also co-organizes the International Conference on Invertebrate and Fish Tissue Culture held every four years along with the SIVB annual meeting. In 2019, Dr. Lee was convener of the Cellular Agriculture and Use of Cell Lines for Meat Production session at the SIVB meeting.

Over the years, she has been actively involved in helping and has provided outstanding service to the SIVB so that the Society can meet its mandate.

Dr. William Gordon-Kamm received his BS (1978) and MS from Western Washington University (1980). From there, he moved to Cornell University, Ithaca, and obtained his PhD in the year 1984. Bill took up a Post-Doc position in USDA/ARS, Cereal Rust Laboratory, Univ of Minnesota between 1984 and 1985. He then continued to teach as an Asst Professor, New Mexico Highlands Univ, between 1985 and 1987. After that, he took an industrial Research Scientist at the erstwhile DeKalb/Pfizer Genetics and worked there from 1987 to 1993.



*Dr. William
Gordon-Kamm*

He continued with the industry since 1993 as Research Scientist with DuPont/Pioneer and currently as Distinguished Fellow with the newly spun-off company Corteva (1993 — present). He worked closely with several cross-functional teams internally and collaborated with numerous excellent institutions externally. He was able to bring in groups together with his comprehensive understanding of plant

sciences and experience and brought together groups to advance plant science and was very visible with his some of the early seminal work through publications from 1983. One of the significant work was the publication of his first work on the Transformation of Maize Cells and Regeneration of Fertile Transgenic Plants in Plant Cell (1990).

He mostly committed his time to improve maize through advancing by inventing or using tools and processes over the years and in the recent past with cereal improvement using "Dev genes," and extending methods to several dicotyledons species internally in the company and partnering with several of the public institutes as mentioned in the numerous support letters submitted together in this nomination packet. He is also currently working with projects with global industry and privately funded projects to improve cereals with the Bill Gates Foundation.

Significant impact of his research in developing enabling technologies and providing a sphere of influence internally and externally to advance science includes: transformation of Maize and improvement through biotechnology, which resulted in a product line in the market, "Qrome"; advancement of science by providing disruptive enabling technologies like the introduction of the dev gene concept which is a game changer to directly manipulate crop species; and several private, public and philanthropic institutes (Bill and Melinda Gates, Danforth Center) actively using these assets for improving crop species globally.

Bill has also been active in the Society and externally elsewhere in peer-reviewing journal papers; book chapters; books or edited books; conference proceedings; non-technical articles; several patents; several invited lectures, seminars, symposia. He has convened and moderated sessions, presented in meetings, conducting workshops in the SIVB society in both national and world conferences.

In addition to his scientific contribution, Bill is passionate about mentoring and developing the next generation of scientists. He routinely works with interns, graduate students in the universities, and younger colleagues in the industry to transfer his lifetime of knowledge. He is a firm believer in effective scientific learning, and experience is advanced via sequential learning. During the past several years, many individuals' scientific careers in industry and academia were shaped and changed by interaction with Bill.

Young Scientist Award

Dr. Yiping Qi won the Young Scientist Award.

Dr. Yiping Qi started his research as a postdoc with Dr. Dan Voytas (a plant genome editing pioneer) at the University of Minnesota. During this time, he developed ZFN and TALEN technologies for plant genome editing. Currently, he is an Assistant Professor at the University of Maryland, College Park.



Dr. Yiping Qi

Dr. Qi has been national and internationally recognized leading scientist in the development of CRISPR/Cas based plant genome editing technology. His vector systems have been widely distributed to laboratories around the world and have contributed greatly to the successful in vitro manipulation and gene editing of plants. In the past few years, Dr. Qi has become a leader in developing synthetic transcriptional activators and repressors in plants. Most CRISPR based transcriptional regulation tools available to the plant research community were developed by his lab. In recent years, his lab reported a Cas12a-based transcriptional repression system, and Cas9 and TALE based transcriptional activation systems. These synthetic biology tools will enable the plant research community to tackle pressing problems such as engineering better crops able to cope well with climate change through rewiring the expression landscape of a plant genome.

He is a productive researcher with 43 peer-reviewed publications, 14 book chapters and one book authored and co-authored by him for the past 11 years, many of which are well-cited. In addition, he was the editor of a recent Methods in Molecular Biology book entitled "Plant Genome Editing with CRISPR Systems", which is a collection of state-of-the-art protocols in plant genome editing.

Dr. Qi is an enthusiastic educator and mentor for students, postdocs and visiting scientists. Dr. Qi has been mentoring 6 graduate students, 3 postdocs, 25 undergraduate students, 4 community college interns, 12 high school STEM interns, and 6 visiting scientists from 3 countries. He also taught large undergraduate classes for a number of years and developed focused senior undergraduate courses.

As a PI, Dr. Qi has been successful in attracting external grants for his research. He has generated over \$ 2.4 million extramural funding including NSF Plant Genome Early Career Award, FFAR New Innovator in Food & Agriculture Research Award, USDA-NIFA-BRAG grant and Syngenta Cooperative Research Award.

He continues to provide excellent services to the scientific community, especially providing expertise in manuscript and proposal review for peer-reviewed scientific journals and funding agencies, respectively. Dr. Qi has given over 58 invited speeches or seminars at various Institutes and conferences, including two as keynote speaker. He was an invited speaker in 2015, a plenary speaker for the 2019 SIVB meeting, and has continued to become more and more active in the Society.



Pamela Weathers

STUDENT AWARDS

The evaluating committee this year consisted of **Pamela Weathers** (Chair), **Vivian Dayeh**, **Jessica Rupp**, **Raj Deepika Chauhan**, and **Cindy Goodman**. The SIVB Student Award Program provides recognition and financial support for students who have contributed and made outstanding achievements in the field of in vitro biology.

Normally, certificates are presented to the students at the meeting and associated funds they were eligible to receive were sent by check to them after the meeting. Considering the pandemic mandated a move to a virtual meeting students made their presentations online, but could not attend in person and did not incur normal travel costs to attend the meeting. All students paid their abstract fee and some incurred some travel costs that may not have been refundable. The Executive Committee reviewed this situation and voted to provide student award recipients with certificates and funds for 2020 if they virtually presented their work and to help recoup any already expended travel costs that may not have been refunded.

The following awards were presented at the 2020 meeting. The **Philip R. White Award** was given to Xulyu Cao of the University of Birmingham, School of Biosciences, Edgbaston, United Kingdom. Mr. Cao used the funds to support training he received at the University of San Diego. The **Wilton R. Earle** and a **Travel Award** went to Cristofer Calvo of Cincinnati Children's Hospital Medical Center, Cincinnati, OH for "Water deficit increases recombinant protein production and Hydroxyproline-O-glycosylation in tobacco transient expression." The **Joseph F. Morgan** and a **Travel Award** were given to Adrian Monthony from University of Guelph, Guelph, ON, Canada for "Flower Power: A Rapid In Vitro Regeneration Protocol from In Vitro Cannabis sativa Inflorescences." The **Cellular Toxicology Award** was presented to Sepideh Mohammadhosseinpour of Arkansas State University, State University, Jonesboro, AR, for "Prenylated Stilbenoids as Potential Therapeutic Agents for Triple Negative Breast Cancer." The **Hope E. Hopps** and a **Travel Award** were given to Tayebah Kakeshpour from Kansas State University, Manhattan, KS for "Tomato (*Solanum lycopersicum* L.) Class II Glutaredoxin Mutants Generated Via CRISPR/Cas9 System Are Susceptible to Multiple Abiotic Stresses." The **Honor B. Fell** and a **Travel Award** were presented to Caroline L. McCarthy from the University of Michigan Medical School, Ann Arbor, MI for "Optimization of a Polarized 2D Differentiated Human Colonoid Transwell Model." The **John S. Song Award** was given to Uddhab Karki of Arkansas State University, Jonesboro, AR for "High Yields Secretion of Human Erythropoietin from Tobacco Cell for Ex Vivo Production of Red Blood Cells." **Gordon Sato and Wally McKeegan Awards** were new as of this year for travel funds to attend the Annual Meeting of the SIVB to present their research working with vertebrate or invertebrate cells in vitro and were presented to Evan M. Hill and to Kateryna Karpoff of the University of Michigan, Ann Arbor, for "Sulforaphane Inhibits Colon Adenoma Organoid Formation and Induces Differentiation in a Dose-Dependent Manner", and "Optimization of a Polarized 2D Differentiated Human Colonoid Transwell Model", respectively.



