



MDCPSS FALL NEWSLETTER

Volume 12 / Issue 1

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PRESIDENT'S MESSAGE

Greetings and welcome to the Medical Device and Combination Product Specialty Section's (MDCPSS) fall newsletter. It's an honor to serve as your 2021/22 MDCPSS President alongside our new Executive Committee: Whitney Christian (Past President), Shelby Skoog (Vice President), Mansi Krishan (Vice President-Elect), Megan Hahn (Secretary/Treasurer), Xiaoling (Sharlene) Dai (Councilor), Mercedes Salvador-Silva (Councilor), Kevin Trout (Postdoctoral Representative), and Christopher Pohl (Graduate Student Representative). I thank the following members whose terms ended in April: Sherry Parker (Past President), James Kleinedler (Councilor), Ju Young (Julie) Park (Postdoctoral Representative). Thank you for your service on the MDCPSS Executive Committee!

As president I have three goals:

1. To improve the visibility of our Specialty Section both inside and outside of SOT.
2. To provide you with meaningful webinars, useful ToXchange postings, and valuable SOT meeting activities.
3. To continue to grow our membership, particularly by reaching out to students, international members, and members of allied specialty sections.

Activities so far this year include scientific webinars, a poster session at the SOT Annual Virtual Meeting, and a virtual MDCPSS meeting/reception where we presented awards for Student Achievement, Best Overall Abstract, Best Published Paper, and Best Poster. The MDCPSS meeting/reception also included a timely keynote address by Ron Brown entitled "Evolution of Toxicological Risk Assessment for the Biological Safety Assessment of Medical Devices". MDCPSS-sponsored webinars in 2021 include:

- Nitrosamines: Evolving Regulatory Landscape and Its Potential Impact on Medical Devices and Combination Products (upcoming)
- Evolving Use of *In Vitro* Hemocompatibility for the Biological Evaluation of Blood Contacting Medical Devices (March 2021)

- Practical Application of Computational Models to Predict Release Kinetics and Toxicity of Compounds Released from Medical Devices (June 2021)

Many thanks to Shelby for her steadfast commitment to organizing our webinars and ensuring a smooth delivery. If you missed any of the webinars, the slides and a recording are available on the MDCPSS website.

Please continue to check the MDCPSS website for updates and additional information and feel free to contact me or any other Executive Committee member with ideas for programs, outreach, webinars, or suggestions for improvement.

I am looking forward to planning the upcoming events for the 61st Annual Meeting in San Diego and hope to see you all in person.

Sincerely,

Jan Oberdoerster, PhD, DABT
MDCPSS President
joberdoe@wlgore.com



MDCPSS Webinars



MDCPSS Webinar: Evolving Use of *In Vitro* Hemocompatibility for the Biological Evaluation of Blood Contacting Medical Devices

Date and Time: Tuesday, March 30, 2021 at 12:00 Noon–1:30 PM ET

Toxicology in the 21st Century has changed the way many Industries and Regulators evaluate the safety of chemicals, substances, and products, including medical devices. The evaluation of biocompatibility has begun to transition from *in vivo* methods to *in vitro* alternatives in an effort to improve the accuracy, increase the speed, and reduce the cost of testing without jeopardizing the quality of product safety assessments. Hemocompatibility testing, which is a biological endpoint of consideration for blood-contacting medical devices, exemplifies this transition as one area of medical device biocompatibility testing that has incorporated *in vitro* approaches. This webinar will review the available *in vitro* hemocompatibility tests as well as their limitations and advantages, study design considerations, and regulatory acceptance.

