SIVB ANNUAL REPORT 2021

SOCIETY FOR IN VITRO BIOLOGY

SIVB.ORG

FOSTERING THE EXCHANGE OF KNOWLEDGE OF IN VITRO BIOLOGY CELLS, TISSUES AND ORGANS

PRESIDENT'S REPORT

I started the previous report that it has been an "interesting year". I wish that I could start this one differently, and I guess I could since it is MY report, but to say differently would be to negate all that has gone on. We have had another year of lock down. We have had another year of virtual meetings. We have had another year of tragedy where so many have suffered loss. COVID-19 has continued to change the way we think, the way we work, the way we interact. Unfortunately, for many, it has changed our lives as we mourn the loss of loved ones, friends, and colleagues.

For the second year in a row and in the continuation of "firsts" in our history, we cancelled our face-to-face meeting. We followed our science and not our hearts. We longed for that connection that comes from our meeting. We are scientists who study In Vitro Biology. But we never forget that we are people who crave connection, sharing and caring. We are not "just" interested in what is happening in the culture vial. We are interested in how that vial impacts society and how we can share amazing discoveries with like-minded — In Vitro — colleagues.

TABLE OF CONTENTS

Allan Wenck
President

I recognize the great advancements that we have made to step up to the current challenges. As president, I have been awestruck by the accomplishments of our members. I have been able to award excellence in societal contribution, but am sure that I have missed tons. The SIVB is, and should be, considered, the main, scientific society for societal impact. When I look towards IVACS, I ask, who else can develop such models to guide policy? When I look toward the Plant Biotech Section, I ask the same. Who better to help society to find sustainable, agricultural and plant-based solutions?

Our 2021 meeting was an amazing success by multiple measurements. The fundraising was stupendous! One could argue that we met all the goals of the Society. Yet, I missed seeing you all. I hope that an outsider looking in would consider my presidency to be successful. I, though, have considered it as a "hand off". I have done my best to make sure that the SIVB has a solid financial standing and will continue. I have done my best to guide us through this "interesting time". I look forward to our guidance under our new president and new, incoming board. I hope that they will finally have "boring" times. I look forward to serving with them in this "boring time" and am sure that they will resurrect the interesting, visionary mode of working that was lost during "COVID time".

Meanwhile, I hope that all of you continue in good health and good science. We are here to be the science. Keep being that clear word of science not only to our Society, but more importantly to the society as a whole. Only by clear, consistent and convincing communication will our society for In Vitro Biology make a positive, sustainable and beneficial impact to the society of the WORLD. This is my goal. We MUST be the ones leading the charge for positive societal benefit from science. I continue to challenge you all to this and encourage you all to continue to challenge me!

Thank you all again for allowing me to be the President for the SIVB. It has been my greatest honor!

ALLAN WENCK
President
allanwenck@yahoo.com.au

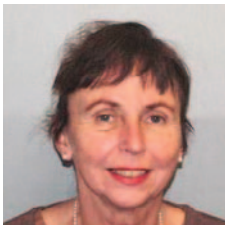
SECRETARY'S REPORT

Sukhpreet Sandhu
Secretary

2021 marks the end of Sukhpreet Sandhu's term as secretary of the SIVB. The Board of Directors continued pursing the ongoing initiatives of the organization. The Board strives to increase the visibility of the Society, attract new members, submit comment on behalf of the Society in response to appropriate governmental bodies, explore venues for future meetings, and address other issues of concern to protect the future of the Society. Elections were held in the fall of 2021 and new Officers will be taking their positions beginning in June of 2022. There are many opportunities to be involved in the Society. If you would like to volunteer to help in any capacity, please contact a board member or a committee chair. Member participation is the best way to maintain an active and healthy Society.

SUKHPREET SANDHU
Secretary
sukhpreet.sandhu@hmclause.com

TREASURER'S REPORT



Barbara B. Doonan
Treasurer

Financially, we are holding our own. The road has been quite bumpy with lots of potholes, but in spite of all impediments, we successfully completed two virtual meetings, 2020 and 2021. As an organization, we can be proud of this accomplishment – we learned a lot in 2020 and were able to apply our newly developed expertise to the 2021 meeting making it even more appealing to all who participated. These successes were due to the collective efforts of Marietta Saunders, our much-valued Managing Director and Meeting Secretariat, our Board Members, the Executive Committee, the 2021 Program Chair, Committee Members, Conveners and meeting participants all pulling together. We knew it was unlikely that we would achieve the financial success of an in-person meeting. Electronic capabilities reigned supreme where costs could be excessive, but with Marietta at the helm, seeking and negotiating the best technical solutions at the best price, our overall financial losses were kept as low as possible. At this time, we are looking forward to an in-person meeting in 2022, taking advantage of the contract negotiated with the Town and Country Hotel in San Diego, when the global onset of SARS-CoV-2, more commonly known as COVID-19, arrived on the scene and altered so much so drastically.

As we all know very well, two mainstays for the SIVB provide maximum financial support. These are the annual meeting and our journals. The journals have continued to provide a solid revenue stream, and our investments have remained on track, showing an increase in value at the end of 2021 in spite of continuing pandemic related effects. Preparations for the 2022 meeting, mentioned above, are currently well under way. However, due to anticipated residual effects of COVID-19, it will be a hybrid meeting, encompassing both the arrangements required for a typical in-person meeting, and, at additional cost, will provide the enhanced technical capabilities needed to create a successful on-demand program (see SIVB website for details).

It is now more important than ever for us to further increase our efforts in a number of directions: (1) bringing in new members and encouraging lapsed members to return, (2) increasing and diversifying fundraising via our personal networking capabilities and by individually taking advantage of donation opportunities such as those offered by AmazonSmile and YourCause, and, (3) becoming aware that we as researchers can play a role in affecting the revenue derived from our journals – by submitting our own manuscripts to *In Vitro — Animal* or *In Vitro — Plant* and encouraging colleagues to do so.

The SIVB is a unique Society, with members from a broad range of disciplines who care deeply about the Society. Together let us do all we can to keep it healthy and growing!

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

BARBARA B. DOONAN
Treasurer
doonanbb210@aol.com

BUSINESS OFFICE REPORT

Marietta
Wheaton Saunders
Managing Director

The Business Office was exceptionally busy in 2021. In addition to the ongoing support of the Society through addressing the day-to-day management of the SIVB's publications, membership, and initiatives from the board and committees, the greatest focus in 2021 was the conversion and management of the 2021 In Vitro Biology Meeting to SIVB 2021: In Vitro OnLine (SIVB's fully virtual annual meeting); planning for the 2022 In Vitro Biology Meeting as a hybrid event; finalizing contracts for future 2023, 2025 and 2029 In Vitro Biology Meetings; establishing a new webinar series as an ongoing member benefit; negotiating new contracts with SpringerNature for the two SIVB journals; reviewing the Social Marketing Strategy for the organization; and managing the organization's website.

As with 2020, a good amount of time was focused on addressing COVID-19 and its effect on the Society, our members, meetings, and publications. We saw slow growth back to "normal" only to be halted as variants surfaced, such as Omicron, often overshadowing any progress the world had made through vaccinations and similar programs. The Business Office worked

tirelessly to continue to find ways to stabilize the organization's health both physically and financially. Meetings in 2021 continued virtually until SIVB held its first hybrid Board of Directors meeting in September with board members participating both in-person and virtually. We continued to revisit contracts for both the current and future meetings as the world situation continued to change. We looked for better ways to engage our membership when we lost the opportunity to meet with each of you face-to-face each June. While we are starting to see a return to a new normal, this is a slow process, so we continue to work toward finding ways to help all members stay connected to the Society in these extraordinary times.

SIVB 2021: IN VITRO ONLINE

The 2021 In Vitro Biology was scheduled to run from June 5–9, 2021 at the Hilton Norfolk The Main in Norfolk, Virginia. Toward the end of 2020, the Business Office was still preparing for an in-person meeting, but as it became clear that we would need to not only look to transition the 2021 meeting to a virtual event but also focus on transitioning it to a more robust program that what we were able to offer in 2020, the Business Office spent the fall of 2020 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 worked 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. The Executive Committee and Board met via Zoom and made the decision to transition the meeting to a fully virtual event with all presentations prerecorded and presented in real time. Some sessions were offered as live streams with speakers on screen answering questions while others had presenters offscreen able to answer questions in real time as their presentations became available. The Business Office worked to rebrand the meeting as "SIVB 2021: In Vitro OnLine" focusing on the concept of the entire program being available in the "palm of your hand."

J. Keith Joung, Keynote Speaker

Included in the livestream programs were the fascinating keynote presentation by **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 who spoke on "Optimizing CRISPR-based Technologies for Targeted Gene Editing" which was followed by the announcement of the Distinguished Service Awards followed by presentations of the Early Career, Fellow, and finally the Lifetime Achievement Award recipients. Also provided live were the four Plenary symposia and the two special all-day Saturday programs: 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." All other symposia and contributed paper sessions were prerecorded and presentations were released in real time for attendees to watch. During their scheduled presentation times, the speakers were available live via the Q&A and chat features of their individual presentations. The Business Office also organized a live Zoom webinar for the session on "Building Partnerships and Resources to Address Transformation Bottlenecks."

Due to the virtual nature of this year's program, all poster authors uploaded a pdf of their research and were able to record an audio description of their work. Formal poster session times were held and attendees could ask questions of the presenters.

In addition, SIVB arranged for a poster gallery which allowed for all poster authors to upload a pdf of their poster and pre-record a 5-minute description of their work. There were scheduled times where the authors were available through the Conference Harvester to address questions from attendees and there were live video chats held for the interactive posters. These chats included a Zoom-like interface where each author was allowed to describe their poster followed by moderated discussion on all the posters presented during that session.

To address individual Society business, the Business Office organized and managed Zoom meetings for most of the SIVB Committees. The IVACS and PB sections held their program planning meetings via Zoom and the Student Committee met with the Education Committee and chose the new Co-Chairs for the 2022 program. We also held the first virtual social events through Remo, an event website which allowed attendees and exhibitors meet and chat casually moving from virtual table to table to catch up. SIVB also held a small exhibition where in addition to the social events, each exhibitor had the ability to provide a 15-minute presentation during an Exhibitor Spotlight session where they could answer questions, and each held a video chat session where registrants could visit them and learn about their products.

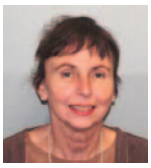
SIVB was pleased to present numerous awards to some very deserving members. Recipients provided acceptance speeches

prerecorded as part of the Opening Ceremony Live Stream and we are looking forward to presenting them with their physical awards this June 2022 when we meet in person in San Diego. During the Opening Ceremony, SIVB presented the 2021 Lifetime Achievement Award to **Cynthia L. Goodman**, PhD, honoring her for the significant contributions she has made during her career. For their support of the Society and its activities, President Allan Wenck honored **Addy Alt-Holland**, PhD, **Pierluigi Barone**, PhD, **Raj Deepika Chauhan**, PhD, **Barbara B. Doonan**, PhD, **John W. Harbell**, PhD, **Evan M. Hill**, **Alperen Ozturk**, **Wayne A. Parrott**, PhD, **Kristina Martinez-Guryn**, PhD, **Angela Labrum**, **Max Jones**, PhD, **Annie Saltarikos**, PhD, **Marietta Wheaton Saunders**, **Michele G. Schultz**, and **Brad L. Upham**, PhD by awarding them Distinguished Service Awards. Additional awards presented during the Opening Ceremony included: 2021 Fellow Awards presented to **Addy Alt-Holland**, PhD and **Vivian R. Dayeh**, PhD, and the 2022 Early Career Award presented to **Daysha Ferrer-Torres**, PhD, and **Jessica L. Rupp**, PhD.

2022 Distinguished Service Awards Recipients

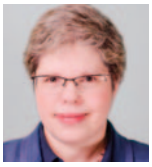

Pierluigi Barone


Deepika Chauhan

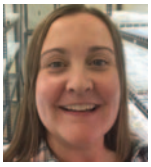

Barbara B. Doonan


John W. Harbell


Evan M. Hill


Addy Alt-Holland


Max Jones


Angela Labrum


Kristina Martinez-Guryn


Alperen Ozturk


Wayne A. Parrott


Annie Saltarikos


Sukhpreet Sandhu


Marietta Wheaton Saunders


Michele G. Schultz


Brad L. Upham

In the end, a highly interactive and interesting virtual event was presented to the registrants.

In advance of the meeting and with the support of the Development Committee, the Business Office submitted a grant to the NSF to support the 2021 program. While the application was in process, the NSF recommended that we work with one of our speakers, **Stanton Gelvin**, to instead arrange for the transfer of funds from his current grant as it fit the needs of both programs. SIVB was awarded funds from Dr. Gelvin's grant and SIVB's submission was withdrawn from the NSF system. Special thanks are due to **Piero Barone**, **Sadanand Dhekney** and Dr. Gelvin for their support in this process.

This is the 20th year that SIVB has offered our Student Initiative Program. We are pleased to encourage the growth of new scientists and through this program we have been able to offer discounted abstract submission fees, free registration to attend the meeting, and free membership to all students the year after they attend the current year's meeting. For SIVB 2021: In Vitro OnLine, students were provided with free registration to attend the online meeting and received free membership in the Society for 2022. 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.