Xulyu Cao



Cristofer Calvo



Adrian Monthony



Sepideh Mohammadhosseinpour



Tayebah Kakeshpour



Caroline L. McCarthy



Uddhab Karki



Evan M. Hill

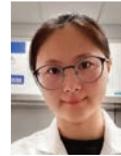


Kateryna Karpoff

Additional **SIVB Student Travel Awards** also were provided to Md Rokib Hasan from Arkansas State University, Jonesboro, AR for "Anti-inflammatory Mechanism of the Prenylated Stilbenoid Arachidin-3: A Natural Product Derived from Peanut Hairy Roots."; to Eveline Yee Yan Kong of The University of Queensland, Gatton, Queensland, Australia for "Effect of BAP and TDZ on Direct Shoot Organogenesis in Coconut (*Cocos nucifera* L.)"; and to Ryan Murphy of Clemson University, Clemson, SC for "Physical Factors Increased Quantity and Quality of Micropropagated Apical Shoots of *Cannabis sativa* L. in A Repeated Harvest System." Certificates were presented virtually at the SIVB June 2020 Business Meeting to honor these exceptional students.



Md Rokib Hasan



Eveline Yee Yan Kong



Ryan Murphy

In 2020, no **Exceptional Plant Research Award** was made.

MARIA M. JENDEREK
Awards Committee Chair
Maria.jenderek@usda.gov

PAMELA J. WEATHERS
Student Affairs Committee Chair
weathers@wpi.edu

CONSTITUTION AND BYLAWS

No items were brought to the Constitution and Bylaws Committee either by the Board of Directors or members of the Society in 2020. Should you wish to suggest improvements to our governing documents or volunteer to assist in preparing recommendations, you may reach out to the Committee Chair or Managing Director with your thoughts.

MARIETTA WHEATON SAUNDERS
Managing Director on behalf of

THEODORE KLEIN
Outgoing Constitutions and Bylaws Chair
theomklein@gmail.com

DEVELOPMENT



*Sukhpreet Sandhu
2020 Development
Committee Chair*

The Development Committee helps to secure financial support for the Society and its Annual meeting. In 2020, the core members of this team included **Angela Labrum, Piero Barone, Raj Deepika Chauhan, Max Jones, John Harbell, Allan Wenck, Michael Dame and Sukhpreet Sandhu** (Chair). The core team was supported by IVACS and PBS members who helped to generate contributions. We

offer our thanks to the entire committee who made an outstanding effort by actively identifying prospective donors and working with SIVB members to gain support from companies. We are also very grateful to the support Sadanand Dhekney and the Business Office for their efforts in grant writing on behalf of SIVB. We received contributions from 18 companies, 6 individuals, and the USDA National Institute of Food and Agriculture. While the number of contributors was lower than last year, we generated \$99,150, up almost \$1,300 from 2019. Significant contributions were secured from BASF, Corteva, Robert and Gale Lawrence, Jr., and Barbara Doonan. As the Flow Cytometry Workshop and 15th International Conference on Invertebrate and Fish Cell Culture were cancelled for 2020 and the in-person portion of the Lifetime Achievement Award were delayed until the 2021 Meeting, funds contributed for those events are being held for the 2021 Meeting contributions. Such partnerships with key companies are critical from not only the financial security but increasing our value proposition as a Society.

We are grateful to the financial support from several individuals who are long time members of the SIVB. Their commitment to SIVB's mission is greatly appreciated. We encourage SIVB members to help in this pursuit. Your ideas for alternate sources of funding and leverage provided by connecting us to your colleagues and networks is very much appreciated. The support from our members helps us to secure a thriving future for the Society.

Support for the SIVB came from the following funding sources: The Japanese Tissue Culture Association, Japanese Society for Alternatives to Animal Experiments, Barbara and John Harbell, Barbara B. Doonan, Delia Bethell, Dwight Tomes, Mae Ciancio, Robert and Gale Lawrence, Jr., Agbiome, Alternatives Research & Development Foundation, BASF Agricultural Solutions Seed US LLC, Bayer U. S. Crop Science, Benson Hill, Inc., Cibus LLC US, Corteva Agriscience, CTC Genomics, Inari Agriculture, International Foundation for Ethical Research, JV Biolabs, Meristematic Labs, MilliporeSigma, National Anti-Vivisection Society, Pairwise, PhytoTech Labs, The Scotts Miracle Gro Company and Agriculture and Food Research Initiative [grant no. 2020-67013-31579/project accession no. 1022921] from the USDA National Institute of Food and Agriculture.

*Submitted by the Business Office on behalf of the
2020 Development Committee Chair*

SUKHPREET SANDHU

sukhpreet.sandhu@hmcclause.com

EDUCATION



*Brad L. Upham
Education Chair*



*Evan Hill
Student Co-Chair*



*Alperen Ozturk
Student Co-Chair*

I am honored to be elected as Chair for the Education and Student Affairs Committee (ESAC) and have thoroughly enjoyed working with the student representatives Evan Hill and Alperen Ozturk. The student section is fortunate to be under competent and dedicated leadership from their student representatives.

The 2020 Education Committee was chaired by **Albert Kausch**, University of Rhode Island, and was comprised of the following members: **Addy Alt-Holland**, Tufts University, **Daniel J. Barnes**, Mississippi State University, **Yinghui Dan**, Virginia Polytechnic Institute and State University, **Vivian Dayeh**, University of Waterloo, **Michael E. Kane**, University of Florida, **Sylvia Adjoa Mitchell**, University of the West Indies, Valerie C. Pence, Center for Conservation and Research of Endangered Wildlife Cincinnati Zoo & Botanical Garden, **Jessica L. Rupp**, Kansas State University, **Carol M. Stiff**, Kitchen Culture Kits, Inc., and **Margaret M. Young**, Elizabeth City State University. The Student Committee Co-Chairs for the 2020 World Congress were **Bretton Hale**, PB Student Co-Chair, Arkansas State University, and **Cristofer Calvo**, IVACS Student Co-Chair, Cincinnati Children's Hospital Medical Center. The 2021 program student Co-chairs elected during the 2020 Student and Education Committees meeting are: **Alperen Ozturk**, PB Student Co-Chair, Nigde Omer Halisdemir University, and **Evan Michael Hill**, IVACS Student Co-Chair, University of Michigan.

The Flow Cytometry workshop initially scheduled for the 2020 World Congress Educational program was postponed due to the change to the Virtual Pre-recorded program and has been rescheduled for the 2021 meeting.

The Student Program was comprised of a symposium entitled, "Biology at True Resolution." This session discussed how the Next GEM technology is built on a new chip architecture that integrates seamlessly into existing solutions. This technology will enable future solutions and product improvements. The Next GEM technology combines new chips and reagents and is currently offered for the following solutions: Chromium Single Cell Gene Expression Solution; Chromium Single Cell Immune Profiling Solution; Chromium Single Cell ATAC Solution. Additionally, the relationship between cells and their relative locations within a tissue sample can be critical to understanding disease pathology. Spatial transcriptomics is a

groundbreaking technology that allows scientists to measure all the gene activity in a tissue sample and map where the activity is occurring. Already this technology is leading to new discoveries that will prove instrumental in helping scientists gain a better understanding of biological processes and disease.