Overview of In Vitro Thrombogenicity Testing—US FDA/CDRH Research Update and Regulatory Considerations

Speaker: Qijin Lu, PhD, US FDA

Abstract: Device related thrombosis and thromboembolic complications remain a major clinical concern and often impact patient morbidity and mortality. Thrombogenicity of medical devices is impacted by several device-related factors such as the blood-contacting materials, surface properties, and the geometry of the device. While the US FDA Biocompatibility Guidance Document and the international hemocompatibility standard ISO 10993-4 (Biological evaluation of medical devices—Part 4: Selection of tests for interactions with blood) provide general guidelines for thrombogenicity evaluations and serve as useful resources for selecting potential thrombogenicity tests, much work is still needed to develop specific test methods to help perform thrombogenicity assessments appropriately. In collaboration with US FDA reviewers and medical device industry partners, our research group in the US FDA/CDRH Office of Science and Engineering Laboratories has been working to develop, qualify, and standardize a panel of *in vitro* thrombogenicity test methods that can be used to effectively and efficiently characterize device thrombogenicity. Recently, two *in vitro* thrombogenicity testing standards, ASTM F2382-18 (partial thromboplastin time assay) and ASTM F2888-19 (platelet and leukocyte count assay), were updated and subsequently recognized by the US FDA for material-mediated thrombogenicity testing. Additionally, we are also working towards developing a dynamic *in vitro* blood flow loop thrombogenicity test system that may be used to characterize flow-mediated thrombogenicity relevant to device geometry and surface effects. This presentation will provide an overview of US FDA/CDRH research efforts on *in vitro* thrombogenicity test method development and regulatory considerations for the use of these methods in device thrombogenicity evaluations.

Evaluation of the NAVI Model for Thrombogenicity Assessments: Correlation between In Vitro Hemocompatibility Test Results and In Vivo Thrombus Scores

Speaker: Frances Hsia, MS, MPH, DABT, Boston Scientific Corporation

Abstract: Common *in vitro* hemocompatibility tests such as partial thromboplastin time (PTT), platelet and leukocyte (P&L) counts, and complement (SC5b-9) activation are often used in evaluating hemocompatibility for changes in device materials. To evaluate if these *in vitro* test results correlate with *in vivo* thrombogenicity observations, an analysis of *in vivo* thrombus scores in non-anticoagulated venous implant (NAVI) studies on 15 devices was conducted. Our results suggest reduced PTT and increased SC5b-9 may be associated with *in vivo* thrombogenicity in the NAVI model. No association between platelet counts, assessed using citrated human blood, and elevated thrombus scores was observed. Platelet counts utilizing heparinized human blood per ASTM F2888:2019 may improve the correlation. There are many challenges in performing a NAVI study and factors such as implant technique, device placement, and individual animal differences in thrombotic potential lead to inconsistent thrombogenicity predictions. *In vitro* hemocompatibility tests, possibly combined with data from a dynamic *in vitro* flow loop may provide a feasible and appropriate alternative to using the *in vivo* NAVI model.

In Vitro Hemocompatibility Testing: Continuing Development of an Ovine Blood-Loop Assay

Speaker: Yan Chen, PhD, American Preclinical Services, LLC

Abstract: ISO 10993-4 thrombogenicity testing is widely used for meeting regulatory requirements for approval of blood-contacting medical devices. American Preclinical Services (APS) is continuing to optimize an *in vitro* thrombogenicity test using minimally heparinized ovine blood that has been successfully used in lieu of the non-anticoagulated venous implant (NAVI) assay in recent client submissions with the US FDA for catheter-like devices. APS also frequently performs the traditional NAVI model in canines. In both the *in vitro* Blood Loop and the *in vivo* NAVI assays, predicate devices that are used as controls are typically legally marketed comparator

devices (LMCD). One rarely discussed observation is the frequent high thrombogenicity scores of LMCD's in the NAVI assays. We have compared results from available and submitted NAVI studies and a similar number of *in vitro* Blood Loop studies for catheter-like devices. These compiled results show a frequent score a three or above for LMCD's (>50% of the surface covered in thrombus) in the NAVI model while many fewer LMCDs perform this poorly in the Blood Loop assay. Overall, these results are supportive of the superiority of the alternative *in vitro* Blood Loop assay over the standard *in vivo* NAVI assay.