With the promise of this robust program and comfort people had begun to feel with virtual events, attendance for SIVB 2021: In Vitro OnLine was significantly higher than in 2020 with group registration being the largest percentage of our attendees. Final registration came to 536 which included 115 member, 160 group, 12 non-member, 12 research technician, 22 post doc, 132 student, 5 emeritus, 4 guest, and 61 speaker registrants. There were also 5 staff registrants.

The Business Office worked with the Hilton to cancel the 2021 event 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 us in achieving our goal to keep the SIVB in the black for our annual meeting.

The Business Office would like to take a moment to thank all those who worked so hard to make SIVB 2021: In Vitro OnLine successful. While we missed being in person and working with all of our volunteers, we are looking forward to when we can see everyone again face-to-face in June 2022.

2022 IN VITRO BIOLOGY MEETING

While there had been concerns whether we would be able to hold the 2022 Meeting in person, we are pleased to say that we are looking forward to seeing as many of you as possible in person in San Diego at the Town and Country San Diego for the 2022 In Vitro Biology Meeting this June 4–7, 2022. This year's

program looks to offer an exceptional scientific program addressing cutting-edge science and the latest developments in the field in in vitro plant and animal biotechnology, genome editing, machine learning, alternative protein sources, and more.

SIVB members from California and surrounding states agreed to be part of the Local Organizing Committee (LOC). With support from the 2022 Program and Development Committees, they 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. There is a special Design of Experiments workshop scheduled for Saturday evening, June 4 which will kick off this year's scientific program. On Sunday, June 5, **Thomas Hartung**, MD, PhD, Director of the Center for Alternatives to Animal Testing (CAAT) and inaugural holder of the Doerenkamp-Zbinden Endowed Chair in Evidence-based Toxicology in the Department of Environmental Health Sciences at the Johns Hopkins Bloomberg School of Public Health will speak on "Advancing Cell Culture to Meet Scientific and Societal Needs."

We are also pleased to announce the following people have been named as recipients of the 2022 SIVB Awards: Lifetime Achievement Award Recipients, **Shirley A. Pomponi**, PhD and **Kan Wang**, PhD, and Fellow Award Recipients, **Mae Ciancio**, PhD, **Maria M. Jenderek**, PhD, **Kolla Kristjansdottir**, PhD, and **J. Pon Samuel**, PhD. In addition, we are excited to be able to present their physical awards to the 2020 and 2021 Award Winners who have only virtually accepted their awards up to this point.

While we began our plans to hold a traditional in-person meeting, it became clear that even with being able to hold such an event, SIVB would need to look to transition the 2022 meeting and beyond to include some form of hybrid program to allow those still unable to travel to be able to benefit from the program. They met with the production company from 2021 and discussed various hybrid options with Cadmium CD who had supported the 2021 abstract scorecard, speaker data collection systems event website, and mobile app. Based on this research and after discussion with the Executive Committee and the Board, this year SIVB is offering an Exclusive Limited On-Demand Program which will include highlights from the plenary, joint and education programs as prerecorded presentations available two weeks after the end of the live meeting. This content will be available through September 30. The staff has been working with conveners and speakers, reaching out to speakers to gather their abstracts and presentations, and coordinating with Cadmium to prepare the event website and mobile app for use at both the in person and on-demand events. Then after seeing lower than anticipated numbers for abstract submissions, the Board determined that we would update the poster opportunities for this year by creating a Virtual Poster option which allows those unable to attend to submit a poster of their work and record a 5-minute audio describing their research. This addition required adding the Poster Gallery module from Cadmium to the programs SIVB was already utilizing for this event. In addition, it was decided to extend the deadline for authors to submit abstracts for consideration as contributed papers and interactive posters in addition to posters and silent abstracts.

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 2022, students will receive free registration to attend either the live or on-demand annual meeting programs and will receive free membership in the Society for 2023. The Student Program has grown each year with the student members creating their own program based on their needs. If you would like to support the Student Initiative, you can make a huge difference in a student's professional development for only a little cost.

The Business Office spent much of 2021 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 a USDA NIFA grant, an NSF grant, and a funding grant with Regeneron to support the 2022 In Vitro Biology Meeting; 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 prepare a presentation about Michael for the SIVB Annual Meeting program; and assisting the Awards Committee in reviewing requests from board.

2023 IN VITRO BIOLOGY MEETING AND 2024 WORLD CONGRESS IN IN VITRO

As part of the transition of the 2021 meeting into a virtual event, SIVB worked with 2021 hotel to create a new contract to hold the 2023 In Vitro Biology Meeting at their venue. We are pleased to announce that the 2023 In Vitro Biology Meeting will take place from June 10-14, 2023, at the Hilton Norfolk The Main. We are looking forward to meeting with everyone in a new city

that holds new opportunities for the SIVB. Next year's scientific program will run from Saturday through Wednesday, and we are looking to schedule some special events during the meeting. We can't wait for you all to join us back on the East Coast next year.

The Business Office spent much of 2021 reviewing potential venues in multiple cities under consideration to hold the 2024 World Congress. While the World Congresses have historically been held on the West Coast, we are looking into some opportunities to hold the event in other locations that may be closer to our members. Keep your eyes and ears posted for more details once they are set.

MEMBERSHIP

Membership is greatly affected by attendance at our annual meetings. With the uncertainty of 2021 soon after the challenges of 2020, SIVB membership numbers were affected. SIVB's regular and Post-Doctoral membership numbers have stabilized after the drop during 2020, but we are not rebounding in the way we may have hoped. We are proactively looking to find ways to encourage the return of previous members as well as bringing in new members and retaining members who have continued their ongoing relationship 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 2021. Non-member speakers from the 2021 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 offer a new series of webinars called "A Closer Look: Learning from the Past – Considering the Future" with which we hope to encourage members continued involvement with the SIVB throughout the entire year and not just in June.

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 2021 Meeting for members who renewed their membership by December 31, 2020 and are pleased to announce that the winners were: **Vicky Gustafson**, who was awarded with free registration to the 2022 In Vitro Biology Meeting, and **Hong Luo**, who received free 2022 membership. If your 2022 renewal was sent in by December 31, 2021, you could win membership in 2023 or registration to the 2023 In Vitro Biology Meeting. Winners will be chosen during 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 2021, we were saddened to learn of the passing of long-time member **James Lloyd Vaughn**.

In addition to participating as officers and members of various committees, members 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 2021. We acknowledge **Barbara Doonan**, **John and Barbara Harbell**, **Robert and Gale Lawrence Jr.**, 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, 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.

PUBLICATIONS

The Publications Department of the SIVB manages activities supporting the Society's 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.

Much of the focus for the year was on contract negotiations for SIVB's agreements with SpringerNature for both of our journals. In advance of formal contracts, the Business Office negotiated with Springer to determine the terms for the new agreements. Various changes in the market have made previous terms inadequate and significant changes had been made which required extensive review. Once contracts were set, the Publications Committee met to discuss the provided agreements and revisions were requested which the Business Office negotiated with Springer. Final agreements were approved and signed in December 2021.

Springer's focus has transitioned from page budgets to manuscript counts. Since most content is shared online, the physical page count is becoming less important than how many papers are listed in a Table of Contents. The Publications Committee also discussed our journals being transitioned into "transformative" publications, meaning that they are not fully Open Access yet, but are working toward that goal. 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 could not publish with us before.

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 confirm they have not submitted the same work elsewhere, and updating the submission categories that are not included in our journals' matrix and article types.

The Business Office also looked at the current copyright transfer form and were starting to process a transition to a License to Publish (LtP) where the authors will keep ownership of their content but sign an agreement which gives us exclusive rights to publish it. A draft was approved by the Publications Committee which was sent to Springer who was working to create an LtP of their own for all journals they publish. We are currently waiting for Springer to provide feedback on items of concern on the document they prepared. It is hoped that this transition can occur in 2022.

The *In Vitro — Animal* journal's impact factor increased again in 2020 from 1.665 to 2.416, the highest it has been in over 17 years. Some of this increase can be attributed to a revision in how impact factors are generated with Open Access content and these numbers are expected to drop again for 2021 once the transition is complete. Submissions were stable, but unfortunately many were of insufficient quality to allow our journal to publish more articles. Reviews Editor, **John Harbell**, organized a special review series on 3D Organotypic and Organoid Culture Models which was published in 2021 and was available open access for 6 months. Editor-in-Chief, **Tetsuji Okamoto**, accepts suggestions for new special issue topics that would be of interest to our readers.

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.

In Vitro — Plant has significantly improved the impact factor for the journal which rose from the 2019 level of 1.814 to 2.252 in 2020, released in July of 2021. Again, this may be a one-year unnatural boost that is expected to stabilize for the 2021 Impact Factors, but this is their highest Impact Factor since 2004 and shows steady growth for the journal. Due to the efforts of **David Songstad**, the journal met its paper budget for 2020 and issues look very healthy for the 2021 volume.

Published 4 times a year, the *In Vitro Report*, SIVB's online newsletter, is your connection to your colleagues when you aren't at the annual meeting. The publication offers 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 2022 In Vitro Biology Meeting website was released in late July and designed to be clean and easily accessible. The site very mobile and tablet friendly as the formatting is modern and dynamic. The design offers expandable session listings for the program, streamlined content with reminders on each page, and duplicated menus for those who consume content through top or footer menus. Pages also offer links to share any of the pages through your favorite social media.

The Business Office is regularly updating the website content. 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 improve the site. In 2021, the Publications Committee prepared a list of keywords that we are now looking to have added to the site as image alt-text to help enhance the SIVB's visibility to those searching for content that is applicable to our organization's focus.

Social media continues to be one of the essential points of contact with our members, especially with the limitations imposed by the pandemic. The Business Office worked with the newly created Ad Hoc Social Engagement Committee, chaired by **Christopher Bagley**, **Sarbesh Das Dangol**, and **Anissa Belfetmi**, to send out a survey to identify the social channels that are of the most interest to our members. Through this feedback, the Committee approved the creation to of an Instagram page for SIVB, developed a series of posts and content for Instagram, Twitter, and Facebook channels, and has begun to propagate new content through these channels in addition to the content that is regularly provided such as links to published articles news, and membership and meeting reminders. This required setting up a Meta business account to help tie some of the various social channels together and allow for the Committee Chairs to post content directly to SIVB's social media. We encourage you to follow us through your preferred social media outlet and share our posts: **@SIVBiology** for the organization, **#SIVB2022** for the 2022 In Vitro Biology Meeting in San Diego; **#SIVB2023** for the 2023 In Vitro Biology Meeting in Norfolk 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 determinedly to support the SIVB through a very difficult year and continues to guide us into a brighter 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 presence 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 achieve great things.

MARIETTA WHEATON SAUNDERS
Managing Director
marietta@newbeginningsmanagement.com

IN VITRO ANIMAL CELL SCIENCES SECTION

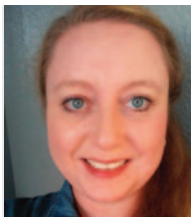
Mae Ciancio
In Vitro Animal Cell Sciences Section Chair

SIVB 2021: In Vitro OnLine was a successful virtual meeting thanks to the hard work and creative talents of Marietta Wheaton Saunders, Michele Schultz, and the Program Committee: Raj Deepika Chauhan (Program Chair), Kristina Martinez-Guryn (IVACS Program Chair), Angela Labrum (PBS Program Chair), Max Jones (PB Sr. Co-Chair), M. Annie Saltarikos (PB Jr. Co-Chair), Brad L. Upham (Education Chair), Evan M. Hill (IVACS Student Co-Chair), and Alperen Ozturk (PB Student Co-Chair). Over 530 registrants attended the virtual meeting from June 5-9, 2021, signifying a unique cross-section of scientists, educators, and students representing universities and industries from around the world.

The **Keynote Speaker** for our 2021 Society for In Vitro Biology virtual meeting was **J. Keith Joung, MD, Ph.D.**, the 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 is a leading innovator in the field of gene editing. His presentation, "Optimizing CRISPR-based Technologies for Targeted Genome Editing," was outstanding.

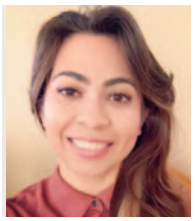
IVACS and PBS sponsored four plenary sessions: Crossing Kingdoms: *Developing and Applying Editing Tools in Animals and Plants*; *Advanced Biological Tools for Biotechnology Applications*; *Epigenetics: Mechanisms and Implications; and Regulations and Transparency: Imperatives for Emerging Technologies*. IVACS-focused symposia included leadership and best practices in commercial laboratories; models of viral-host interactions; application of stem cell technology to the development of tissue-specific organoids; organoids as a model to understand diseases; modulating the gut microbiome and the application of pre- and probiotics for human health; novel applications of biosensors as readouts for environmental monitoring and improving human health; and emerging companies to bring innovative ideas to life. Two IVACS Contributed Papers sessions included 7 thought-provoking presentations. The IVACS poster sessions included 12 interactive posters and 17 regular posters. In addition, 3 silent abstracts were included in the program.