The Student and Education Committee meeting was held on Sunday, June 7, and included discussion on the 2021 Program and the election of the 2021 Student Co-Chairs.

The 2021 Student Co-Chairs and I have met on mostly a weekly basis to plan the student events for the 2021 annual meeting. A survey was sent out to SIVB students last summer with potential topics, formats, and feedback. Based on the survey, the students indicated they wanted a workshop and luncheon on the topics of RNA-seq and machine learning and artificial intelligence. Originally, we solicited participation of a company that provided products for RNA-seq to demonstrate the equipment used in this field in addition to academic speakers. However, with the conversion to the virtual format, the student reps opted for a two-hour workshop on “*RNA-Sequencing and Machine Learning: Experimental Design, Sample and Library Preparation, Sequencing and Data Analysis*”. Two speakers were selected. **Rance Nault**, PhD, Assistant Professor Biochemistry and Molecular Biology, Michigan State University, will present “*Navigating the next generation sequencing transcriptomics landscape*”, and **Lyle Burgoon**, PhD, Executive Chairman and Chief Scientist, Raptor Pharm & Tox, Ltd, will present “*What every biologist needs to know about artificial intelligence*”. We also had a Zoom-meeting with both speakers where the student reps were able to discuss what they wanted for their workshop and also gave the two speakers a chance to discuss how they would coordinate their two talks to complement each other’s contributions, which will aim at preparing students for key considerations for all stages of an RNA-Seq experiments from experimental design to library preparation strategies, sequencing parameter selection, and computational tools for read alignment and downstream analyses including machine learning and artificial intelligence in this continuously expanding area of research. In addition to the workshop, plans are being made for the student competitions for oral and poster presentations.

Our meetings were also used to discuss other activities. One of which is the planning of a midyear (relative to the annual meeting) Webinar-based workshop for students and possibly for the wider SIVB community. Other discussions involved developing a survey to solicit input from students as to how the ESAC can best serve them, and to extend this survey to the SIVB ESAC members (past and present) for input of what goals should be set for the ESAC. Following the survey, I will schedule a meeting for the ESAC before the 2021 annual meeting to discuss the results and begin formulating a four-year strategic plan for the ESAC. Part of the strategic plan will be to revisit the by-laws concerning the ESAC and potentially revise per discussions at this ESAC meeting. Also proposed is to automatically make the student representatives official members of the ESAC as part of a by-law change.

The Education and Student Committee Chairs would like to thank those who helped to plan and execute the successful student and education programs at the 2020 World Congress Virtual Pre-recorded Meeting, especially Student Co-Chairs, **Brett Hale** and **Cristofer Calvo** and look forward to sharing the 2021 Student program.

BRAD L. UPHAM
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EVAN MICHAEL HILL
Student Committee Co-Chair
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ALPEREN OZTURK
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LONG RANGE PLANNING



Addy Alt-Holland,
LRP Committee Chair

The Long Range Planning (LRP) Committee is a standing committee of the SIVB that is charged with developing strategic ideas for the long-term sustainability of the Society. The Committee met on June 8 during the 2020 World Congress on In Vitro Biology Virtual Pre-recorded Meeting. Committee members included: **Addy Alt-Holland (Chair), John Harbell, Allan Wenck, Dwight Tomes, Nancy Reichert, Brad Upham, Kenneth Kandas, Terry Riss, Michael Fay, Michael Dame, Maria Jenderek, and Vivian Dayeh.**

An invaluable and fundamental work by the previous Presidents, Board members, and members of the SIVB was put into creating the SIVB’s Mission, Vision, and comprehensive Strategic Plan. **The overarching goal of the SIVB’s Strategic Plan is to expand, convey and promote the embedded knowledge and experience of *in vitro* science.** Regardless of our career stage, research work, and areas of interests, the COVID-19 global pandemic brought upon us multitude personal and professional challenges. It also created new challenges for our Society, and as an immediate outcome, the 2020 World Congress on In Vitro Biology was transitioned from an in-person meeting to a virtual meeting. Now, more than ever, it is important for the SIVB to continue generating creative ways to execute the SIVB’s Strategic Plan, stay engaged and benefit our members, and ensure further, long-term growth of our Society.

Governance/Review of Committee Responsibilities.

One of the duties of the President Elect for the Board, is to serve as the Chair of the LRP Committee. The SIVB President appointed Committee members during his first month in office. As the incoming Chair of this Committee, I invited additional SIVB members with perspectives and experience in academia, industry and law, from both the PB and IVACS Sections to serve on the LRP Committee. Committee Chairs, experienced and long-term SIVB members, as well as new SIVB members attended the meeting.

Review of the Agenda and the Strategic Plan Document of the SIVB.

The SIVB's Strategic Plan was created and completed by the past presidents, Dwight Tomes, and John Harbell. During his term as the Chair of the LRP Committee, the current President, Allan Wenck, began implementing different sections of the Approved Strategic Plan. At the virtual LRP Committee Meeting, we reviewed the Mission, Vision, Guiding Values and the following Strategic Plan Priorities:

1. *Promote and enhance the knowledge base and information exchange of in vitro science.*
2. *Promote scientific competencies among professional, educational and lay audiences.*
3. *Promote the professional development of members.*
4. *Insure that financial practices, annual meetings, and other activities of the society are conducted effectively, and in a fiscally sound manner that allows continuation and expansion of the SIVB.*
5. *Insure continuity of the activities of the Society.*

Continued implementation of the SIVB's Strategic Plan priorities under current global changes and uncertainties.

The COVID-19 pandemic created new challenges for local and international travel approvals and capabilities, significant budget restraints in both academia and industry, and transition to virtual meetings. These unprecedented changes force us to continue to be creative as we strive to continue implementing the SIVB's Strategic Plan. The LRP Committee discussions focused on the main challenges for implementation of the Strategic Plan priorities, foreseeable complexities, and ways to address them:

1. **Cross-committees communications:** Although each SIVB committee is working on its specific charges, the different challenges that each committee undertakes, and the creative ideas that are raised to address them, are important and beneficial to the other committees. As the LRP Committee Chair, I plan to create a mechanism that will foster cross-committees communications.
2. **Professional development of students and post-docs:** Discussion ensued on ways in which we — as Committee Chairs, Board members, and regular members — can continue to encourage students and post-docs to attend SIVB meetings, and promote their transition into active and long-term SIVB members. The SIVB supports multiple student-based activities during our meetings. What can we do as a Society to encourage the students and post-docs to realize the SIVB as their "Home Society", become regular active members, and serve in different leadership roles as they develop in their careers? We need to promote engaging outreach, and students/post-docs recognition of the advantages in becoming active SIVB members. Creating leadership roles for students/post-docs during the meetings, and emphasizing the importance of these roles as stepping-stones in their career development and leadership experience, is key. We also need to further

promote the significance of mentorship capabilities and opportunities in our Society.

3. **Membership retention, engagement, and recruitment:** With input from the Membership Committee Chair, we discussed ways to increase membership recruitment and retention, not only of students and post-docs, but also of regular members from academic institutions, industry, consulting firms and other organizations.
4. **The importance of the SIVB's In Vitro Report (IVR):** The official online publication of the SIVB is a very colorful, and engaging platform for information about SIVB meetings and news, publications, activities, as well as accomplishments of students and members. The LRP committee discussed ways to leverage the IVR as means to engage students, post-docs, and regular members to contribute to our Journals and annual meetings, and become more active and long-lasting SIVB members.
5. **Social media presence and outreach:** Currently, the Society has presence on Facebook, Linked-In and Twitter platforms, which is actively supported by the SIVB Business Office, and contributions by individual SIVB members. During the LRP Committee meeting, it was suggested that the Society should not underestimate the importance of using of Social Media for the growth of the SIVB, and we discussed potential ways to further increase the SIVB presence on different social media platforms.
6. **Economic perspectives, challenges and opportunities in future SIVB conferences:** Important points were raised about the economic perspectives of registration, travel and participation in conferences in light of the COVID-19 pandemic. We discussed the implications of the transition from in-person meetings to virtual meetings, limitations on funding resources for travel and attendance in conferences, as well as addressing issues of availability, protection of information and security measures in online platforms that host virtual conferences. As we prepare for the next SIVB conference under the current situation, we discussed the advantages and implications of conducting a virtual or a hybrid online/in-person future SIVB meetings. It was also noted that for future in-person conferences, the attractiveness of the conference venue, its location and accessibility can greatly affect the attendance in SIVB meetings as well as membership.