Design Considerations for Mechanical Hemolysis Testing

Speaker: Christopher Pohl, BS, Nelson Laboratories, LLC; and Miki Giffin, MS, Nelson Laboratories, LLC

Abstract: ISO 10993-4 describes the requirements for assessing the interactions of medical devices with blood and assigns a set of test categories and tests recommended for evaluation. The categories are based on intended use and duration of contact and include hemolysis and thrombosis. In 2017, ISO added a requirement for mechanically induced hemolysis as a subcategory and is required for devices that redirect flow or create blood turbulence within the circulatory system. Examples include hemodialysis/hemofiltration equipment, circulatory support devices, cell separators and mechanical heart valves. In addition, US FDA generally requires a mechanically induced hemolysis assessment for blood administration sets, blood warmers, and infusion pumps.

Mechanical hemolysis protocols should be designed to simulate the intended use of the device and adequately measure red blood cell lysis caused by fluid dynamic factors, such as blood flow rate, turbulence, and non-physiological shear force. Test methods that involve a single flow through of blood using gravity or by infusion pump are appropriate for a blood administration sets. Whereas, a protocol that involves circulating blood through a flow loop for an extended time period would be required for hemodialysis devices and equipment.

The focus of a full proposal would be on flowing loops and hopes to generate a good discussion about the topic and the general requirements which include:

- Paired testing. Because there is not a recognized acceptance criteria, two separate and identical circulation loops; one for a predicate device and one for the test article should be included. The loops should use blood from the same pool.
- A validated method should be used to assess total hemoglobin and plasma free hemoglobin concentrations.
- The total volume of blood in the two test circuits should be identical and be minimized to increase the sensitivity of the test.
- Sample size of five test articles and predicate devices.
- Testing should be performed at the maximum labeled blood flow rate. Run duration should typically be as long as labeled for a clinical treatment.

This webinar is available on the MDCPSS website:

<http://www.toxicology.org/groups/ss/MDCPSS/pastevents.asp>

MDCPSS Webinar: Biostability and Product Life-Cycle Evaluation of Medical Devices



Date and Time: Friday, May 7, 2021 at 12:00 Noon–1:30 PM ET

In Vivo Long-Term Durability of Materials That Comprise Implanted Medical Devices

Speaker: Dr. Kim Chaffin, Medtronic

Abstract: In the 1980's, Medtronic experienced one of the industry's most consequential recalls, where the polymer insulation on implanted cardiac leads, the conduits through which energy is delivered to the heart, disintegrated *in vivo*. Amid this crisis, Medtronic scientists began a quest to better understand and screen for the factors that could impact a material's long term biostability. After almost forty years of prioritizing research in this area, we lead the industry in our ability to screen and predict a material's biostability *in vivo*. In this talk, Dr. Chaffin will review their scientific advancements, discuss how they continue to set the industry standard, and examine the scientific questions that are currently active areas of research for us. In demonstrating their leadership position in this area, she will review a manuscript (*ACS Macro Lett.* 2020, 9, 12 p. 1793–1798) that used strategically designed accelerated *in vitro* testing to provide important insights into the long-term biostability of materials; insights that could not be readily gleaned through the *in vivo* studies that dominate current regulatory guidelines.

Evaluation of Biological Safety over the Whole Life-Cycle of a Medical Device—Aspects to Be Considered

Speaker: Dr. Katharina Weidmann, Tüv Süd Product Service GmbH

Abstract: The ISO 10993 standard series presents a framework for risk management in order to reduce the biological risks of medical devices as far as possible. In August 2018, a new version of ISO 10993-1 was published, amongst other changes pointing out the importance of addressing the biological safety of medical devices over their complete life-cycle. While most of the available data from biological and chemical testing was generated with devices at a time point close to the production process in the past, now it is stressed that the potential impact of transport, shelf life, the clinical use and potential (re-)processing on the biocompatibility of the device under evaluation has to be discussed as well. The webinar aims to point out the different time points during life cycle to be looked at in the biological evaluation as well as to discuss potential approaches to address this requirement.