IVACS Oral Presentation Competition Winners



Elizabeth Urban-Gedamke

Renato Aguilera



Stephanie L. Echeverria

Students are an important component of the SIVB meetings, and the IVACS section had 26 student abstract submissions. Addy Alt-Holland and Kolla Kristjansdottir moderated the IVACS Student and Post-Doctoral IVACS Oral Presentation Competition. Mae J. Ciancio, Kristina Martinez-Guryn, Barbara Doonan, Michael J. Fay, John Harbell, Brad L. Upham, Michael K. Dame, and Anissa Belfetmi judged the competition together with the session moderators. **Elizabeth Urban-Gedamke** (Florida Atlantic University) received 1st place for her presentation, "Successful Culture of Marine Sponge Cells Using Multiple 3-D Culture Methods." **Renato Aguilera** (Tufts University) received second place for his presentation, "Multidimensional Tomography of Cells by a Combination of Atomic Force Microscopy and Dynamic Mechanical Spectroscopy." **Stephanie L. Echeverria** received third place for her presentation, "Assessing CCR1 Antagonists for Chemotaxis Inhibition in a Multiple Myeloma In Vitro Model." The student presenters did an excellent job virtually presenting their research as well as addressing questions from attendees. Congratulations to all of them!

IVACS recognizes the tireless efforts of the **2020-2022 team**:

- Mae J. Ciancio – Chair
- Kristina Martinez-Guryn – Vice Chair Meeting Program
- Vivian Dayeh – Vice Chair Membership
- Matt Desrosiers – Secretary.

IVACS recognizes the leadership and dedication of the **Board of Directors**: Allan R. Wenck – President; John W. Harbell – Past-President; Addy Alt-Holland – President-Elect; Pierluigi Barone – Vice President; Barbara Doonan – Treasurer; Sukhpreet Sandhu – Secretary; Michael J. Fay – Publications Chair; Wayne Parrot – Public Policy Chair; Michael Dame, Cynthia Goodman, Todd Jones, Kan Wang – Members-at-large; Raj Deepika Chauhan – 2021 Program Chair. Our Section also

recognizes the IVACS and PBS members who helped to raise funds for the 2021 virtual In Vitro Biology Meeting.

We sincerely thank and appreciate the following sponsors for their generous financial support: BASF Agricultural Solutions Seed US LLC , Corteva Agriscience, Barbara and John Harbell, Beckman Coulter Life Sciences, National Science Foundation, Purdue University Department of Biological Sciences, Stanton B. Gelvin, Bayer U.S. – Crop Sciences, Barbara B. Doonan, Benson Hill, Inc., HMClause, Inc., International Foundation for Ethical Research (IFER), National Anti-Vivisection Society, Pairwise, The Scotts Miracle Gro Company, Robert and Gale Lawrence, Jr., Syngenta Crop Protection, LLC, Agromillora Iberia · Bayer AG, CTC Genomics, Dwight T. Tomes, Inari Agriculture, MilliporeSigma, Plastomics, The Michael E. Horn Endowment Fund.

Special awards and recognitions were given to the following SIVB members and students. **Cynthia L. Goodman** was awarded the Lifetime Achievement Award. **Addy Alt-Holland** and **Vivian Rashida Dayeh** were presented with the Fellow Award. The Young Scientist Award was granted to **Daysha Ferrer Torres** and **Jessica L. Rupp**. Six IVACS members were presented with the Distinguished Service Award: **Addy Alt-Holland**, **Barbara B. Doonan**, **John W. Harbell**, **Evan Michael Hill**, **Kristina Martinez-Guryn**, and **Brad L. Upham**. The following student awards were also presented: **2021 SIVB Cellular Toxicology Award to Samson Gichuki; Gordon Sato and Wally McKeehan Award to Stephanie L. Echeverria; Hope E. Hopps Award to Vartika Srivastava; John S. Song Award to Bretton Hale; and the Wilton R. Earle Award to Uddhab Karki**.

The **2022 In Vitro Biology Meeting** will resume as an in-person format on **June 4–7** at the **Town and Country San Diego in San Diego, CA**. Thanks to the tireless efforts of the leadership team, the 2022 meeting will offer a virtual component for registrants who are not able to travel. The **Keynote Speaker** for the 2022 meeting is **Thomas Hartung**, MD, PhD. Dr. Hartung is the Director of the Center for Alternatives to Animal Testing (CAAT) and the inaugural holder of the Doerenkamp-Zbinden Endowed Chair in Evidence-based Toxicology in the Department of Environmental Health Sciences at the Johns Hopkins Bloomberg School of Public Health. We know that the 2022 SIVB meeting will be outstanding due to the tireless efforts of the meeting leadership and session conveners: Allan R. Wenck (President), Mae J. Ciancio (Program Chair), Kristina Martinez-Guryn (IVACS Program Chair), Max Jones (PB Program Chair), M. Annie Saltarikos (PB Sr. Co-Chair), Ahmad Omar (PB Jr. Co-Chair), Brad L. Upham (Education Chair), Mubeen ul Hasan (IVACS Student Co-Chair), Muneeb Hassan Hashmi (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 R. 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 Vice Chair Meeting; Vivian Dayeh (University of Waterloo) – Vice-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. We are reminded of the continuous need for 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 collaborations among investigators in academics and industry, we can successfully 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 2021 In Vitro Biology Meeting was scheduled to be held in Norfolk, Virginia from June 5–9. Due to COVID-19-related restrictions on in-person gathering and inability of members to travel from different locations, the meeting was transitioned to a fully virtual meeting held in real time with on-demand content available to registered attendees through September 30, 2021. 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 **Angela Labrum** (Program Chair), **Max Jones** (Sr. Co-Chair), and **Annie Saltarikos** (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 SIVB 2021: In Vitro OnLine was **Dr. 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. Dr. Joung gave a talk on Optimizing CRISPR-based Technologies for Targeted Gene Editing." He spoke about how newer CRISPR-based editing

platforms such as base editors and prime editors offer higher precision while minimizing the introduction of double-stranded DNA breaks and provided an overview of his group's recent efforts to advance and optimize these various technologies as well to develop improved methods to more comprehensively define unwanted "off-target" effects of these strategies.

The Plant Biotechnology Section had 41 Plant Symposia Talks, 14 Contributed Papers, 16 Interactive Poster Presentations, 22 Posters and 13 silent abstracts. The plenary and plant symposia included: Crossing kingdoms: developing and applying editing tools in animals and plants; Michael E. Horn Emerging technologies symposium: Advanced biological tools for biotechnology applications; Epigenetics: mechanisms and implications; Regulations & transparency: imperatives for emerging technologies; Grow with the flow: Creative change on advanced flow cytometry; Leadership and best practices in commercial labs; Variables controlling successful gene editing in plant/new tools; Challenges in establishment and micropropagation of woody plant species under in vitro conditions; Plant genome engineering – from lab to consumers; Factors affecting successful transfer of in vitro plantlets to ex vitro condition; Recent advances and applications in single-cell technologies; Transformation of recalcitrant crops using morphogenic or growth-stimulating genes; DOE and quality control in research and commercial micropropagation; Regulation, commercialization, and adoption of gene edited crops; Advances in cannabis regeneration systems and biotechnology; Building partnerships and resources to address transformation bottlenecks; Novel methods in plant transformation using non-agrobacterium techniques and gene editing without integrations of transgene; and Scaling up cannabis production. Additionally, a joint symposium titled and Emerging startups: bringing innovative ideas to life and two plant contributed sessions Gene editing and Micropropagation were also organized as part of the 2021 program.

The plant biotechnology post-doctoral oral presentation competition was moderated by **Carlos Hernandez-Garcia** while participants were judged for their presentations by **Viktoriya Coneva**, **Massimo Bosacchi**, and **Tejinder Mall**. Among the various presenters **Andika Gunadi** was awarded the first prize while **Ayman Eid** and **Dorsaf Kriaa** received the second and third prizes for their excellent presentations. The plant biotechnology graduate student oral presentation competition was moderated by **Alexandre Da Silva Conceicao** and judged by **Pierluigi Barone**, **Maria Soto-Aguilar**, and **Veena Veena**. The first prize was secured by **Brett Hale** while **Trevor Weiss** and **Uddhab Karki** received the second and third prizes respectively for their research presentations.

The Plant Biotechnology Section recognized the following members in 2021 for their outstanding contributions in the field of in vitro biology. **Jessica Rupp** received the Early Career Award and the Distinguished Service Award for 2021 was awarded to **Sukhpreet Sandhu**, **Pierluigi Barone**, **Wayne Parrott**, **Raj Deepika Chauhan**, **Angela Labrum**, **Max Jones**, **Annie Saltarikos**, and **Alperen Ozturk** for their outstanding service to the society over several years.

Plant Biotechnology Student Oral Presentation Competition Winners

Brett Hale

Trevor Weiss

Uddhab Karki

Plant Biotechnology Post-Doc Oral Presentation Competition Winners

Andika Gunadi

Ayman Eid

Dorsaf Kriaa

A number of awards were presented to students for their presentations at the 2021 meeting. **Uddhab Karki** received the Wilton R. Earle Award, **Vartika Srivastava** received the Hope E. Hopps Award, Brett Hale received the John S. Song Award, and **Samson Gichuki** received the Cellular Toxicology Award in recognition of their research presentations.

Certificates of appreciation were presented to the following supporting organizations, Agromillora Iberia, BASF Agricultural Solutions Seed US LLC, Bayer U. S. Crop Science, Beckman Coulter Life Sciences, Benson Hill, Inc., Corteva Agrisciences, CTC Genomics, Inari Agriculture, Inc., Pairwise, Syngenta Crop Protection LLC, The Scotts Miracle Gro Company, Dr. Stanton Gelvin and Purdue University.

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 395 manuscripts were received out of which 300 were rejected for their inability to meet the quality standards of the journal.

The 2022 SIVB Meeting is scheduled to be held in San Diego, California from June 4–7, 2022 at the Town and Country San Diego. The Plant Biotechnology Section Program Committee consists of **Max Jones** (Program Chair), **Annie Saltarikos** (Sr. Co-Chair), and **Ahmad Omar** (Jr. Co-Chair) who have planned an outstanding program encompassing diverse areas of in vitro biology. All members are encouraged to attend in person or participate through the Exclusive Limited On-Demand Program for 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 2021 a successful year despite all the challenges we faced with program organization and implementation.

Prepared by the Business Office on behalf of
SADANAND DHEKNEY
Plant Biotechnology Section Chair
sdhekney@umes.edu

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, ARS, 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**, Manazar Project Foundation, and **Guy Smagghe**, Ghent University, Belgium.

The History Society and Records History Committee nominated and supported the 2022 Lifetime Achievement Award for **Shirley A Pomponi, PhD**, Research Professor, Florida Atlantic University, Special Professor Marine Biotechnology, Wageningen University, Netherlands, and Associate Director, Cooperative Institute for Ocean Exploration, Research and Technology, Ft Pierce, Florida.

Dr. Pomponi, marine scientist and aquanaut was honored for her significant in vitro pioneering, scientific excellence and contributions in marine invertebrate biotechnology, biological oceanography and international marine policy. Her collection of >30,000 marine invertebrate and algae specimens supported the marine natural product drug discovery program at Harbor Branch Oceanographic Institution.

Dr. Shirley A. Pomponi

These marine invertebrate specimens lead to pivotal scientific discovery and achievements to include: development of the first immortalized marine invertebrate (sponge) cell lines; drug discovery of bioactive sponge metabolites supporting the chemical, pharmaceutical and medical industries; and the ultra-structural mechanisms of coral skeleton bioerosion, that has contributed to national and international coral reef restorations. The Lifetime Achievement Award for Dr. Pomponi was generously funded by the Harbor Branch Oceanographic Foundation and Harbor Branch Oceanographic Institute, Florida Atlantic University.

Dr. James L. Vaughn

The History Society recognizes the passing of **James L Vaughn, PhD** (1934–2021). Dr. Vaughn, served as microbiologist, research leader and EPA liaison, United States Department of Agriculture (USDA), Agricultural Research Service (ARS), Biological Control of Insects Research Laboratory (BCIRL). Dr. Vaughn received the 2000 SIVB Lifetime Achievement Award for pioneering work to culture insect cells for the production of insect viruses and application to pest management. Dr. Vaughn and co-workers were the first to successfully grow insect cells in suspension culture. The development of the army worm insect cell line IPBLSf-21 led to scale up and mass production of insect viruses and development of recombinant insect protein technology.

Other notable passings include: **Edmond H Fisher, PhD** (1920–2021), and **Luc Montagnier, PhD** (1932–2022). Dr. Fisher, a biochemist and co-discoverer of reversible protein phosphorylation received the 1992 Nobel Prize in Physiology or Medicine with Dr. Edwin Krebs. Dr. Montagnier, a controversial virologist and co-discoverer of the human immunodeficiency retrovirus (HIV) received the 2008 Nobel Prize in Physiology or Medicine with Françoise Barré-Sinoussi and Harald zur Hausen. Dr. Montagnier promoted conspiracy theory that SARS-CoV-2 was deliberately created and escaped from a laboratory. Such a claim has been rejected by other virologists. Montagnier was criticized by academic community for using his Nobel Prize status to "spread dangerous health messages outside his field of knowledge".