It has become clear that remote access technology is a necessity and that it is going to be around for a long time. There has been a significant transition to an online virtual teaching, working, and meeting. This transition will affect small and large Societies, institutions and organizations. The immense efforts and dedication of all those who were involved in the transition of the 2020 World Congress on In Vitro Biology to a virtual meeting are commendable. I strongly believe that while virtual, keeping the meeting as scheduled was beneficial for the sustainability of our Society, and I look forward to our next SIVB meetings.

ADDY ALT-HOLLAND

Chair, Long-Range Planning Committee

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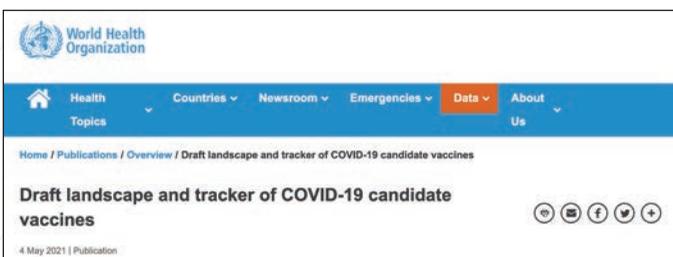
LABORATORY MATERIALS AND BIOSAFETY

The Laboratory Materials and Biosafety Committee (LMBC) provides a mechanism within the Society for In Vitro Biology (SIVB) to promote laboratory standards, biotechnology practices, laboratory materials, safety equipment, and facilities that constitute biosafety levels 1–4 associated with in vitro and biotechnology methodology. The goals of the LMBC are: 1) to provide an educational process and format to distribute information regarding potential hazards and risk assessment associated with: the cell culture process, the use and handling of biological agents, quality control of biomaterials, and updates on federal regulation pertinent to research, industry and clinical biotechnology applications; 2) to recommend laboratory practice, operation, or materials based on risk assessment of the agent/or material and the laboratory activity involved; and 3) to promote the interaction of committee members with national and international scientists, professional groups, and manufacturers regarding the design, processing, and use of material for in vitro and biotechnology methodology.

The LMBC committee members represent government, university/academia, private industry and include: **Linda B. Jacobsen** (Chair); **Sandra L. Schneider** (Co-Chair), Research and Clinical Laboratory Systems; **Walter Finkbeiner**, University of California-San Francisco; **Thomas Goodwin**, Sovaris Aerospace; **John Harbell**, JHarbell Consulting, LLC.; **John Masters**, University College London, Institute of Urology-UK; **Tohru Masui**, JCRB Cell Bank, Division of Bioresources, National Institute of Biomedical Innovation, Osaka, Japan; **Colette J. Rudd**, Rudd & Associates; **Lynn Rutsky**, The University of Texas Health Science Center Houston; **Glyn N. Stacey**, National Institute for Biological Standards and Control-UK; and **Alda Vidrich**, University of Virginia Health Sciences Center.

The coronavirus disease Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), referred to as COVID-19, has surpassed the 1918–1920 influenza virus as the deadliest pandemic in history. The World Health Organization (W.H.O) compiled a rolling updated COVID19 candidate vaccine tracker database related to vaccine platforms, preclinical, clinical studies and efficacy. See:

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiRx5ehh7rvAhWEXM0KHQ5FDpwQFjAAegQIAxAD&url=https%3A%2F%2Fwww.who.int%2Fpublications%2Fm%2Fitem%2Fdraft-landscape-of-covid-19-candidate-vaccines&usg=AOvVaw2PRnofm6HxESI2pL7daBZo>



The Lancet Global Health extracted and cross-check independent data for tracking COVID-19 vaccine development on an interactive website. See:

[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiRx5ehh7rvAhWEXM0KHQ5FDpwQFjAGegQIIhAD&url=https%3A%2F%2Fwww.thelancet.com%2Fjournals%2Fflanglo%2Farticle%2FP1IIS2214-109X\(21\)00043-7%2Ffulltext&usg=AOvVaw0ZcYY8dl7BGXW_5LScHrXm](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiRx5ehh7rvAhWEXM0KHQ5FDpwQFjAGegQIIhAD&url=https%3A%2F%2Fwww.thelancet.com%2Fjournals%2Fflanglo%2Farticle%2FP1IIS2214-109X(21)00043-7%2Ffulltext&usg=AOvVaw0ZcYY8dl7BGXW_5LScHrXm)



Submitted by

SANDRA L SCHNEIDER, DRPH, EMBA, FCT

Co-Chair

drsandra@stic.net

MEMBERSHIP



Vivian Dayeh
Membership
Committee Chair

Membership is key to the success and future of the SIVB. In 2020, there was a decrease of 12.3% for all membership and a 22.5% decrease in Regular members compared to end-of-year membership counts in 2019. At the end of 2020, our total membership was 408 members, which included: 82 Emeritus Members, 3 Honorary Members, 8 Life Members, 221 Regular Members, 90 Student Members and 4 Postdoctoral Members. The largest increase was in Student membership and there was also an increase in Life Members.

The Business Office has worked hard to promote the benefits of membership, but we absolutely need your support. The SIVB has the Member-get-a-Member program that continues to help recruit new members. If you know someone who may benefit from SIVB membership, please complete the referral form. Everyone benefits with this program. As the current member, we will enter you into a draw for a gift card, and the new member gets \$10 off their membership dues if they join. Please consider connecting with a colleague and refer them to the SIVB.

The SIVB offered a 2-year membership option for the first time in 2020. It is our pleasure to report that 25 of our members used the option for 2021–21 and 17 members renewed for 2021–22. It is a great way to make sure you don't miss out on your renewal period! Another excellent membership type is the Life Member. If you are a Regular member and interested in becoming Life members of the SIVB please contact the SIVB Business Office (marietta@newbeginningsmanagement.com).

The SIVB also holds a drawing for members who renew their membership before December 31st of the prior year. The

winners of the 2020 competition were **Chunsheng Lu**, who received free registration to the 2021 SIVB meeting, and **Ubaldo Armato**, who received free membership for 2021. If you renew for 2022 by December 31, 2021, you could win a 2023 membership or registration to the 2023 annual meeting. It's great to renew before the end of the year, and we hope that you consider this incentive!

There are many benefits of being a member of the SIVB and we encourage all members to be actively involved in the society. Reach out to colleagues and spread the word of our wonderful society. We need you now more than ever!

VIVIAN DAYEH

Membership Committee Chair
vdayeh@uwaterloo.ca

NOMINATING

The 2022–2024 election will be held in the fall of 2021. The final slate for all offices must be determined and approved by the board so candidates may be approached for their biosketches and platform statements.