This webinar is available on the MDCPSS website:

<http://www.toxicology.org/groups/ss/MDCPSS/pastevents.asp>



MDCPSS and CTSS Webinar: Practical Application of Computational Models to Predict Release Kinetics and Toxicity of Compounds Released from Medical Devices

Date and Time: Wednesday, June 2, 2021 from 12 Noon–1:30 PM ET

Use of Computational Models to Predict the Toxicity of Compounds Released from Medical Device Materials

Speaker: Dr. Ron Brown, Risk Science Consortium, LLC

Abstract: Toxicity data are not available for many compounds released from medical device materials. However, computational models can be used to help predict the toxicity of data-poor compounds. This webinar will show how computational toxicology models can be used for the biological safety assessment of medical devices and will provide some tips on the practical application of the models and interpretation of model-derived predictions.

Some of the more recently developed tools to help with compound grouping and Read Across will be featured and promising models to provide quantitative toxicity threshold values (e.g., NOAEL, LOAEL) will be explored, along with models to predict biocompatibility endpoints such as skin sensitization.

Physics-based models to predict patient exposure to medical device leachables

Speaker: Dr. David Saylor, US Food and Drug Administration

Abstract: Medical device materials contain chemicals that may pose toxicological concern(s) if released in sufficient quantities. Toxicological risk assessment approaches are increasingly being used in lieu of animal testing to address these concerns. Currently, these approaches rely primarily on *in vitro* extraction testing to estimate the potential for patients to be exposed to chemicals that may possibly leach out of device materials, but the clinical relevance of the test results are often ambiguous. Recent developments suggest physics-based models can be used to provide more clinically relevant exposure estimates. However, the lack of data available to parameterize and validate these models presents a barrier to routine use. This presentation will provide an overview of these approaches, including considerations in developing and parameterizing exposure models, strategies that can be used to address the challenges associated with limited data, and potential future directions and improvements.

This webinar is available on the MDCPSS website:

<http://www.toxicology.org/groups/ss/MDCPSS/pastevents.asp>

SOT Annual Meetings



SOT Annual Meeting & ToxExpo
VIRTUAL EVENT • MARCH 2021

Medical Device and Combination Product Specialty Section Events at the 2021 SOT Virtual Annual Meeting & ToxExpo:

- **MDCPSS Virtual Reception: March 16th 6:30 to 8:30 pm**
 - 90+ Attendees
 - Keynote speaker: Ron Brown “Evolution of Toxicological Risk Assessment for the Biological Safety Assessment of Medical Devices - A Personal Journey”
- **Informational Session: March 23rd 2:45 to 4:05 pm**
 - Safety Assessment of Devices Used in Assisted Reproduction Technology: Mouse Embryo Assay”; Chair(s): Niranjan Goud, Greenwood Toxicology Associates LLC; and Benjamin Fisher, US FDA/CDRH

Primary Endorser: Medical Device and Combination Product Specialty Section
Other Endorser(s): Association of Scientists of Indian Origin Special Interest Group

 - Introduction. N. Goud. Greenwood Toxicology Associates LLC, Greenwood, IN.

- Mouse Embryo Assay: US FDA Guidance. P. Hung. US FDA/CDRH, Silver Spring, MD. Sponsor: N. Goud
 - Mouse Embryo Assay: Methodology from the Perspective of Device Manufacturer. B. Glazar. Vitrolife Inc., Englewood, CO. Sponsor: N. Goud
 - Mouse Embryo Assay Test Failures: Prevention Strategies. N. Goud. Greenwood Toxicology Associates LLC, Greenwood, IN.
 - Panel Discussion/Q&A.
- **March 24th 11:15 am to 1:00 pm – Virtual Poster Session**
 - 14 abstracts

Congratulations to our 2021 Award Winners!!!