SANDRA L. SCHNEIDER
History and Records Committee Chair
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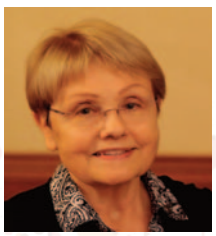
STANDING COMMITTEES



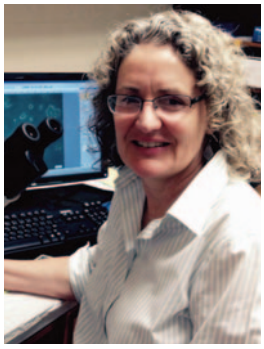
Maria Jenderek Awards Chair

AWARDS

The 2021 Awards Committee included **Mae Ciancio** (Chair, In Vitro Animal Cell Sciences Section), **Vivian Dayeh** (Vice Chair – Membership, In Vitro Animal Cell Sciences Section), **Sadanand Dhekney** (Chair, Plant Biotechnology Section), **Ian Curtis** (Vice Chair, Plant Biotechnology Section), and **Maria Jenderek** (Awards

Committee Chair). After a discussion, in the presence of **Allan Wenck** (President) and **Marietta Saunders** (Managing Director), the Awards Committee made recommendations to the Board of Directors for approval of the 2021 award winners. The Committee would like to thank colleagues who prepared the nominations files and the support letters, your work is truly appreciated. The SIVB has outstanding and devoted members who made the Society a superior organization. Please consider nominating your accomplished colleagues in the coming year. The award criteria are posted on the SIVB website at: https://sivb.org/about-sivb.html Congratulations to the 2021 SIVB Awardees.

Lifetime Achievement Award



Dr. Cynthia Lenz Goodman

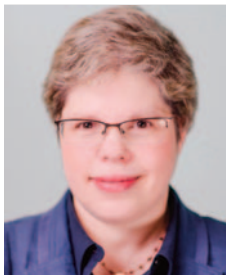
Dr. Cynthia Lenz Goodman, PhD, (IVACS) received the 2021 Lifetime Achievement Award. The scientific career of Dr. Goodman, Entomologist, United States Department of Agriculture (USDA), Agricultural Research Service (ARS), Biological Control of Insects Research Laboratory (BCIRL), spans over 33 years of contributions to the field of in vitro biology and applications to insect cell biology. Dr. Goodman received a doctorate in Entomology, University of Missouri, and undergraduate degrees in Toxicology, University of Kentucky and Biological Sciences, University of Connecticut.

Dr. Goodman pioneered and contributed significantly to the fundamentals of in vitro insect cell biology, development of cellular and molecular baculovirus and insecticide discovery technologies. She established and characterized >40 immortal insect cell lines, developed specialized and serum-free medium and cryopreservation technology to study and propagate insect species and biocontrol agents. Select cell lines produced recombinant viruses and associated proteins, confirming the relationship between virus and protein production. These scientific contributions facilitated the understanding of pest juvenile hormone synthesis, immune response, and toxicity mechanisms, as well as protein antigens recognized by monoclonal antibodies for use in ecological studies. As a contributing scientist and consultant to the agriculture and pharmaceutical industries, she continues to teach and mentor undergraduate and graduate students.

Dr. Goodman's scientific publications include numerous peer-reviewed publications, presentations, technology transfer of licensed and patented insect cell lines. She serves as ad hoc reviewer for prestigious journals and granting agencies, to include: Insect Science, Biological Control, Phytoparasitica, Biotechnology Progress, J. Agric. Food Chem, J. Economic Entomology, Insect Biochemistry and Molecular Biology, J. Invertebrate Pathology, Archives of Insect Biochemistry and Physiology, J. Comp. Physiology B, Comparative Biochemistry and Physiology, J. Experimental Zoology, J. Insect Physiology, Pest Management Science, African Journal of Agricultural Research, Viruses, Agronomy, AAAS Research Competitiveness Service, USDA Competitive Grants, National Science Foundation and the Bionational Agriculture Research & Development Fund (BARD). Her awards include: USDA-ARS-BCIRL Performance and Spots Awards, Hauseman Memorial, Lloyd E Adams and CV Riley Entomological Society Awards, Fellowship University of Kentucky, Fellow Invertebrate Biology, SIVB Distinguished Service Award.

Dr. Goodman has been an active, contributing and dedicated member of the TCA/SIVB since 1990. She has served as Reviewer, Associate Editor of *In Vitro Cellular & Developmental Biology — Animal*, World Congress Scientific Advisory Board, Program Committee, symposium contributor, Officer of the Invertebrate Section (now IVACS), SIVB Board of Directors, and valued member of the Publications and History & Records Committees.

Fellow Awards



Dr. Addy Alt-Holland

Dr. Addy Alt-Holland (IVACS) and **Dr. Vivian Dayeh** (IVACS) received the 2021 Fellow Award.

Dr. Addy Alt-Holland has been a very active scientific contributor to the SIVB and IVACS since 2006 and a very active member since 2010. Addy completed her bachelor's degree (1989), Masters (1991) and Doctor of Philosophy (2002) at Bar-Ilan University, Ramat-Gan, Israel. She completed post-doctoral training at SUNY, Stony Brook in the Department of Oral Biology and Pathology (2003-2004). She moved to Tufts University, Department of Oral and Maxillary Pathology as a Research Associate (2004-2007) and she was promoted to Assistant Professor in the Department of Endodontics at Tufts University School of Dentistry (2007). Her extremely successful research program, teaching success and service to the scientific community led to her promotion to Associate Professor in 2019. Her primary research is focused on non-melanoma human skin cancers. She has 28 highly cited publications and over 129 published abstracts. She is an active mentor of students and professional colleagues. Addy is also active in the Association for Women in Science.

Her service to the SIVB has been considerable. Since giving her first invited paper in 2006, she has organized and convened 19 symposia/plenary sessions at our annual meetings. Since 2014, she has served as the moderator (and judge) for the annual IVACS student and post-doc oral competitions. From 2012–2014, she became the Chair of the IVACS section which gave her full responsibility for program oversight, budget, membership and coordination with the Society's Board of Directors. Addy received the SIVB Young Scientist Award in 2013 and she served as the meeting Program Chair for the World Congress in 2014 which also placed her on the Board of Directors. Finally, she has agreed to serve the six-year term of President-Elect, President, and Past President which started in 2020.

Dr. Vivian Dayeh

Dr. Vivian Dayeh has provided outstanding service to the running of SIVB and to one of the Society's core goals: the fostering of knowledge on the in vitro biology of animal cells. Her contributions began at the 2002 SIVB meeting when she won the Honor B. Fell Award for graduate student research and has continued to the present, as she is currently on the SIVB Education Committee. Her excellence at promoting in vitro biology has been demonstrated in research, teaching and administration.

Dr. Dayeh's research interest has been on the use of fish cell cultures as a replacement for fish in toxicology. Her publications on this topic have been highly impactful, with one research paper and one book chapter from her 2004 PhD thesis being cited 127 and 111 times respectively. Although Vivian's academic position is primarily teaching, she has continued to publish since her PhD and now has 18 articles, with the most recent being in 2020. At her home institution she is sought out for graduate student committees because of her expertise on animal cell lines and cell culturing and her thoughtful and generous way of delivering it.

Dr. Dayeh has been an absolute star undergraduate teacher and has won every teaching award possible at the University of Waterloo (UW). Her teaching has included some of the largest UW classes, ~400 students per lecture but lecturing multiple times for a class of ~1500. She also has developed upper-level courses in toxicology and animal cell biotechnology. The animal cell biotechnology course is all about in vitro biology and is unique in Canada in being at the undergraduate level. The course draws students in from wide range of disciplines, such as chemical and mechanical engineering. Dr. Dayeh is the apostle for in vitro biology at UW.

Dr. Dayeh has also made excellent contributions to the running of SIVB. She has been moderator and co-convenor for several meeting sessions and a member of the education and awards committees. In 2017, she was the recipient of SIVB Distinguished Service Award.

Early Career Awards

Dr. Daysha Ferrer Torres (IVACS) and **Dr. Jessica Rupp** (PB) received the 2021 Early Career Award.

Dr. Daysha Ferrer Torres

Dr. Daysha Ferrer-Torres is an enthusiastic new 2021 SIVB member (IVACS) since her invited speaker participation in the 2020 meeting. In the course of her early career, Dr. Ferrer-Torres has built an impressive resume of both contributions to the scientific community and mentoring experiences. Since receiving her Bachelor of Science degree in 2011 from the University of Puerto Rico, Dr. Ferrer-Torres has dedicated herself to studying the effects of racial disparities on esophageal adenocarcinoma and other related health conditions. In the almost four years since completing her PhD in Cancer Biology under the mentorship of Dr. David Beer at the University of Michigan in 2017, she has isolated 60 patient-derived human esophageal cell lines from normal, Barrett's, and cancerous tissues.

She has been published in peer-reviewed journals, including Nature Genetics, Nature Protocols, and Gastroenterology, twelve times over her career with two further manuscripts in preparation and one in revision. In addition to her published works, she has given many poster presentations and oral presentations for both SIVB and the National Cancer Institute. Dr. Ferrer-Torres has received numerous awards such as Rackham Merit Fellowships from the University of Michigan from 2012 until present, Ruth L. Kirschstein National Research Service Awards, the honor of 2019 University of Michigan Cancer Biology Distinguished Alumnus, and a partnership with the Yale Ciencia Academy as a fellow since 2016. She currently has a T32 fellowship with the University of Michigan Center for Cell Plasticity and Organ Design.

She has been involved with SIVB since 2020 as an invited plenary speaker, and was a session co-convener for SIVB 2021: In Vitro OnLine. In addition to her current post-doctoral fellowship with Dr. Jason Spence, she has a consulting position with the University of Puerto Rico aiding them in setting up a GI organoid biobank from inception. This position has given her the opportunity to mentor multiple junior faculty members in the field of in vitro biology research while her time at the University of Michigan has granted her the opportunity to mentor three undergraduate students, two graduate students, and a medical student. She has also gained teaching experience as a genomics laboratory instructor at the University of Puerto Rico and by organizing the Student Cancer Biology Journal Club at the University of Michigan. However, her primary focus has been on addressing the distinct modeling gap in human esophageal research. The modeling system that she has developed recapitulates the human esophagus down to the single cell level and is capable of maintaining race-specific responses to carcinogens, reflecting disease racial demographics. Her contributions to the field, while notable, are just beginning as she continues to ask questions about the progression of esophageal adenocarcinomas.

Dr. Jessica Rupp

Dr. Jessica Rupp started contributing to plant biotechnology and the Society as an assistant professor at Montana State University since receiving her PhD in 2015 and continues now as an assistant professor at Kansas State University. She is a member of the Department of Plant Pathology and has worked on various pathogens and biotechnological control of pathogens in wheat, sugar beet, lentil and potato. Her major scientific accomplishments include identifying and studying new pathogen isolates in wheat and sugar beet, as well as developing strategies for dealing with these pathogens. Along with her collaborators at Kansas State University, she is a leader in the area of wheat virus identification and resistance working on RNAi- and CRISPR-based approaches to virus resistance. Her 2019 paper in "Plant Disease" garnered much interest and was listed as one of the "top 10 most downloaded papers of 2019" in

that journal. Even though this is a relatively new paper, there are over 10 citations of that publication so far. Her most cited paper is one of her first on RNAi-mediated resistance to wheat streak mosaic virus in wheat and was published in *In Vitro Cellular and Developmental Biology – Plant*. She is also one of the few young scientists who is an inventor on multiple issued US patents, which take more time than scientific publications to complete. Jessica has also worked on improvements in pinto bean tissue culture and transformation and developed international industry collaborations with SESVanderHave for the use of RNAi and CRISPR in sugar beet to solve key virus problems. Although most would still consider Jessica to be a young scientist, she publishes on a broad array of plants and plant pathogens and seems to have a diverse background in plant pathology and biotechnology. However, there is a clear emphasis and focus on virus identification and control in wheat using RNAi approaches. Jessica is still in the early part of her career but her clear productivity across broad discipline areas, with a focus on RNAi for control of wheat viruses, indicates that she will continue to be a major scientific contributor in plant biotechnology for years to come.

STUDENT AWARDS

Pamela Weathers
Student Affairs Chair

The evaluating committee this year consisted of Pam Weathers (Chair), Vivian Dayeh, Piero Barone, 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. Due to the ongoing pandemic and transition to a completely virtual meeting, there was no in person meeting and thus no need to travel, so no SIVB Travel Awards were made. Several other awards also were not made because there were so few student applicants mainly due to the pandemic.