Below is the list of positions and their terms of office that will be part of the 2022-2024 election



John Harbell
Nominating
Committee Chair

CURRENT SLATE

- **President-Elect, 2022–2024**
(6 years on the board including:
President/2024-2026 and Past President/2026-2028)
- **Vice President, 2022–2024**
- **Secretary, 2022–2024**
- **Treasurer, 2022–2024**
- **PBS Member at Large, 2022–2026 (4-year term)**
- **IVACS Member at Large, 2022–2026 (4-year term)**
- **Publications Chair, 2022–2024**
- **Public Policy Chair, 2022–2024**
- **Awards Chair, 2022–2024**
- **Constitution and Bylaws Chair, 2022–2024**
- **Education Chair, 2022–2024**

PLANT BIOTECHNOLOGY SECTION OFFICERS

- **PB Chair, 2022–2024**
- **PB Co-Chair, 2022–2024**
- **PB Secretary-Treasurer, 2022–2024**

IN VITRO ANIMAL CELL SCIENCES SECTION OFFICERS

- **IVACS Chair, 2022–2024**
- **IVACS Co-Chair (Meeting), 2022–2024**
- **IVACS Co-Chair (Membership), 2022–2024**
- **IVACS Secretary-Treasurer, 2022–2024**

Only Regular Members and Post Doc Members are eligible to vote and to hold office in the Society. Emeritus Members may vote but may not hold elective office.

The Nominating Committee shall be composed of the immediate Past President who will serve as Chair, the chairs of the Sections, and, if desired, two additional at large members appointed by the Chair. The Nominating Committee shall make two or more nominations for each office, after announcing, in the Society's Newsletter, a call for applications to become a nominee for one of the elected positions. In this application, respondents are requested to supply a brief career resume, including a list of any previous service to the Society, and a statement of the applicant's platform. From this panel of applicants, plus any additional individuals requested to apply by the Nominating Committee, the Nominating Committee makes its selections of at least two nominees for each position and secures written willingness of the prospective applicants to serve as nominees, for President-Elect, Vice President, Secretary, and Treasurer, Chairs of all elected Standing Committees, as well as for the two Member-at-Large positions up for election in that year (for four year terms). In alternating elections the nominees for President-Elect will be 1) members of the Plant Biotechnology Section or 2) members of the In Vitro Animal Cell Sciences Section. The Nominating Committee must submit the final slate of nominees for all positions to the Board of Directors at or before the fall meeting of the Board occurring in the year of an election. The Board must ratify the slate of nominees no later than at the fall meeting. If the Nominating Committee fails to present a full and balanced slate of candidates by the fall Board of Directors meeting, the President, at his or her discretion, can select an ad hoc committee to finalize the slate. The ad hoc committee must submit the final full and balanced slate to the Board within twenty (20) days of receiving commissioning.

- A. A final slate of candidates is developed by the Nominating Committee. Additional nominations for office may be made to the Secretary, by petition, over the signatures of at least 10 Regular Members in good standing. These petitions must be received by the Secretary on or before the next succeeding first day of October. Information on Section formation is on file in the Society's Business Office.
- B. The Secretary shall send to all Regular and Emeritus Members of the Society, no later than the fifth day of November, a final ballot bearing all nominations for office (whether made by the Nominating Committee or by petition), including biographical sketches. The ballot shall also include nominations, if any, directed by the Board of Directors for Honorary Membership, and any proposed changes to the Constitution and/or of the Society.
- C. Each member shall transmit his/her ballot in a manner to properly maintain secrecy to the Secretary. In order to be counted, a ballot must be received by the Secretary on or before the next succeeding fifth day of January of the year of the assumption of office.

- D. The Secretary shall verify the eligibility of all members voting, and deliver all valid sealed ballots to the tellers. The tellers should count the ballots and report to the Secretary who shall notify the nominees and the Board of Directors of the results and shall announce the results in the Society's newsletter.
- E. The candidates who receive the highest number of votes in each contested office, shall be declared elected. In case of a tie vote, majority of the Board of Directors shall decide between the candidates who are tied. A candidate for Honorary Membership shall be declared elected if affirmed by four fifths of the votes cast.
- F. If a member is elected to a Society office and is also elected as Chair of a Section, and if the member does not feel it is feasible to fulfill both roles simultaneously, the Section will determine a replacement to fill the position of Chair by appointing the runner-up candidate for Section Chair from the preceding election. Neither the President or President-Elect of the Society shall simultaneously serve in the capacity of Chair of a Section.

If you are interested in running for a position this fall for the 2022–2024 Offices, please reach out to your Section Chair or myself as Nominating Committee Chair to let us know for what position you are interested in running. We hope to hear from you!

JOHN HARBELL

Nominating Committee Chair
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MARIETTA WHEATON SAUNDERS

Managing Director
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PROGRAM



Michael K. Dame
Program Chair

The 2020 World Congress In Vitro Biology meeting was held virtually on June 6–10, due to the limitations placed on in-person meetings by the SARS-Cov2 pandemic. Everyone worked especially hard to address the rapidly changing format. These individuals include **Marietta Wheaton Saunders** (Congress Secretariat), **Raj Deepika Chauhan** (PB Program Chair), **Mae Ciancio** (IVACS Program Chair), **Angela**

Labrum (PB Sr. Co-Chair), **Max Jones** (PB Jr. Co-Chair), **Albert Kausch** (Education Chair), **Brad Upham** (incoming Education Chair), **Cristopher Calvo** (IVACS Student CoChair), **Bretton Hale** (PB Student Co-Chair); and in session order, the conveners, **J. Pon Samuel**, **Mike Mann**, **Durga Attili**, **Valerie Pence**, **Maria Jenderek**, **Sadanand Dhekney**, **Max Jones**, **Hemant Lata**, **Pierluigi Barone**, **Todd J. Jones**, **Hajime Kojima**, **Yohei Hayashi**, **Allan R. Wenck**, **John W. Harbell**, **Yun Yue**, **Joshua Z. Gasiorowski**, **Kolla Kristjansdottir**, **Carlos Hernandez-Garcia**, **Veena Veena**, **Addy Alt-Holland**, **QingChun**, **Micah Stevens**, **Randall P. Niedz**, **Kan Wang**, **Jeff Kwak**, **Michael Fay**, **Ming**

WORLD CONGRESS ON IN VITRO BIOLOGY



SAN DIEGO, CALIFORNIA, USA

Cheng, **Nagesh Sardesai**, **James Varani**, **Kenneth Kandaras**, **Seyoum Ayeahunie**, **Michael E. Kane**, **Ben Hughes**, **Cecilia Zapata**, **Yurong Chen**, **Debora Esposito**, **Katya Boudko**, **Jeffrey W. Adelberg**, **Evan Hill**, **Mary Ann Saltarikos**, **Aaron Hummel**,

Rodrigo Sarria, and **Kristina Martinez-Guryrn**. And a special thanks to our invited speakers for their understanding and flexibility in order to provide their important works.

Alysson Muotri, PhD, of the Sanford Consortium for Regenerative Medicine, was the 2020 Keynote Speaker and captivated the virtual audience with his remarkable findings in “Emergence of Spontaneous Oscillatory Networks from Human Brain Organoids.” Plenary sessions included, “20/20 on 2020 and Beyond: Emerging In Vitro Technologies”; “Frontiers in Single Cell Technologies”; “Bioethics and Public Policy for Benefits and Concerns in Plants and Animals”; “Current Perspectives on Cannabis and Cannabinoids”; and a joint IVACS/PB symposia, “Exploring Microbiomes: Application to Humans and Agriculture”.

The In Vitro Animal Cell Sciences (IVACS) Section provided symposia: “Organoid Models: Windows into Human Disorders”, “New Approach Methods for Drug Discovery in Japan”, sponsored by our Japanese partners, JSAAE and JTCA; “MicroRNA and Cellular Dysfunction”; “Emulating Human Liver in Preclinical Research and Regenerative Medicine”; and “Microbiome in Mammalian Health”.

The Plant Biotechnology (PB) Section offered symposia: “Best Practices for Plant Tissue Culture”; “Genetic Transformation and Accelerated Breeding in Woody Plant Species”; “Plan(t)s for the Future Planet”; “In Vitro Technologies for Clean Plant Production in Cannabis”; “Digital Agriculture – Sensors, Machine Learning and Image Analysis”; “Advances in Plant, Cell, Tissue, and Organ Culture Contributed Paper Session”; “Plant Contributed Paper Session”; “Plant Memory: The Importance of Assessing Culture Carry Over Effects During Micropropagation Protocol Development”; “Imaging Analytics, Artificial Intelligence and Robotics in Tissue Culture and Transformation”; “Beyond KOs: Emerging Genome Editing Technologies”.