Best Abstract Award

Joshua Schmidt, Ron Brown and Rose-Marie Jenvert for “Applicability domain of the GARD™ skin Medical Device test for *in vitro* skin sensitization testing of medical devices”



Best Published Paper Award

Wim H. De Jong, Joseph W. Carraway, Chenghu Liu, Chunguang Fan, Jia Liu, Audrey P. Turley, Thor S. Rollins, Kelly P. Coleman for “The suitability of reconstructed human epidermis models for medical device irritation assessment: A comparison of *In Vitro* and *In Vivo* testing results.” *Toxicol In Vitro*, 2020 Dec;69:104995 (<https://pubmed.ncbi.nlm.nih.gov/32891721/>)



Best Poster Award

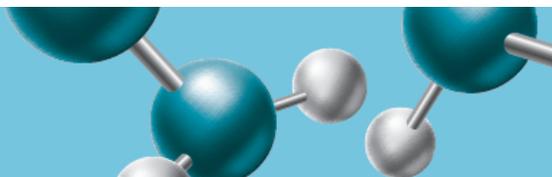
Caroline Pinto, Hainsworth Shin, and Alan Hood for “Evaluation of a Toxicological Screening Limit (TSL) Approach to Reduce the Burden of Toxicological Risk Assessments of Medical Device Analytical Screening Data”



Student Achievement Award

Zi Yae (Grace) Kang for “Effects of carbon nanodots on cytotoxicity and tumor necrosis factor alpha-induced pro-inflammatory cytokine expression *in vitro* (endothelial cells) and *in vivo* (C57BL/6)”

SOT 61ST ANNUAL MEETING
& TOXEXPO • SAN DIEGO, CA
MARCH 27–31, 2022



Returning to an in-person event in 2022, the **SOT 61st Annual Meeting and ToxExpo** will feature 58 Scientific Sessions and 12 Continuing Education courses, as well as more than 250 exhibitors sharing the latest products and technology in toxicology.

More details on these sessions, as well as the official schedule, will be available in the coming months. <https://www.toxicology.org/events/am/am2022/index.asp>

The abstract submission deadline:

- **Open Monday, August 16, to Friday, October 15, 11:59 PM US ET, 2021**

Abstracts must be submitted through the online Abstract Submission System for consideration for the 2021 SOT Annual Meeting and ToxExpo. Please note that some [SOT awards](#) are contingent upon having an abstract submitted to and accepted for the SOT Annual Meeting. Some of these award deadlines precede the abstract submission deadline, so plan accordingly.

Information on registration fees and other registration-related details for the meeting will be available soon. Stay tuned!