2021 Student Award Recipients

Uddhab Karki

Samson Gichuki

Vartika Srivastava

Brett Hale

Stephanie Echeverria

The following awards were presented at the 2021 virtual meeting. The **Wilton R. Earle Travel Award** went to **Uddhab Karki**, from Arkansas State University, Jonesboro, AR for, "Generating Cell Wall Deficient Plant Cells for Enhanced Recombinant Protein Production". The **Cellular Toxicology Award** was presented to **Samson Gichuki**, Morgan State University, Baltimore, MD for work entitled, "Zero-valent Iron Nanoparticle-induced Reactive Oxygen Species in *Fremyella diplosiphon*, a Biodiesel-Producing Cyanobacterium." The **Hope E. Hopps Award** was given to **Vartika Srivastava** of the Indian Institute of Technology Guwahati, Department of Biosciences and Bioengineering, Guwahati Assam, India for work on "Enhanced Production of Bioactive Protoberberine Alkaloids from *In Vitro* Cultures of *Tinospora cordifolia* (Willd.) Miers ex Hook F. & Thoms." The **John S. Song Award** was given to **Brett Hale** of Arkansas State University, Jonesboro, AR for "Induction of Totipotency and Non-gametophytic Morphogenesis within the Soybean Microspore." Only 1 **Gordon Sato and Wally McKeehan Award** was made in 2021 and it was to **Stephanie Echeverria**, Midwestern University, Downers Grove, IL for "Assessing CCR1 Antagonists for Chemotaxis Inhibition in a Multiple Myeloma in Vitro Model.". There was no **Philip R. White Award**. The committee did not make a White award because that award is for training. If a student did not in the past go to any specific lab for training but did attend the meeting (in person) and present their work, then we decided that attendance and participation in the SIVB annual meeting met the award requirements. This year in-person attendance was not possible, so we were unable to justify making that award. The **Joseph F. Morgan Award** can only be given to a Canadian student and in 2021 there were no Canadian applicants, so no award was made. The **Honor B. Fell** Award was not presented as there were no qualified animal applications.

Certificates were presented virtually at the SIVB June 2021 Business Meeting to honor these exceptional students.

MARIA M. JENDEREK
Awards Committee Chair
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PAMELA J. WEATHERS
Student Affairs Committee Chair
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CONSTITUTION AND BYLAWS

Michael Kane
Constitution and Bylaws Chair

The SIVB Constitution and Bylaws Committee serves to review all requests by the Board of Directors for amendments to the Constitution or Bylaws of the Society. The 2021 committee members included **Michael Kane** (Chair), **Kathy Kamo**, **Lucy Lee**, **Addy Alt-Holland** and **John Harbell**. In 2021, a proposal, originated by the Education Committee, was received to review making a Bylaws revision automatically making the Chairs of the Student Ad Hoc Committee (ie. student representatives) members of the Education Committee. This proposal was withdrawn for additional discussion.

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 with your thoughts.

MICHAEL KANE
Constitutions and Bylaws Committee Chair
mkane92@gmail.com

DEVELOPMENT

Pierluigi Barone
Development Chair

The Development Committee helps to secure financial support for the Society and its annual meeting. The 2021 Development Committee consisted of the following members: **Addy Alt-Holland**, **Max Jones**, **John Harbell**, **Allan Wenck**, **Marietta Wheaton Saunders**, **Sadanand Dhekney** and **Piero Barone** (Chair). Fundraising for the 2021 meeting generated $113,914 in contributions including IVACS and PBS sections. This is an approximately $15K increase from the previous year! The companies and organizations that contributed to the 2021 In Vitro Biology Meeting include: Alternatives Research and Development Foundation, Agromillora Iberia, BASF Plant Science, Bayer Crop Science, Beckman Coulter Life Sciences, Benson Hill, Corteva Agriscience, CTC Genomics, HM Clause, Inari Agriculture, Michael Horn Endowment Fund, Millipore Sigma, National Anti-Vivisection Society/International Foundation for Ethical Research, Pairwise, Plastomics, Robert and Gale Lawrence, Syngenta Crop Protection, The Scotts Miracle-Gro Company. We are also grateful to Prof. Stanton Gelvin and Purdue University for contributing to the 2021 funding with a NSF grant. The Committee extends special thanks to these individuals that not only are contributing their time to Society as officers, but they also providing financial support for the 2021 meeting: **Barbara Doonan**, **Barbara and John Harbell**, and **Dwight Tomes**. The Committee is vigorously pursuing alternative sources of funding and great efforts are being made to secure future grants to support student initiatives, workshops, and cutting-edge sessions for the annual meeting. If you have any ideas of alternate sources of funding, please contact next year's Committee Chair, Michael Dame.

PIERLUIGI BARONE
Development Committee Chair
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EDUCATION

Brad L. Upham
Education Chair

The 2021–2022 Education Committee was chaired by **Brad Upham**, Michigan State University and was comprised of the following members: **Osameh Atiya**; **Piero Barone**, Corteva Agriscience; **Daniel J. Barnes**, Mississippi State University; **Raj Deepika Chauhan**, Pairwise; **Mae Cianco**, Midwestern University; **Rakhi Chaturvedi**, Indian Institute of Technology Guwahati; **Yinghui Dan**, Virginia Polytechnic Institute and State University; **Vivian Dayeh**, University of Waterloo; **Cindy Goodman**, USDA, ARS, BCIRL; **Addy Alt-Holland**, Tufts University; **Michael E. Kane**, University of Florida; **Sylvia Adjoa Mitchell**, University of the West Indies; **Ahmad Omar**, University of Florida; **Alperen Ozturk**, Omer Halisdemir University; **Valerie C. Pence**, Center for Conservation and Research of Endangered Wildlife Cincinnati Zoo & Botanical Garden; **Terry Riss**, Promega Corp.; **Jessica L. Rupp**, Kansas State University; **J. Denry Sato**; Carol M. Stiff, Kitchen Culture Kits, Inc.; **Pamela Weathers**, Worcester Polytechnic Institute; **Allan Wenck**, Syngenta; and **Margaret M. Young**, Elizabeth City State University. The 2022 program student Co-chairs elected during the 2021 Student and Education Committees meeting are: **Muneeb Hassan Hashmi**, PB Student Co-Chair, and **Mubeen ul Hasan**, IVACS Student Co-Chair.

Muneeb ul Hasan
Student Co-Chair

Mubeen Hassan Hashmi
Student Co-Chair

The Flow Cytometry workshop initially scheduled for the 2020 World Congress Educational program was held as a livestreamed program during SIVB 2021: In Vitro OnLine on Saturday, June 5, 2021. Convened by **J. Pon Samuel** and **Jeff Beringer** and supported by **Beckman Coulter Life Sciences**, this year's "Grow with the Flow! – Creative Changes in Advanced Flow Cytometry for the 21st Century" workshop focused on various advanced areas in flow cytometry with specific biological applications for the current decade and beyond. Experts presented and were available for discussions on these advanced topics with a key emphasis on sorting, using advanced instruments such as the benchtop sorter and updating single cell and nuclei characterization using flow cytometry. Also, presentations on technology updates and Flow Cytometry best practices were discussed. The workshop included time for questions and discussion with world-class experts including Dr. **Jim Leary**, who invented high-speed and ultra-speed sorting and Dr. **David Galbraith**, author of multiple flow cytocytometry-based protocols for genome sizing and ploidy. The workshop's highlight was the demonstration of cell sorting using the brand-new benchtop sorter, CytoFlex-SRT. During the workshop, experts were available to answer questions on the capabilities of the technology and the equipment, and guide attendees on the characterization of plant single cells and nuclei and any other relevant topics of interest to the workshop participants.

The 2021 Student Program was comprised of a symposium entitled, "RNA Sequencing and Machine Learning: Experimental Design, Sample and Library Preparation, Sequencing and Data Analysis." This session discussed how RNA sequencing (RNA-seq) is the state-of-the-art technique for transcriptome analysis that uses high-throughput next generation sequencing NGS) on a broad scale. RNA-seq enables a wide range of applications including novel gene discoveries, differential expression and functional gene analyses, and quantification of gene transcripts. The typical workflow consists of experimental design, sample and library preparations, sequencing, and data analysis. This workshop aimed to provide students with the pertinent information to make the best decisions while designing their

RNA-seq experiments, including the basics of NGS, different methods and commercial products, and new and emerging technologies, including single-cell RNA-seq.

The Student and Education Committee Meeting was held on Tuesday, June 8 during the Annual Meeting, and included discussion on the 2022 Program and the election of the 2021 Student Co-Chairs.

The Education Committee has been very active this year. As committee chair, Brad Upham, routinely met with the two student representatives, Muneeb Hassan Hashmi and Mubeen ul Hassan, and assisted them with organizing their activities for the annual 2022 meeting in San Diego. A survey was sent out to the students of SIVB to determine topics of greatest interests. The results of the survey led to organizing a workshop on "State-of-the-Art Cell Imaging Technologies" and a luncheon, on "Research Proposal and Grant Writing". The co-conveners of the "The Art and Science of Cell Imaging" animal symposium, Cindy Goodman and Deborah Esposito also assisted the students in organizing their workshop. The Education and Student Committee Chairs would also like to thank those who helped to plan and execute the successful student and education programs at the 2021 Meeting that had to be converted into a Virtual Meeting, especially Student Co-Chairs, Evan Hill and Alperen Ozturk, and look forward to sharing the 2022 Student program.

The Education Committee (EC) met three times during our last term (August 16, 2021, October 1, 2021, February 22, 2022). We discussed and began implementing a strategic plan for the next several years. We identified three major focus areas, each with a subcommittee. These committees are the following: **1. Webinar Coordination**, **2. SIVB Educational Electronic Resources**, and **3. Student Mentorship Development**.

1. Webinar Coordination: The intent of the Webinar Series is to provide meaningful educational activities for SIVB members in between our national meetings. We recognized this as an activity of wide interest in SIVB and will provide three annual webinars with one directed to the Plant Biotechnology (PB) section, and another to the in vitro animal cell science (IVACS) section and a third with mutual interests to both sections. Independent of the EC, the Plant Biotechnology section organized a webinar on April 28, 2021, titled "Plant genes important for T-DNA Trafficking and integration in plant cells" presented by Dr. Stanton Gelvin from Purdue University. The EC has resumed the responsibility of the Webinars and organized the following three webinars: **a.** *"Tumor evolution as a window into prostate cancer treatment resistance"* presented by Dr. Adam Sowalsky from the National Cancer Institute on October 26; 2021; **b.** *"Receptor-targeted next-generation bioengineered probiotics to improve gut health and prevent infectious disease"* presented by Prof. Arun K. Bhunia from Purdue University on January 26, 2022; **c.** "Plastid engineering: an alternative strategy to the genetic improvements of plants" presented by Dr. Jeffrey Staub, Founder and Chief Scientist of Plastomics Inc. on April 2, 2022. We thank Addy Alt-Holland, Ahmad Omar, Rakhi Chaturvendi, Ian Curtis, and Deepika Chauhan for their efforts in organizing these Webinars with the assistance of Marietta Wheaton Saunders. **Deepika has agreed to temporarily chair** this sub-committee until we find a replacement. We reach out to all who would be interested in being part of this committee. Student participation is strongly encouraged to assist in organizing these webinars.

2. SIVB Educational Electronic Resources: Providing educational resources, especially to our student members, members and outreach to the professional communities has been an important function of SIVB. This subcommittee is being **chaired by Denry Sato** with the mission to continue building on our educational electronic resources. Denry has assessed the current inventory and sent out a survey to request feedback from the society on developing new electronic educational resources. We also recognize that many of in vitro electronic resources are publicly available, and this subcommittee will work with our existing webpage administrator to provide these links to our members on an organized, copyright approved webpage format. We also discussed developing our own YouTube video links of interest to SIVB members, particularly students, in areas not presently available to the public. We urge further input and volunteers to assist Denry in this effort and particularly encourage our student members to be part of this effort.

3. Student Mentorship Development: One of the strengths of SIVB is our long track record of providing excellent mentoring to our students and early-stage professionals. This subcommittee is being ***chaired by Addy Alt-Holland*** with the mission to seek additional opportunities and mechanisms to further build on the strengths and traditions of our Society in providing mentoring. Mae Ciancio, Piero Barone and Brad Upham have agreed to assist Addy in this effort, but we are encouraging additional members, including students, to be part of this important mission. As noted, we have a tradition of mentoring in our society, and one of our identified efforts is to highlight some of these testimonials in our "SIVB In Vitro Report", thus we would also love to hear about your personal experiences of mentorships in the SIVB.

Again, the Education and Student Committee Chairs thank everyone for all their efforts in executing and expanding the educational programs of our society over the last year. We are excited in welcoming the new student chairs to be elected at this year's meeting, and also welcome and encourage our members, including students, to be involved in the future efforts of the Education Committee. Please contact Brad Upham on your willingness to join the education committee.

BRAD L. UPHAM
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LONG RANGE PLANNING

Addy Alt-Holland
Long Range
Planning Chair

SIVB Long-range Planning Committee Charge and members: Chaired by the SIVB President Elect, 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 consists of long-term and new SIVB members from the PB and IVACS Sections, with experience in academia, industry and law. The Committee met on June 3, during SIVB 2021: In Vitro OnLine, SIVB's Virtual Meeting. Committee members include: **Addy Alt-Holland (Chair)**, **John Harbell**, **Allan Wenck**, **Dwight Tomes**, **Nancy Reichert**, **Kolla Kristjansdottir**, **Brad Upham**, **Kenneth Kandaras**, **Terry Riss**, **Michael Fay**, **Michael Dame**, **Maria Jenderek**, **Vivian Dayeh**, **Jeff Beringer**, **Harold Trick**, and **Marietta Wheaton Saunders**.