Many meritorious individuals received 2020 SIVB Awards: Lifetime Achievement Award Recipient, **Dwight T. Tomes**, PhD; Distinguished Scientist Award Recipients, **Michael J. Fay**, PhD and **Fredy Altpeter**, PhD; Fellow Award Recipients, **Michael K. Dame**, **Lucila E. J. Lee**, PhD, and **William Gordon-Kamm**, PhD; and the Young Scientist Award Recipient, **Yiping Qi**, PhD.

Student participation was particularly high for this meeting. The following students received awards **Adrian S. Monthony**, **Md Rokib Hasan**, **Uddhab Karki**, **Caroline L. McCarthy**, **Kateryna Karpoff**, **Tayebeh Kakeshpour**, **Evan Michael Hill**. Plant post-doctoral presentation awards went to **Ayman Eid** (1st), **Andika Gunadi** (2nd) and **Hussein Abdullah Ahmed Ahmed** (3rd). Animal presentation awards went to **Evan M. Hill** (1st), **Sepideh Mohammadhosseinpour** (2nd) and **Connor P. Dyer** (3rd). The

special sessions originally planned for Saturday we are now excited to see in the 2021 In Vitro Biology Meeting: “The 15th International Conference on Invertebrate and Fish Cell Culture: Emerging Technologies and Future Directions” and the workshop “Grow with the Flow: Creative Changes on Advanced Flow Cytometry”.

The hard work of the Local Organizing Committee provided many potential opportunities we hope to experience when we return in 2022, including tours of the Plug Connection Lab and the Sanford Consortium for Regenerative Medicine, as well as a visit to the San Diego Natural History Museum and the Maritime Museum of San Diego. Thank you to **Savannah St. Clair** (Co-Chair), **Cecilia Zapata** (Co-Chair), **Kim Hanson**, **Hope Jones**, **Peggy Lemaux**, **Chunsheng Lu**, **Dolendro Nameirakpam**, **Javier Narvaez Vasquez**, **Reid Robinson**, **Sukhpreet Sandhu**, **Norman Senn**, and **David Songstad**.

Through the strong and resourceful efforts of many dedicated individuals the meeting was a success as well as serving as an excellent learning experience for future hybrid meetings.

MICHAEL K. DAME
2020 Program Chair
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PUBLICATIONS

Our Society journals, *In Vitro Cellular & Developmental Biology-Animal* and *In Vitro Cellular & Developmental Biology-Plant*, continue to publish important research related to in vitro biology from around the world. The Publications Committee recognizes the hard work and dedication of **David Songstad** (Editor-In-Chief, *In Vitro Cellular & Developmental Biology – Plant*), and **Tetsuji Okamoto** (Editor-In-Chief, *In Vitro Cellular & Developmental Biology – Animal*). The impact factor for *In Vitro Cellular & Developmental Biology – Plant* increased from 1.454 in 2018 to 1.814 in 2019; and the impact factor for *In Vitro Cellular & Developmental Biology – Animal* increased from 1.645 in 2018 to 1.665 in 2019. Please read the individual journal reports submitted by **David Songstad** and **Tetsuji Okamoto** for more detailed information concerning *In Vitro Cellular & Developmental Biology – Plant* and *In Vitro Cellular & Developmental Biology – Animal*. Both of the SIVB journals had some highlights over the past year. A new Medicinal Plants matrix category was added to *In Vitro Cellular & Developmental Biology – Plant* to promote the PubMed application for the journal. A review article was published in *In Vitro Cellular & Developmental Biology – Plant* to commemorate the life and contributions of **Trevor Alleyne Thorpe**. Springer Nature reported that *In Vitro Cellular & Developmental Biology – Plant* is in the top 25% of qualifying journals for editorial excellence. **John Harbell**, Reviews Editor for *In Vitro Cellular & Developmental Biology – Animal*, coordinated a special issue of *In Vitro Cellular & Developmental Biology – Animal* with an Introduction and historical perspective and eight review articles on the topic of 3D organotypic and organoid culture models. Please remember to support our society journals by submitting a manuscript and serving as a manuscript reviewer.

The Publications Committee has been involved with several initiatives over the past year. The SIVB President, Publications Chair, Treasurer, Publications Committee, SIVB Board of Directors, SIVB Business Office and IAPB are currently working with Springer Nature to renew the publishing contract for *In Vitro Cellular & Developmental Biology – Animal* and *In Vitro Cellular & Developmental Biology – Plant*. The new contract needs to be signed by the end of the year and will go into effect in January of 2022. The Publications Committee is also working with the SIVB Board or Directors, SIVB Business Office and Springer to transfer to a License-to-Publish Agreement, and to transition the SIVB journals to transformative publications and the Open Access System Solution (OASIS) platform.

The Social media presence of the SIVB on Facebook, Twitter and LinkedIn continues to grow. Please support the SIVB by sharing, liking, and commenting on our social media posts. The SIVB Board of Directors has created a Social Engagement Ad Hoc Committee to promote and strengthen the social media presence of the SIVB. Thank you to the following individuals for serving on this ad hoc committee: **Allan Wenck**, **Christopher Bagley**, **Sarbesh Das Dangol**, **Addy Alt-Holland**, **Sylvia Mitchell**, **Michael Fay**, **Marietta Wheaton Saunders**, and **Michele Schultz**.

As Chair of the Publications Committee, I want to thank **Marietta Wheaton Saunders** (SIVB Managing Director) and **Michele Schultz** (SIVB Publications Manager) and the following members of the Publications Committee for their hard work and dedication: **Barbara B. Doonan**, **David R. Duncan**, **John J. Finer**, **Cynthia L. Goodman**, **John W. Harbell**, **Maria M. Jenderek**, **Jiarui Li**, **Sylvia Adjoa Mitchell**, **Tetsuji Okamoto**, **Gregory C. Phillips**, **J. Denry Sato**, **David D. Songstad** and **Dwight T. Tomes**. Remember to talk to your colleagues, students, and postdocs about the SIVB, and encourage them to submit their manuscripts to *In Vitro Cellular & Developmental Biology – Animal* and *In Vitro Cellular & Developmental Biology – Plant*.

IN VITRO – ANIMAL

(For the year 3/1/20 through 2/28/21)



Tetsuji Okamoto
Editor-in-Chief

The journal experienced a decrease (10.2%) in total submissions of new manuscripts over the comparable period last year (413 compared to 460 in 2019–2020).

The numbers of submitted manuscripts for the past year compared to the prior year were: 371 regular papers (433 in 2019–2020), 26 Reports (18 in 2019–2020), 14 Reviews (8 in 2019–2020), and 2 opinion Letters-to-the-Editor (1 in 2019–2020). Of the 413 submissions, 83 were accepted (20.1% acceptance rate), 46 (11.1%) rejected, 51 (12.3%) withdrawn, 61 (14.8% were still in review or revision and 172 transferred to other Springer Publications (41.7%).

Thirty-eight (38) countries were represented in the submissions received in 2020/2021. Eighty-seven percent (87.4%) of submissions were from China (220), Iran (42), India (29), Korea (10), Japan (14), Turkey (16), Brazil (13) and USA (17). Average time

from receipt to first decision in the review process was 2.8 weeks compared to 3.2 weeks overall last year. All new submissions were received through the online system.

The *In Vitro – Animal* journal publishes 10 individual issues at or around page budget levels though slightly below article budget and continues to publish mostly on schedule. The 2019 impact factor for IVA was 1.665, which is an increase from the 2018 impact factor of 1.645, and the 5-year impact of 1.588, which is up from last year's 1.532. More than 95% of the submissions came from outside the US so there is a strong awareness of and a market for *In Vitro – Animal* beyond the US and North American research communities.