2022 Awards and Application Deadlines

Best Overall Abstract Award – **January 6, 2022**

Best Poster Award – **February 22, 2022**

Best Published Paper Award – **January 6, 2022**

Malek Toxicology Delaware LLC Student Excellence Award – **January 6, 2022**

Student Achievement Award – **January 6, 2022**

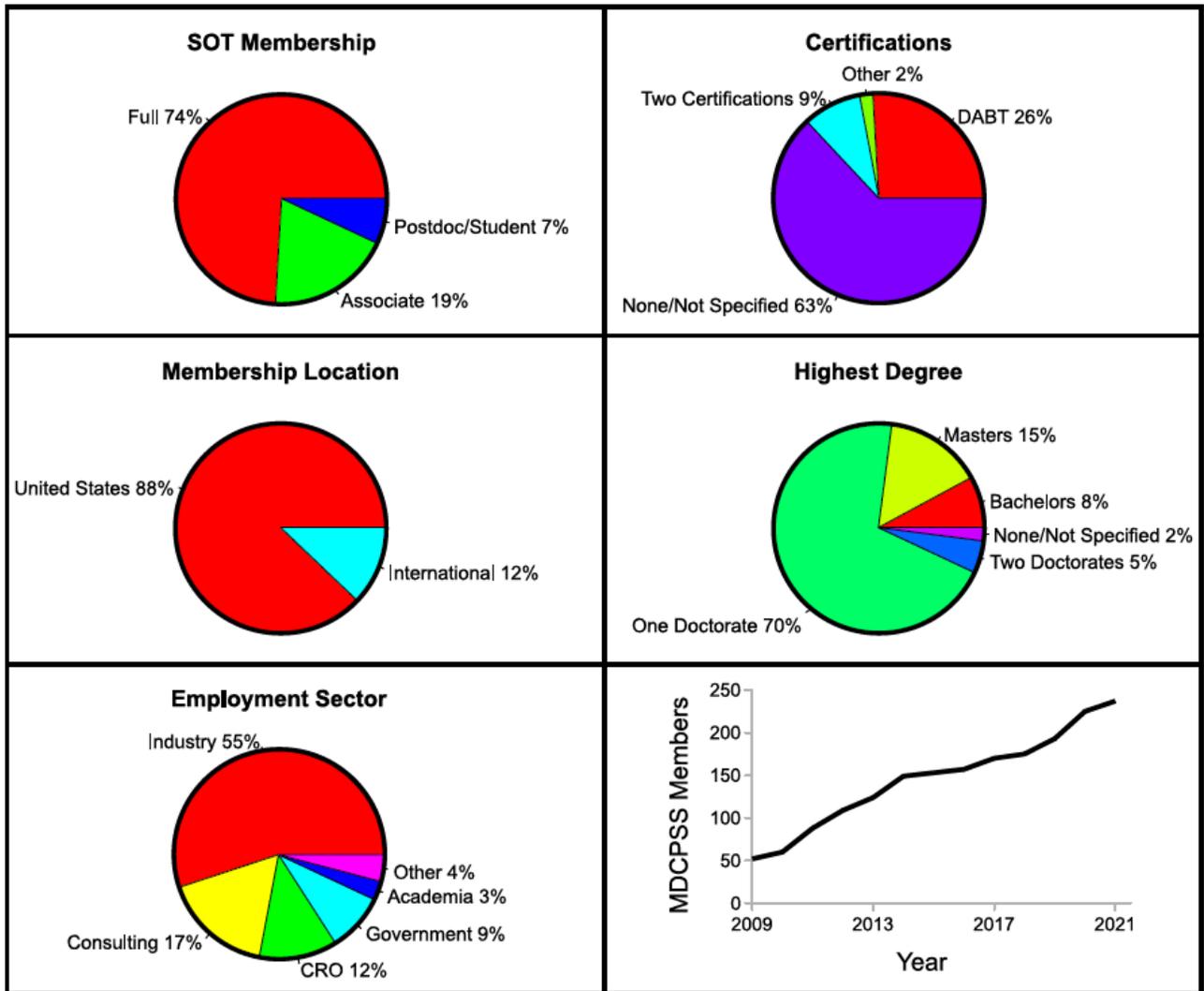
For more information on awards, see our [website](#).