SIVB Strategic Plan overarching goal: To expand, convey and promote the embedded knowledge and experience of in vitro science. The SIVB's Mission, Vision, and Strategic Plan were established by an instrumental work of previous SIVB Presidents, Board Members, and members. At the 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. *Ensure 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. *Ensure continuity of the activities of the Society.*

Continued implementation of the SIVB Strategic Plan priorities under current global changes and uncertainties. The COVID-19 pandemic brought upon us multitude personal and professional challenges, regardless of our career stage, research field, and areas of interests. It also created unprecedented challenges for scientific societies, organizations and institutions, including restrictions in national and international travel approvals and capabilities, significant budget limitations in both academia and industry, and a necessity for the transition to virtual meeting formats. SIVB members, leadership and management office stepped up to the challenge, and both the 2020 World Congress on In Vitro Biology and SIVB 2021: In Vitro OnLine were successfully conducted as virtual meetings. It is imperative that we continue generating creative ways to implement the SIVB's Strategic Plan, benefit our members, stay engaged, and create new opportunities to ensure further, long-term growth of the SIVB. The LRP Committee discussions and activities focused on the main challenges for implementation of the Strategic Plan priorities, foreseeable complexities, and ways to address them:

1. Cross-committees communications: The LRP Committee continued to foster and engage cross-committees communications between the Chairs of the different SIVB committees. While each SIVB committee is working on its specific charges, the challenges and opportunities that each committee addresses are informative and beneficial to the discussions of other committees.

2. Professional development of students and post-docs: The SIVB supports diverse student-based activities during our annual meetings. The LRP Committee continued discussions on ways to encourage students and post-docs to attend SIVB meetings, realize the SIVB as their "Home Society", and promote their transition into active, long-term SIVB members. Creating leadership opportunities for students/post-docs during the meetings, such as the Student Co-Convener role, and emphasizing the importance of these roles as stepping-stones in their career development and leadership experience, is key. We also need to continue promoting the significance of mentorship capabilities and opportunities in our Society.

3. Membership retention, engagement and recruitment, and Ad Hoc Committee on diversity equity and inclusion: With an input from the Membership Committee Chair, the LRP Committee continued discussions on ways to increase membership recruitment and retention, not only of students and post-docs, but also of regular members from academic, industry, government and regulatory institutions, and other organizations. Discussions also addressed the steps to establishing a Committee on Diversity, Equity, and Inclusion (DEI) in addition to its activities and directions.

4. The importance of the SIVB's In Vitro Report (IVR): The official online publication of the SIVB is an engaging platform for information about SIVB meetings and news, member publications and activities, as well as accomplishments of students and members. The LRP committee continued to discuss ways to leverage the IVR as means to engage all SIVB members to contribute to our Journals and annual meetings, and become more active, long-term members of our Society.

5. Increasing awareness and visibility for the SIVB organization and activities: Allan Wenck, the SIVB President, established an Ad Hoc Social Engagement Committee, which is Co-Chaired by members of both sections of the SIVB. They are active on social media, and highly motivated to work with the SIVB Management Office and the Board of Directors on increasing SIVB's presence and the activity of SIVB members on multiple social media platforms.

6. Challenges and opportunities in future SIVB conferences: The LRP committee discussed the benefits, limitations and implications of conducting the SIVB annual meeting in an in-person, hybrid in-person/online, or virtual format in 2022 and beyond. The discussion also focused on identifying and further building on topics in which the SIVB can become a known leader, as our Society can bridge between researchers, innovators, and government regulators in emerging fields of research. The inclusion of topics that are important to both PB and IVACS sections, as well as to academic, industry, government institutions and sectors was discussed and addressed in the scientific program of the 2022 meeting.

It is clear that remote access technology became essential, and that virtual teaching, working, and meetings are going to be around for the foreseeable future. Incorporating this technology in webinars and other SIVB activities year-round will complement our annual meetings and help to increase our visibility, outreach, and engagement opportunities with members and organizations from around the globe. Doing so is key for the continued development of the SIVB and its long-term sustainability. The immense efforts and dedication of those who were involved in SIVB 2021: In Vitro OnLine and the "Closer Look – Learning from the Past Considering the Future" webinar series are commendable. I look forward to our next SIVB meetings and the continued growth of our Society.

ADDY ALT-HOLLAND
Long-Range Planning Committee Chair
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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 Rutzky**; 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 history of the immortal HeLa cell line, derived from the cervical tissue of Henrietta Lack and used in the 1950s by Jonas Salk to test the first polio vaccine, continues to plague the research and legal communities. In October 2021, decades after the fact, the estate of Henrietta Lacks sued Thermo Fisher Scientific for commercialization of her cervical cancer cells. The suit claims that the tissue for a cancer diagnosis was taken without Henrietta's consent or providing compensation to her or her estate. In Moore v Regents of the University of California, the California Supreme Court held "that individuals do not have rights to a share in the profits earned from commercial products or research derived from their cells. However, in Moore, the patient consented to having tissue taken for his cancer diagnosis. Thermo Fisher has asked that the suit be thrown out of federal court. ***See:*** **Gold, Michael** (1986). A Conspiracy of Cells. One Woman's Immortal Legacy and the Medical Scandal It Caused; **Skloot, Rebecca** (2010). The Immortal Life of Henrietta Lacks. New York, Crown Publishers.

Over two years ago the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission was declared a world-wide pandemic. The March 11, 2022, special issue of Science Vol 375 (6585) explores and reflects on COVID-19 transmission, lessons learned, immunology, immunopathology, policy, vaccine distribution and therapeutic technologies. The Science issue highlights the international scientific community's achievements, response and understanding to this mutating viral transmission. <http://www.science.org/toc/science/375/6585>.

SANDRA L SCHNEIDER
Laboratory Materials and Biosafety Committee Co-Chair
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Vivian Dayeh
Membership Chair

MEMBERSHIP

SIVB membership is crucial to the continued success and future prospects of our society. We are pleased to report that in 2021, there was an increase of 3.67% for all membership and a 2.26% increase in Regular members compared to end-of-year membership counts in 2020. We had 423 members as of the end of 2021, which included 72 Emeritus members, 2 Honorary members, 8 Life members, 8 Postdoctoral members, 107 Student members, and 226 Regular members. Student membership grew the most, while Regular members and Postdoctoral also increased.

SIVB's Business Office has been working hard to promote the membership in our society, but we need your help! Each of us can contribute to our society's growth by recruiting colleagues who would benefit from joining. To help recruit new members, the SIVB has the Member-get-a-Member program to encourage you, our current members, to help grow the organization. It's easy: simply refer a colleague who may benefit from SIVB membership by filling out the referral form (https://sivb.org/ membership/membership-referrals.html). This program benefits everyone! The SIVB will enter you into a drawing for a gift card, and the new member will get $10 off their membership dues. Another way you could help is to bring a colleague to the SIVB meeting and encourage them to join.

In 2020, the SIVB introduced a 2-year membership option and it has gained traction since then. Members who sign up for a 2-year membership save money and do not need to worry about membership renewal. We are pleased to inform you that 28 members have taken advantage of the option for 2020-21, as well as 32 members for 2021-22. Don't miss out on your renewal period with this great tip! When you renew your membership next year, will you take advantage of this excellent opportunity?

Do you know that the SIVB offers Life Membership? This type of membership is available to Regular members and is a one-time payment. If you are a Regular member and would like to become a Life member of the SIVB, contact the SIVB Business Office (marietta@newbeginningsmanagement.com). We would be happy to help you become a Life member.

Prizes are one of the benefits of renewing membership before December 31st of the prior year. The winners of the 2021 competition were **Vicky Gustafson**, who won free registration to the 2022 SIVB meeting, and **Hong Luo**, who won free 2022 membership. By renewing for 2023 by December 31, 2022, you could win a 2023 membership or registration to the 2023 annual meeting. It's important to renew before the end of the year, and we hope you'll consider this opportunity!

The SIVB offers many benefits to its members and we encourage all members to get involved in the Society. Network with colleagues and spread the word about our great organization. Now is the perfect time for you to shine in our Society. If you currently aren't involved, but would like to be, reach out and take a member to get involved. Your participation will strengthen our Society.

VIVIAN DAYEH
Membership Committee Chair
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NOMINATING

John Harbell
Nominating Chair

The 2022–2024 election was held in the fall of 2021. The final slate for all offices was determined and approved by the board so candidates could be approached for their biosketches and platform statements. The results of the election are listed below:

- *President-Elect, 2022–2024 –* ***Pierluigi Barone***
- *Vice President, 2022–2024 –* ***Addy Alt-Holland***
- *Secretary, 2022–2024 –* ***Mae Ciancio***
- *Treasurer, 2022–2024 –* ***Barbara Doonan***
- *PBS Member at Large, 2022–2026 –* ***Hong Lou (4-year term)***
- *IVACS Member at Large, 2022–2026 –* ***Kolbrun (Kolla) Kristjansdottir (4-year term)***
- *Publications Chair, 2022–2024 –* ***Michael Fay***
- *Public Policy Chair, 2022–2024 –* ***Wayne Parrott***
- *Awards Chair, 2022–2024 –* ***Dwight Tomes***
- *Constitution and Bylaws Chair, 2022–2024 –* ***Michael Kane***
- *Education Chair, 2022–2024 –* ***Brad Upham***

PLANT BIOTECHNOLOGY SECTION OFFICERS

- *PB Chair, 2022–2024 –* ***Jessica Rupp***
- *PB Vice Chair, 2022–2024 –* ***Veena Veena***
- *PB Secretary-Treasurer, 2022–2024 –* ***Christopher Bagley***

IN VITRO ANIMAL CELL SCIENCES SECTION OFFICERS

- *IVACS Chair, 2022–2024 –* ***Kristina Martinez-Guryn***
- *IVACS Vice Chair (Meeting), 2022–2024 –* ***Ken Kandaras****
- *IVACS Vice Chair (Membership), 2022–2024 –* ***Vivian Dayeh***
- *IVACS Secretary-Treasurer, 2022–2024 –* ***Debora Araujo Esposito***

** Daysha Ferrer Torres was originally elected to this position but requested to withdraw of personal reasons*

The next election will be held in the fall of 2023 and the Nominating Committee will be chaired by the Past President Allan Wenck. The committee is always looking for input from the members and so some details of the process are provided below.

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.

If you are interested in running for a position this fall for the 2024–2026 Offices, please reach out to your Section Chair or the Nominating Committee Chair to let them know for what position you are interested in running. We hope to hear from you!

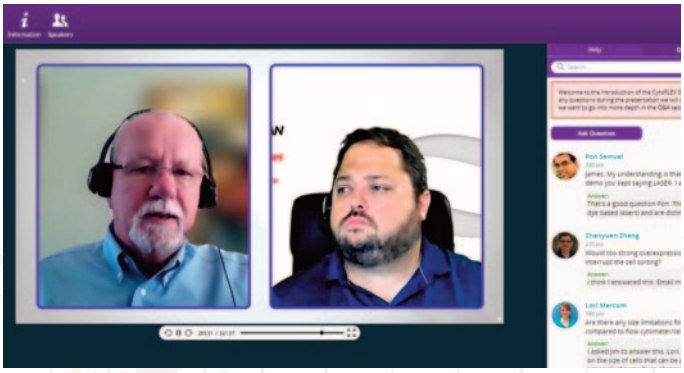
JOHN HARBELL
Nominating Committee Chair
johnharbell@sbcglobal.net

Raj Deepika Chauhan
2021 Program Chair

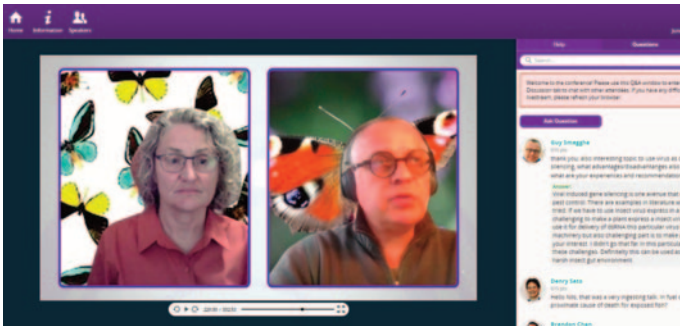
PROGRAM

The Society for In Vitro Biology (SIVB) annual meeting was held as virtual event (SIVB 2021: In Vitro OnLine) due to the global pandemic. The presentations were streamed live or released for viewing during Eastern Daylight Time from June 5th to June 9th, 2021. The on-demand content was made available to the meeting registrants through September 2021. Delivery of an excellent program and immersive experience of a virtual meeting wouldn't have been possible without the tireless and collective efforts of the SIVB Business Office, Program, Education and Student Committee members, namely, **Marietta Wheaton Saunders** (Managing Director, SIVB and Meeting Secretariat), **Michele G. Schultz** (Publications Manager, SIVB), **Kristina Martinez-Guryn** (IVACS Program Chair), **Angela Labrum** (PB Program Chair), **A. Maxwell P. Jones** (PB Sr. Co-Chair), **M. Annie Saltarikos** (PB Jr. Co-Chair), **Evan M. Hill** (IVACS Student Co-Chair), **Alperen Ozturk** (PB Student Co-Chair) and **Brad L. Upham** (Education Chair).