In Vitro – Animal continues to publish papers in the areas of biotechnology, cell and tissue models, cell growth/differentiation/apoptosis, cellular pathology/virology, cytokines/growth factors/adhesion factors, establishment of cell lines, product applications, signal transduction, stem cells, and toxicology/chemical carcinogenesis. Submissions to the respective categories in the last year were: biotechnology (83), cell and tissue models (149), cell growth/differentiation/apoptosis (185), cellular pathology/virology (46), cytokines/growth factors/adhesion factors (47), establishment of cell lines (31), product applications (27), signal transduction (65), stem cells (67), and toxicology/chemical carcinogenesis (53).

In 2020, Reviews Editor, John Harbell, organized a special review series on 3D Organotypic and Organoid Culture Models. He arranged for reviews from eight (8) different authors focusing on models of airway, interrogation techniques, intestine, kidney, neuronal, ocular, oral and tumors. This content will be published as the March 2021 issue of the journal.

In the past year several submissions included irregularities (eg. duplication, manipulation or misrepresentation of data) that were discovered by editors, reviewers or readers. IVA will take quick and decisive action in such cases to maintain the integrity of the journal and to retain the trust of its authors.

The editorial board will not review any manuscripts with the iThenticate similarity scores higher than 40%.

IN VITRO – PLANT



David Songstad
Editor-in-Chief

I have completed my first full calendar year as Editor in Chief (EIC) of *In Vitro Plant* and want to thank all the Associate Editors for their support to the journal and timely processing of manuscripts. Thanks also for the many reviewers who take their time to give a critical assessment of the manuscripts submitted to *In Vitro – Plant*. Without your dedication and time, *In Vitro – Plant* would not be in this promising position

for future growth and impact. I also want to thank the past EICs (**David Duncan, Dwight Tomes, John Finer** and **Greg Phillips**) for their encouragement and support. On a personal note, we were all saddened to learn of the death of Trevor Thorpe on May 18, 2020. He was the first EIC of *In Vitro Plant*. I want to thank **Prakash Kumar** for contacting me and organizing the tribute

article in honor of Trevor, which appeared in the last issue of 2020 and titled "Trevor Alleyne Thorpe: His academic life and scientific legacy". Last but not least, I sincerely thank the SIVB Publications Chair **Michael Fay**, SIVB Managing Director Marietta Saunders, and SIVB Publications Manager Michele Schultz for their encouragement and support.

The impact factor for *In Vitro – Plant* increased from 1.057 in 2017 to 1.454 in 2018 and again it increased in 2019 to 1.814. The five-year impact factor has now reached 1.706. The increase in impact factor is likely due to a combination of factors including the improved quality of manuscripts accepted for publication in *In Vitro – Plant* and six of the 71 published manuscripts in 2019 being "open access". I expect this trend to continue in that plans are in place for a Special Issue on Genome Editing to be published in 2021. Manuscripts have already been submitted and I expect 12 to 15 manuscripts in total to be part of this Special Issue. Hopefully this will result in a subsequent "positive bump" in the impact factor, too. However, genome editing is not an exclusive topic for invited reviews. We encourage all Society members to submit a review concerning the subject of your current research or that introductory thesis chapter.

A total of 482 manuscripts were submitted to *In Vitro – Plant* in 2020, which is a slight decrease compared to 2019. Even though there were fewer manuscripts submitted, the number of manuscripts published increased from 71 in 2019 to 90 in 2020. Furthermore, the number of printed pages in the journal increased from 733 in 2019 to 920 in 2020, a 187-page number increase. This is good news, although it is still important to realize that meeting the page count required to publish each issue of *In Vitro – Plant* will continue to be an important challenge. Of those 482 manuscripts, 352 were rejected (slightly over a 73% rejection rate) leaving nearly 27% acceptable for publication. Of the rejected manuscripts, about 28% were rejected for plagiarism, a continuing problem for the journal. Approximately 23% were rejected for technical flaws and another 21% rejected based on novelty. About 10% of the rejections were based on "Out of Scope" and 1% were due to submitting to the wrong journal and were redirected to *In Vitro – Animal*. This leaves 17% of the rejections due to a variety of "other" reasons including submitting a PDF, poor writing, improperly submitted, refused to submit revised version, etc.

In 2020 the top 10 countries were India, China, Brazil, Iran, Turkey, Mexico, USA, Egypt, Pakistan, and Argentina. One of the biggest problems to having a robust journal is the lack of researchers willing to review manuscripts. Please, when asked to review a manuscript do not hesitate to do so. Your effort helps the society, is a perk on your C.V., and helps ensure that when you submit a manuscript there will be reviewers available to quickly assess your work.

Finally, to maintain journal excellence SIVB members are encouraged to publish in *In Vitro – Plant*. Apart from supporting the Society and fellow scientists, there are advantages to publishing in *In Vitro – Plant* such as a rigorous and fair peer review process, free color photograph printing, both online and in the hard copy of the journal, and timely publishing in a respected international journal.

IN VITRO REPORT



Michael J. Fay
Publications Chair
and
Co-Editor-in-Chief



Sylvia Mitchell
Co-Editor-in-Chief

The *In Vitro Report* (IVR) is the quarterly online newsletter for the membership of the Society for In Vitro Biology (SIVB). The Co-Editors are **Michael J. Fay** and **Sylvia Mitchell**, who work together to represent the In Vitro Animal Cell Sciences Section (IVACS) and Plant Biotechnology Section (PB) of the SIVB. The Co-Editors work with **Michele Schultz** (SIVB Publications Manager) to gather content, edit, and publish the IVR. The Co-Editors also receive guidance and support from **Marietta Wheaton Saunders** (SIVB Managing Director), **Tetsuji Okamoto** (Editor-In-Chief, *In Vitro Cellular & Developmental Biology – Animal*), **David Songstad** (Editor-In-Chief, *In Vitro Cellular & Developmental Biology – Plant*), and the SIVB Publications Committee (**Barbara B. Doonan, David R. Duncan, John J. Finer, Cynthia L. Goodman, John W. Harbell, Maria M. Jenderek, Jiarui Li, Sylvia Adjoa**

Mitchell, Tetsuji Okamoto, Gregory C. Phillips, J. Denry Sato, David D. Songstad and Dwight T. Tomes).

Routine articles in the IVR include: The President's Report, Journal Highlights, SIVB Meeting Updates, Feature Articles on SIVB Award Recipients, Public Policy Articles, and Membership News (SciNews, Explants). During the COVID-19 pandemic the IVR has helped to keep our members connected in the absence of in-person meetings. The IVR featured an article on how the pandemic has affected one of our student members and the important role of mentors. We encourage all SIVB members to share their news and accomplishments through the IVR, and do not forget to read the most recent issue of the IVR by clicking on the icon located in the upper right corner of the SIVB website homepage (<https://www.sivb.org/InVitroReport/>). If you have suggestions for improving the IVR, please contact the Co-Editors (mfayxx@midwestern.edu, sylviamithcell.biotech@gmail.com) or the Publications Manager (michele@sivb.org).

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PUBLIC POLICY



Wayne Parrott
Public Policy Chair

The Public Policy Committee is a standing committee of the Society for In Vitro Biology (SIVB). Membership is open to all SIVB members interested in biotech policy, though government regulators only serve on an ex officio basis. The year 2021 should be an important year for policy formulation, so we always welcome interested members!

The Committee assists Society members and the scientific community-at large to better understand in vitro biology, biotechnology and the current research and public policy issues affecting the scientific community. The Committee supports the SIVB to interact with members of Congress and other governmental officials for the purpose of giving scientific advice on funding priorities and other issues relevant to in vitro biology and biotechnology.

December 8, EPA was proposing certain exemptions for the use of plant incorporated protectants via gene editing in plant improvement and is requesting comments from the public. EPA anticipates that these exemptions will result in several benefits, including "lower costs from reduced regulatory burden, increased research, development, and commercialization of pest control options for farmers, particularly in minor crops, and reduced use of conventional pesticides which could provide environmental benefits."