The meeting program was kicked off by live streaming of concurrent workshops on Saturday June 5th, 2021, **"Grow with the Flow: Creative Changes on Advanced Flow Cytometry"** organized by J. Pon Samuel and Jeff Beringer, and **"15th International Conference on Invertebrate and Fish Cell Culture: Emerging Technologies and Future Directions"** organized by Lucy E. J. Lee, Cynthia L. Goodman, Guy Smagghe, Kavita Bitra and Jessica Monserrate. The workshops were well attended, the attendees had ability to ask questions during the sessions from the speakers, and the interactive live streaming made the sessions more engaging.



The Flow Cytometry Workshop was held on Saturday, June 5 and, for the first time, was made available to all attendees.



The 15th International Conference on Invertebrate and Fish Cell Culture was a dynamic program and was presented live to all participants of the meeting.

The opening ceremony held on June 6th 2021 was streamed live. **Dr. J. Keith Joung**, Robert B. Colvin, M.D. Endowed Chair in Pathology, Desmond and Ann Heathwood Research Scholar, and a Pathologist at Massachusetts General Hospital (MGH) and Professor of Pathology at Harvard Medical School presented a fascinating keynote talk on **"Defining gene editor off-target effects with an optimized and universal in vitro assay"**. We are grateful that he took time to share his research work at the annual meeting. The four plenary symposia included **"Advanced Biological Tools for Biotechnology Applications"** by Prakash P. Kumar, Lori Marcum, and Richard Heller, **"Epigenetics: Mechanisms and Implications"** by Bradley Ferguson and Raj Deepika Chauhan, **"Crossing Kingdoms: Developing and Applying Editing Tools in Animals and Plants"** by Michael J. Fay and Aaron Hummel, and **"Regulations & Transparency: Imperatives for Emerging Technologies"** by Kenneth Kandaras, Pierluigi Barone, and John W. Harbell. The plenary sessions were streamed live each day, featuring talks by the experts in the field, complemented with live Q&A panel discussion with speakers at the end of each session.

The Plant Biotechnology Section (PBS) organized symposia on diverse and interesting topics that included, **"Leadership and Best Practices in Commercial Labs"**, **"Variables Controlling Successful Gene Editing in Plants/New Tools"**, **"Challenges in Establishment and Micropropagation of Woody Plant Species Under In Vitro Conditions"**, **"Factors Affecting Successful Transfer of In Vitro Plantlets to Ex Vitro Conditions"**, **"DOE and Quality Control in Research and Commercial Micropropagation"**, **"Regulation, Commercialization, and Adoption of Gene Edited Crops"**, **"Advances in Cannabis Regeneration Systems and Biotechnology"**, **"Scaling up Cannabis Production"**, and **"Novel Methods in Plant Transformation Using Non-Agrobacterium Techniques and Gene Editing without Integrations of Transgene"**. A thought-provoking panel discussion on **"Building Partnerships and Resources to Address Transformation Bottlenecks"** organized by M. Annie Saltarikos and Joyce M. Van Eck led to formation of a small team who is further working on the actions that came from the virtual interactions. A deep-dive evening session on technology that is applicable to some of the difficult to transformation plant species entitled **"Transformation of Recalcitrant Crops Using Morphogenic or Growth-stimulating Genes"** followed by video chat was organized by Bill Gordon-Kamm and Kan Wang.

The In Vitro Animal and Cell Sciences Section (IVACS) offered talks on fascinating topics that included, **"Novel Applications of Biosensors as Readouts for Environmental Monitoring and Improving Human Health"**, **"Models Of Viral-Host Interactions: from In Vitro to In Vivo"**, **"Marine Invertebrate Cell Culture: Applications and Implications for Research"**, **"Application of Stem Cell Technology to the Development of Tissue-specific Organoids"**, **"Organoids: Understanding and Developing Human Disease Models"**, as well as **"Modulating the Gut Microbiota: Application of Prebiotics and Probiotics for Human Health"**. In addition to plenary, animal and plant symposia, PBS and IVACS program chairs had organized a joint symposium, interactive poster sessions and contributed paper presentations on a wide range of topics. The joint symposium entitled **"Emerging Startups: Bringing Innovative Ideas to Life"** highlighted the work being done by new companies.

A special thanks to all the speakers who presented their work in the meeting, took time to upload their presentations ahead of time and made themselves available for the Q&A. Thanks to conveners for organizing informative sessions, in the order as sessions were streamed, Michael J. Fay, Aaron Hummel, Reid Robinson, Carolyn Sluis, Shirley A. Pomponi, Mohammed Oufattole, Yiping Qi, Maria M. Jenderek, Sylvia A. Mitchell, Michael K. Dame, Addy Alt-Holland, Jyoti R. Rout, Harold N. Trick, Prakash P. Kumar, Lori Marcum, Richard Heller, Daysha Ferrer Torres, John W. Harbell, Kolla Kristjansdottir, Durga Attili, J. Pon Samuel, Bill Gordon-Kamm, Kan Wang, Bradley S. Ferguson, Randall P. Niedz, Jeffery W. Adelberg, Uyen P. Cao Chu, Kristina Martinez-Guryn, David D. Songstad, Sadanand A. Dhekney, Hemant Lata, Annie Saltarikos, Joyce M. Van Eck, Kenneth Kandaras, Pierluigi Barone, John W. Harbell, Subha B. Subbarao, Qingchun Shi, and Max Jones. A special thanks to the conveners who took time to mentor the student co-conveners. Thanks to moderators of contributed paper and interactive poster sessions, Rhoda Brew-Appiah, Maria M. Jenderek, Nagesh Sardesai, Mae Ciancio, Todd J. Jones, Vivian Dayeh, and Larissa Arrais.

SIVB is committed to creating opportunities for students, encouraging them to present and organize sessions. Some of the students participated in organizing and developing the sessions namely., Jishnu Bhatt, Hossam Mahmoud Kamel Mohamed, Evan M. Hill, Tej Man Tamang, and Adrian Monthony. The student symposia **"RNA-Sequencing: Experimental Design, Sample and Library Preparation, Sequencing and Data Analysis Factors to Consider"** was very informative. Student co-chairs did a commendable job in organizing, moderating the workshop virtually and encouraging fellow students to participate in the meeting. The interactive posters conducted through video chats, student and postdoctoral presentation competitions provided an excellent platform for sharing knowledge and connecting with researchers working in the same field. Thanks to the organizers of student and postdoc competition, **Addy Alt-Holland**, **Kolla Kristjansdottir**, **Carlos Hernandez-Garcia**, and **Alexandre da Silva Conceicao**. The best IVACS Student/Post Doc presentations received awards, Elizabeth Hartley Urban-Gedamke from Florida Atlantic University – Harbor Branch Oceanographic Institute (1st), **Renato C. Aguilera, Jr.** from Tufts University (2nd) and **Stephanie Lourdes Echeverria** from Midwestern University (3rd). From the plant session, the best student oral presentations went to **Brett Hale** from Arkansas State University (1st), **Trevor Weiss** from University of Minnesota (2nd) and **Uddhab Karki** from Arkansas State University (3rd). **Andika Gunadi** from Boyce Thompson Institute secured first place for plant postdoctoral oral presentation competition followed by **Ayman Eid** from University of Florida (2nd) and **Dorsaf Kriaa** from Tunisian Bank of Gene (3rd).

The social events were a unique and new experience in a virtual environment for most of the attendees such that we didn't miss the networking component of the in-person meeting. Both Welcome Reception (June 5th, 2021) and Joint Sections Social (June 7th, 2021) were held through REMO that allowed the attendees to catchup with new participants, friends, students, committee members, Board of Directors, and exhibitors. Exhibitor's spotlight was a new concept to connect attendees with exhibitors through video chat. Some of the individuals were recognized for their outstanding achievements and presented with SIVB awards. Daysha Ferrer Torres, University of Michigan Medical School and Jessica L. Rupp, Kansas State University were honored with **Early Career Awards**. Dr. Addy Alt-Holland, Tufts University and Dr. Vivian R. Dayeh, University of Waterloo received **SIVB Fellow Awards** for their outstanding contributions to in vitro science and teaching. Dr. Cynthia L. Goodman, USDA-ARS-BCIRL was honored with the **Lifetime Achievement Award** to recognize years of contributions to cell culture.

A considerable amount of effort and time was put in by Program, Development, Education, and Executive Committee members for making the SIVB 2021: In Vitro OnLine a great success. The conveners and speakers did exceptional work in organizing and moderating the sessions to stimulate virtual interactions and create a wonderful experience for the attendees. The success of the live and on-demand format will also pave the path for reaching broader audience who are not able to travel or attend the in-person meeting in future meetings.

RAJ DEEPIKA CHAUHAN
2021 Program Committee Chair
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PUBLICATIONS

The Society for In Vitro Biology (SIVB) Publications Committee, SIVB Business Office, and SIVB Board of Directors worked with Springer Nature and the International Association for Plant Biotechnology (IAPB) to finalize the publishing contracts for *In Vitro Cellular & Developmental Biology — Animal* and *In Vitro Cellular & Developmental Biology — Plant*. These new publishing contracts are effective from January 1, 2022, to December 31, 2026. We look forward to working with Springer Nature to ensure the continued success and growth of our Society's journals. We continue to work with Springer Nature on the License-to-Publish agreement and the transition of the SIVB journals to the Open Access System Solution (OASis) platform.

The Publications Committee recognizes our Editors-In-Chief, **Tetsuji Okamoto** and **David Songstad** for their important roles in the success of *In Vitro Cellular & Developmental Biology — Animal* and *In Vitro Cellular & Developmental Biology — Plant*, respectively. The Publications Committee also thanks the Editorial Boards for both journals and all the peer-reviewers for their dedicated service. The impact factor for *In Vitro Cellular & Developmental Biology — Animal* increased from 1.665 in 2019 to 2.416 in 2020; and the impact factor for *In Vitro Cellular & Developmental Biology — Plant* increased from 1.814 in 2019 to 2.252 in 2020. Please read the individual journal annual reports submitted by Tetsuji Okamoto and David Songstad for more detailed information. An important highlight for both journals was the publication of special issues. A special issue on the topic of 3D organotypic and organoid culture models was published in for *In Vitro Cellular & Developmental Biology — Animal*, and a special issue on the topic of genome editing was published in *In Vitro Cellular & Developmental Biology — Plant*. To promote manuscript submissions to our journals, the Publications Committee generated a list of keywords/topics which are being used to identify suitable manuscripts from other Springer Nature journals for transfer to our journals for consideration/review.

The SIVB website and our social media presence continue to be an important focus to strengthen our presence and marketing efforts. Indexing terms were identified by the Publications Committee to be used as 'Alt Tags' for the purpose of promoting traffic to the sivb.org website and sivb.org/meetings page on our website. The SIVB Business Office is reviewing vendor quotes for a redesign of the SIVB website. This redesign will increase our visibility through SEO metrics and facilitate more effective navigation. The Ad Hoc Social Engagement Committee (**Allan Wenck**, **Christopher Bagley**, **Sarbesh Das Dangol**, **Anissa Belfetmi**, **Addy Alt-Holland**, **Sylvia Mitchell**, **Michael J. Fay**, **Marietta Wheaton Saunders**, and **Michele Schultz**) has been instrumental in identifying strategies to promote the social media presence of the SIVB. The SIVB continues to grow our social media presence on Facebook, LinkedIn, Twitter, YouTube, and our recently added Instagram account. The Ad Hoc Social Engagement Committee has developed an SOP for our membership to provide instruction on how to create an effective social media post. They are also busy creating social media posts to market the 2022 In Vitro Biology Meeting. Please remember to participate in the SIVB's social media efforts. The following hashtags can be used: @SIVBiology (Twitter account), #SIVBiology (General Hashtag), #SIVB2022 (2022 Annual Meeting), #IVANSIVB (In Vitro Cellular & Developmental Biology-Animal), and #IVPLSIVB (In Vitro Cellular & Developmental Biology-Plant). A new hashtag for the In Vitro Report will be available soon.

As Chair of the Publications Committee, I want to thank Marietta Saunders (SIVB Managing Director), Michele Schultz (SIVB Publications Manager), the Ad Hoc Social Media Committee, and the members of the 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**, **Barbara Reed**, **J. Denry Sato**, **David D. Songstad**, and **Dwight T. Tomes**) for their continued hard work and dedication. Please talk to your colleagues, students, and postdocs about joining the SIVB, and encourage them to submit their manuscripts to *In Vitro Cellular & Developmental Biology — Animal* and *In Vitro Cellular & Developmental Biology — Plant*. Also, please consider serving as a peer reviewer for our journals.

IN VITRO CELLULAR AND DEVELOPMENTAL BIOLOGY – ANIMAL

(For the year 3/1/21 through 2/28/22)

Tetsuji Okamoto
Editor-in-Chief
In Vitro — Animal

The journal experienced an increase (7.99%) in total submissions of new manuscripts over the comparable period last year (446 compared to 413 in 2020–2021).

The numbers of submitted manuscripts for the past year compared to the prior year were: 422 regular papers (371 in 2020-2021), 20 Reports (26 in 2020-2021), 4 Invited Reviews (14 in 2020-2021), and 1 opinion Letters-to-the-Editor (2 in 2020-2021). Of the 446 submissions, 67 were accepted (15% acceptance rate), 34 (7.6%) rejected, 67 (15%) withdrawn, 62 (13.9%) were still in review or revision and 216 transferred to other Springer Publications (48.5%).

Thirty-three (33) countries were represented in the submissions received in 2021/2022. Ninety percent (89.9%) of submissions were from China (260), Iran (62), India (26), Turkey (19), Brazil (10) Korea (9), USA (8) and Japan (7). Average time from receipt to first decision in the review process was 12 days compared to 2.8 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 our article budget but has published slightly behind schedule. The 2020 impact factor for IVA was 2.416, which is an increase from the 2019 impact factor of 1.665, and the 5-year impact of 2.139, which is up from last year's 1.588. These 2020 numbers are potentially slightly inflated for 2020 due to Clarivate changing how they count articles released online first and we expect these numbers to be more in line with the 2019 numbers in 2021. More than 98% 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 (80), cell and tissue models (166), cell growth/differentiation/apoptosis (201), cellular pathology/ virology (56), cytokines/growth factors/adhesion factors (51), establishment of cell lines (28), product applications (26), signal transduction (80), stem cells (85), and toxicology/chemical carcinogenesis (42).

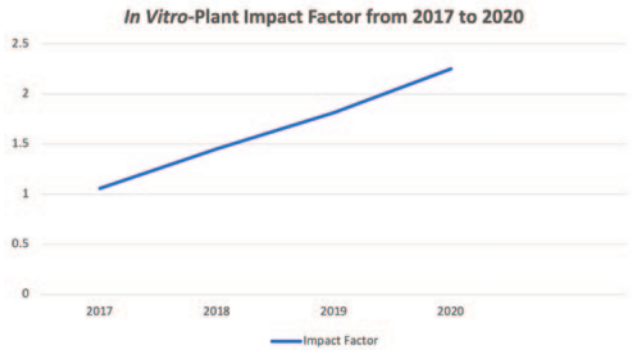
In 2021, the journal released a special review series on 3D Organotypic and Organoid Culture Models organized by Reviews Editor, John Harbell. This issue contained reviews from eight (8) different authors focusing on 3D culture models of airway, intestine, kidney, neuronal, ocular and oral tissues/cells. The content was made available open access for 6 months after the date of publication.

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% (Papers that show high similarity to preprint articles will be excluded).

IN VITRO CELLULAR AND DEVELOPMENTAL BIOLOGY – PLANT

David Songstad
Editor-in-Chief
In Vitro — Plant

I have completed my second 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 took 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 continue to thank the past EICs (David Duncan, Dwight Tomes, John Finer, and Greg Phillips) for their encouragement and support.



The impact factor for *In Vitro — Plant* has steadily increased from 1.057 in 2017, to 1.454 in 2018, to 1.814 in 2019 and currently is at 2.252 for 2020. The five-year impact factor has now reached 2.139. It is noteworthy to recognize that the impact factor has more than doubled since 2017.

The increase in impact factor is likely due to a combination of reasons including the improved quality of manuscripts accepted for publication in *In Vitro — Plant* and nine of the 95 published manuscripts in 2021 being "open access". The majority of the open access manuscripts (5) were in the special issue on Genome Editing which was published in August, 2021. A total of 15 manuscripts were published in this Special Issue with the paper by Jenkins et al. (Impacts of the Regulatory Environment for Gene Editing on Delivering Beneficial Products) receiving an Altmetric score of 44 with over 2,700 downloads to date. Hopefully this will result in a subsequent "positive bump" in the impact factor for next year, too. Credit is also due to Dr. Albert Kausch for providing his hand-drawn illustration for the cover of this special issue. However, genome editing is not an exclusive topic for invited reviews. All Society members are encouraged to submit a review concerning the subject of your current research or that introductory thesis chapter.

A total of 395 manuscripts were submitted to *In Vitro — Plant* in 2021, which is a significant decrease compared to the 482 submitted in 2020. This could be the lingering effect of the COVID-19 pandemic's effect on scientific research and publishing. Even though there were fewer manuscripts submitted, the number of manuscripts published increased from 90 in 2020 to 95 in 2021. Furthermore, the number of printed pages in the journal increased from 920 in 2020 to 1065 in 2021, a 145-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 395 manuscripts, 226 were rejected (slightly over a 57% rejection rate) leaving close to 43% acceptable for publication. This is a sharp decrease in the rejection rate, compared to the 73% rate from 2020, and most likely due to the positive influence of the Special Issue on Genome Editing where no manuscripts in this issue were rejected because these were all invited submissions. Of the rejected manuscripts, about 30% were rejected for plagiarism, a continuing problem for the journal. Approximately 19% were rejected for technical flaws and another 17% rejected based on novelty. About 7% of the rejections were based on "Out of Scope" and 3% were due to submitting to the wrong journal and were redirected to In Vitro-Animal. Note that the "Wrong Journal" rejection rate increased three times, which is alarming because it could be a sign of multiple submissions of the same manuscript to a variety of journals, including *In Vitro — Plant*. This leaves 24% 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 2021, the top 10 countries from which manuscripts were submitted includes India, China, Iran, Brazil, USA, Turkey, Egypt, Mexico, Pakistan, and Japan. 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 insure 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.

Michael J. Fay
Publications Chair and
Co-Editor-in-Chief
of In Vitro Report

Sylvia Mitchell
IVR Co-Editor-in-Chief

IN VITRO REPORT

The In Vitro Report (IVR) serves as the official online newsletter for the membership of the Society for In Vitro Biology (SIVB) and is published quarterly on the SIVB website (www.sivb.org). Both the current issue and archived issues of the *IVR* are available on the SIVB website by selecting *In Vitro Report* under the Publications dropdown menu or by clicking on the *IVR* icon in the upper right-hand corner of the website homepage (www.sivb.org/InVitroReport/). The SIVB membership is also notified by email when the new issue of the *IVR* is published. The *IVR* Co-Editors are **Michael J. Fay** (Midwestern University) and **Sylvia Mitchell** (University of the West Indies) 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 solicit and edit content and publish the *IVR*. The Co-Editors also receive guidance and support from **Marietta Saunders** (SIVB Managing Director), **David Songstad** (Editor-In-Chief, *In Vitro Cellular & Developmental Biology — Plant*), **Tetsuji Okamoto** (*In Vitro Cellular & Developmental Biology — Animal*), and the SIVB Publications Committee (**Barbara B. Doonan**, **John J. Finer**, **Cynthia L. Goodman**, **John W. Harbell**, **Maria M. Jenderek**, **Jiarui Li**, **Sylvia Adjoa Mitchell**, **Tetsuji Okamoto**, **Gregory C. Phillips**, **Barbara Reed**, **J. Denry Sato**, **David D. Songstad**, and **Dwight T. Tomes**). Routine articles in the *IVR* include: The SIVB President's Report, editor-selected Journal Highlights for *In Vitro Cellular & Developmental Biology — Plant* and *In Vitro Cellular & Developmental Biology — Animal*, SIVB annual meeting updates, feature articles on SIVB Award Recipients, Public Policy articles, new SIVB members, Section Officer and Board Member Election results, Student Section Updates, and Membership News from IVACS members (SCINews) and PB members (ExPlants). The *IVR* continues to serve as an important platform for the SIVB membership to communicate and share news outside of our annual meeting. The *IVR* Co-Editors and Publications Committee encourage all SIVB members to share their news and accomplishments through the *IVR*. Prior to the publication of each new issue of the IVR, the SIVB membership is contacted by email asking them to submit their news items to the Co-Editors for inclusion in the upcoming issue. If you have questions concerning the IVR or 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 2022 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.

Submitted by the SIVB Business Office on behalf of
WAYNE PARROTT
Public Policy Committee Chair
wparrott@uga.edu

REPRESENTATIVES OF THE SIVB

Dwight Tomes
CAST Representative

COUNCIL FOR AGRICULTURAL SCIENCE AND TECHNOLOGY (CAST)

CAST celebrated 50 years as a reliable science-based information source for technical professionals and others interested in consistently high standards for information about current issues that confront our society. The gift of an organization that takes the time to present multiple views on complex issues without bias is an attribute we seek on many levels. At the end of the day, we all want the freedom to make decisions on our own based on a trustworthy and factual information. It has been a pleasure to represent SIVB on the Board of Representatives of CAST and directly participate in discussing the latest accomplishments in our scientific area. For the members of the Society of In Vitro Biology an added benefit is the availability of the publications and commentaries published for our information and use.

CAST was able to enjoy an in-person annual meeting in 2021 that also included virtual access of many of the presentations. I must admit that I've been able to keep informed due to the miracles of "Zoom" for the past year BUT there are added 'connectional' benefits of an in-person experience that just cannot be replicated even with a 'good' connection. It brought back the wow factor of shared information at an individual level that is absolutely unique and special. Since SIVB will be resuming our live meetings in 2022, we as a Society will also be able enjoy renewing our own connections.

That said, here are several links that are available to SIVB members with a simple 'click':

- Information about CAST: https://bit.ly/AboutCASTScience
- Link to Access CAST Publications: https://www.cast-science.org/publications/
- Link to Past Friday Notes Newsletters (2 weeks out, CAST members receive weekly newsletter directly to their inbox): https://www.cast-science.org/friday-notes/
- Link to individual CAST Membership Information: https://www.cast-science.org/membership

Although we don't frequently consider the national and international impact of CAST and other similar organizations, a recent international trip reinforced the power of ***reliable information*** on behalf of an individual farmer who preserved the integrity of his family farm when local pressure might have destroyed several generations of farm improvement. COVID-19 is yet another example where science-based knowledge allowed us to adapt and thrive despite the challenges. Agriculture and scientific inquiry are optimistic and creative, part of our "DNA", and we will 'reluctantly' enjoy every challenge as these come up now and into the future! We will renew our enthusiasm and optimism because of the exciting work of societies such as the Society of In Vitro Biology and CAST. How fortunate we are to look forward to the work to be done in 2022 and beyond! Suggestions of topics for new publications are always welcome—contact me directly or on the website . *If you would like to receive CAST news and updates please join the CAST mailing list.*

DWIGHT TOMES
CAST representative
d.tomes@me.com

INTERNATIONAL ASSOCIATION FOR PLANT BIOTECHNOLOGY (IAPB)

Randall 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 quadrennial IAPB Congress was scheduled to take place in Daejeon, Korea in 2022, but due to the global pandemic was tentatively postponed by the IAPB National Correspondents until 2023. The decision of when to hold the Congress will be based on sufficient improvements in the global pandemic conditions. Prof. Liu plans to hold a webinar in August 2022 to introduce Daejeon as the site of the next Congress. His stated goal is to make this congress the largest in IAPB history.

Those in the USA who are interested in joining the IAPB may contact Randy Niedz 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, and SIVB members can renew their IAPB membership through the SIVB online store.

RANDALL NIEDZ
US Correspondent, IAPB
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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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sivb.org

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Phone: (910) 755-5431, Fax: (910) 755-5432
Email: sivb@sivb.org

TREASURER'S SUMMARY REPORT
SOCIETY FOR IN VITRO BIOLOGY

STATEMENT OF FINANCIAL POSITION

Dec 31, 2021 AND 2020

ASSETS

	Dec 31, 2021	Dec 31, 2020
Current Assets:		
Cash	$ 343,667	$ 417,329
Accounts Receivable	19,998	21,643
Prepaid Expense	84,357	91,427
Total Current Assets	448,022	530,399
Other Assets:		
Investments	354,578	335,032
Total Other Assets	354,578	335,032
Total Assets	$ 802,600	$ 865,431

LIABILITIES AND NET ASSETS

Current Liabilities:		
Accounts Payable	$	$
Other Accrued Expenses	44	44
Deferred Income	54,974	54,313
Total Current Liabilities	55,018	54,357
Net Assets:		
Unrestricted	304,923	422,320
Temporarily Restricted	442,659	388,755
Total Net Assets	747,582	811,075
Total Liabilities & Net Assets	$ 802,600	$ 865,431

SOCIETY FOR IN VITRO BIOLOGY

STATEMENT OF ACTIVITIES

FOR THE ONE MONTH ENDED DEC 31, 2021 AND 2020

	Unrestricted	Temporarily Restricted	Total	2020 Total
Revenue:				
In Vitro-Animal	$ 89,733	$	$ 89,733	$ 80,308
In Vitro-Plant	61,075		61,075	38,599
Newsletter	8,376		8,376	3,343
Meetings	87,132	40,240	127,372	103,646
Horn Endowment Fund contributions				
Administrative	40,664		40,664	39,409
Total Revenue	286,980	40,240	327,220	265,305
Program services:				
In Vitro-Animal	3,514		3,514	10,767
In Vitro-Plant	7,733		7,733	130
Annual meeting	57,001		57,001	16,685
Total program services	68,248		68,248	27,582
Supporting services:				
Administrative	294,016		294,016	39,409
Total expenses	362,264	40,240	362,264	66,991
Change in net assets before unrealized gain/(loss) on investments	(75,284)	-	(35,044)	198,314
Unrealized gain/(loss) in fair value of investments	6,941		6,941	-15,929
Change in Net Assets	(68,342)		(68,342)	142,147
Net assets, beginning of year	458,395	40,240	789,484	647,337
Net assets, end of period	$ 390,052	$ 40,240	$ 721,141	$ 789,484