It is the scientific assessment of SIVB that all the proposed exemptions are biologically justifiable and is pleased to see EPA proceed with them. On the other hand, it is the assessment of SIVB that as written, these reforms will largely fail to accomplish the stated goals, because they will be applicable in exceedingly few cases. Furthermore, because the exemptions proposed here are exceedingly narrow, these reforms would not effectively comply with the intent of Executive Order 13874 (84 FR 27899, June 11, 2019) on "Modernizing the Regulatory Framework for Agricultural Biotechnology Products."

There are still other ongoing activities being addressed by the Public Policy Committee, but due to COVID-19 have been put on hold.

Submitted by the SIVB Business Office on behalf of

WAYNE PARROTT

Public Policy Chair.
wparrott@uga.edu

REPRESENTATIVES OF THE SIVB

COUNCIL FOR AGRICULTURAL SCIENCE AND TECHNOLOGY (CAST)



Dwight Tomes
CAST Representative



The Science Source for Food, Agricultural, and Environmental Issues

This past year we've learned the hard way about 'misinformation' or as my Grandmother might have said 'lies', which has dominated public communication in our recent time. No escape and never relenting. What a pleasant alternative it has been to represent SIVB on the Board of Representatives of CAST and enjoy hearing about the latest accomplishments in our scientific area. It's not accidental that the weekly newsletter has this description on the Masthead: "Friday Notes advocates the pursuit of credible, unbiased, science-based information." I confess that I've been actively engaged in learning about science and technology for over fifty years, yes FIFTY years! Never have I observed so much resistance to 'credible, unbiased, science-based information' in our public space while these very characteristics have taken on such value for our scientific community. What a great choice it has been to spend a career in science and technology.

CAST is a strong, persistent advocate for communication to both scientists and those interested in technology. Last year was record setting for the number of publications released by CAST with just a few of these highlighted below. In addition to print publications CAST adapted to travel restrictions with the release of accessible, relevant information with Friday notes (weekly), press releases (monthly), and blogs (weekly). Last but not least has been the effectiveness of Zoom software that got us as close as possible to in person in the variable comfort of our home offices. Yes, the annual meeting was a different experience but it also offered accessibility that excelled and makes us look forward to next year in person.

We have endured a terrible and scary period with COVID-19 as serious as the flu epidemic in 1918—and have repeated many of the same cyclic applications of scientific or alternatively political actions that have delayed our return to more normal personal interactions. This too will pass. And yes, my Grandmother mentioned the deadly toll of the flu in their community in letters to my Grandfather during his military service in 1918-9. Yet, she was optimistic about the future of farming and being together again. Our experience today has shown that rigorous science increases the probability that we will be able to resume our in-person contact more quickly and safely than we thought possible even a few months ago.

The future is bright and we will renew our enthusiasm and optimism because of the work of organizations such as CAST. How fortunate we are to look forward to the work to be done in 2021 and beyond! Suggestions of topics for new publications are welcome—contact me directly or on the website. If you would like to receive CAST news and updates please join the CAST mailing list.

¹CAST FRIDAY NOTES: Agriculture and the Microbiome; Impacto del Principio Precautorio en la Alimentación de las Generaciones Actuales y Futuras (Impact of the Precautionary Principle on Feeding Current and Future Generations); The Importance of Communicating Empirically Based Science for Society; Food Biofortification—Reaping the Benefits of Science to Overcome Hidden Hunger; Ground and Aerial Robots for Agricultural Production: Opportunities and Challenge.

DWIGHT TOMES
CAST representative
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INTERNATIONAL ASSOCIATION FOR PLANT BIOTECHNOLOGY (IAPB)



Randy Niedz
IAPB Representative



Founded in 1963, the International Association for Plant Biotechnology is the largest international professional organization representing the interests of the worldwide plant biotechnology community and has been hosting successful symposia around the world since the early '60s. The current IAPB officers are Prof. Jang Liu, IAPB President and Prof. Donghern Kim, Treasurer. IAPB members span over 89 countries, ranging from industrial to early career scientists. The 15th IAPB Congress will take place in South Korea in 2022. Preparations have already begun.

Randall Niedz has recently taken over the position of the US National Correspondent for the IAPB. Those in the USA who are interested in joining the IAPB may contact him for further information on joining the organization. Members will receive a copy of the IAPB newsletter twice yearly, two issues of the journal, and reduced conference rates for IAPB symposia. IAPB and SIVB work closely together; SIVB members can join and renew their IAPB memberships through the SIVB online store.

DR. RANDALL NIEDZ
US Correspondent, IAPB
randall.niedz@ars.usda.gov

STAY INFORMED & STAY CONNECTED!

In this virtual world, there are so many ways to keep in touch with the SIVB and your fellow members. We welcome your active participation in the organization and encourage you to join us through one or more of these outlets.



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Society for In Vitro Biology

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TREASURER'S SUMMARY REPORT
SOCIETY FOR IN VITRO BIOLOGY
STATEMENT OF FINANCIAL POSITION
December 31, 2020 AND 2019

ASSETS

	Dec 31, 2020	Dec 31, 2019
Current Assets:		
Cash	\$ 417,329	\$ 375,244
Accounts Receivable	21,643	21,287
Prepaid Expense	91,427	45,268
Total Current Assets	530,400	441,798
Other Assets:		
Investments	335,032	250,873
Total Other Assets	335,032	250,873
Total Assets	\$ 865,432	\$ 692,671

LIABILITIES AND NET ASSETS

Current Liabilities:		
Accounts Payable	\$ -	\$ 10,830
Other Accrued Expenses	44	11,552
Deferred Income	54,313	22,952
Total Current Liabilities	54,357	45,334
Net Assets:		
Unrestricted	422,320	304,923
Temporarily Restricted	388,755	342,414
Total Net Assets	811,075	647,337
Total Liabilities & Net Assets	\$ 865,432	\$ 692,671

SOCIETY FOR IN VITRO BIOLOGY
STATEMENT OF ACTIVITIES
FOR THE TWELVE MONTHS ENDED DEC 31, 2020 AND 2019

	<u>Unrestricted</u>	Temporarily <u>Restricted</u>	<u>Total</u>	2019 <u>Total</u>
<u>Revenue:</u>				
In Vitro-Animal	\$ 80,308	\$	\$ 80,308	\$ 131,588
In Vitro-Plant	38,599		38,599	73,663
Newsletter	3,343		3,343	4,662
Meetings	63,406	40,240	103,646	170,110
Horn Endowment Fund contributions				
Administrative	39,409		39,409	66,052
 Total Revenue	<u>225,067</u>	<u>40,240</u>	<u>265,307</u>	<u>446,075</u>
 <u>Program services:</u>				
In Vitro-Animal	10,767		10,767	3,488
In Vitro-Plant	130		130	9,892
Annual meeting	16,685		16,685	141,029
 Total program services	<u>27,582</u>	<u></u>	<u>27,582</u>	<u>154,409</u>
 Supporting services:				
Administrative	<u>39,409</u>		<u>39,409</u>	<u>73,946</u>
 Total expenses	<u>66,991</u>	<u>40,240</u>	<u>66,991</u>	<u>228,355</u>
 Change in net assets before unrealized gain/(loss) on investments	158,075	-	198,315	217,720
 Unrealized gain/(loss) in fair value of investments	<u>(15,929)</u>	<u></u>	<u>(15,929)</u>	<u>11,200</u>
 Change in Net Assets	142,147		142,147	228,920
 Net assets, beginning of year	<u>316,248</u>	<u>331,089</u>	<u>647,337</u>	<u>595,770</u>
 Net assets, end of period	<u>\$ 458,395</u>	<u>\$ 331,089</u>	<u>\$ 789,484</u>	<u>\$ 824,690</u>