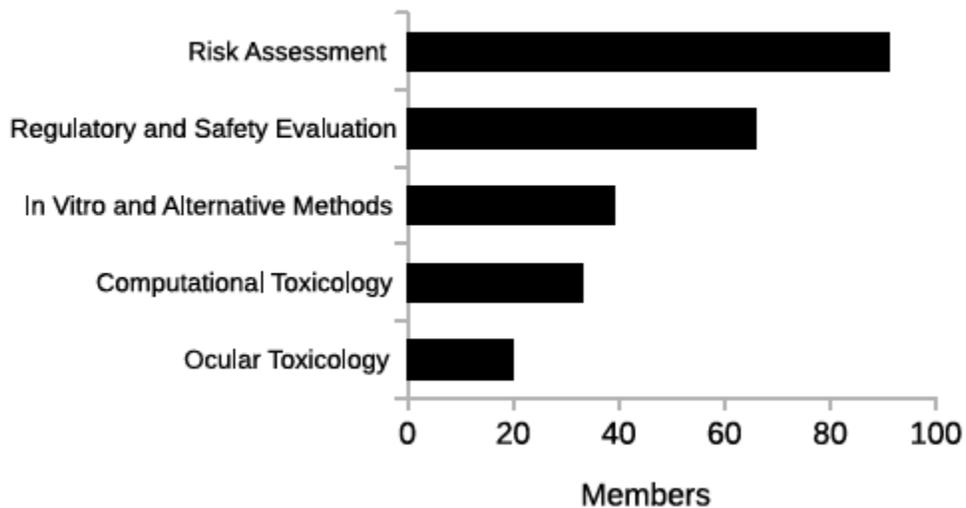
Membership Update

The MDCPSS was formed in 2009 with 51 founding members. Since then we've grown steadily and now have 237 members, a 5% increase in the past year.

Our members come from 17 countries and include representatives from industry, government, consulting, and academia. Our membership includes Full SOT Members, followed by Associate, Student, and Postdoctoral Members (see Figure below). Educational backgrounds range from BS degrees to those with MBAs, MPHs, PhDs, DVMS, and MDs.



70% of MDCPSS members are also members of one or more other Specialty Sections. Here are the top 5:



Postdoc Member Highlight



Dr. Kevin Trout is an ORISE postdoctoral fellow at the US Food and Drug Administration's National Center for Toxicological Research, where he is pursuing research relating to the cytotoxicity of metal wear debris from implantable medical devices. He earned a PhD in biomedical sciences from the University of Montana in 2019 while investigating particle immunotoxicology and macrophage fusion into multinucleated giant cells. Prior to graduate school, he received a BS in biochemistry and biology from the College of St. Scholastica in Minnesota and participated in a research program in biomedical engineering at Rutgers in New Jersey. Dr. Trout is an author of 11 peer-reviewed articles and/or book chapters. In addition to other conferences, he has presented his work twice at SOT Annual Meetings. Dr. Trout has been a member of SOT and the Medical Device and Combination Product Specialty Section (MDCPSS) since 2013. He has served SOT for two years as the MDCPSS Graduate Student Representative, two years as a member of the Graduate Student Leadership Committee, and one year as the student representative for the Continuing Education

Committee. In addition, he was a recipient of a student travel award and was a volunteer for SOT Continuing Education courses. As the postdoctoral representative of MDCPSS, Dr. Trout invites any current or prospective MDCPSS members to email him with any questions at his address listed in the ToXchange directory.

Treasury Update

The MDCPSS Executive Committee would like to thank our sponsors for helping to make MDCPSS 2020-2021 activities possible. MDCPSS had a successful year in member registrations and net assets, with modest expenses.

2021 Net Assets

January	\$21,868
February	\$20,744
March	\$19,205
April	\$20,205
May	\$20,202
June	\$25,832
July	\$25,832

2020-2021 MDCPSS Sponsors

Malek Toxicology Delaware, LLC
NAMSA
Kelly P. Coleman/Medtronic
WL Gore & Associates Inc.
WuXi AppTec, Inc.

To support MDCPSS activities, please consider making a tax deductible donation. If you would like to dedicate a contribution to supporting one or more activities, the EC will gladly facilitate your tax free donation and recognize your support at the annual event and in our communication. MDCPSS accepts donations by check or credit card. For additional information regarding donations to MDCPSS, please contact the MDCPSS Secretary/Treasurer, Megan Hahn (mhahn@namsa.com), or Belinda "Bo" Inscho (belinda@toxicology.org) at SOT Headquarters.

ISO 10993 Updates

By Sherry Parker, Senior Director of Regulatory Toxicology, WuXi AppTec

Though 2020 was a big year for medical device standards and guidance, many new standards and guidance have been published in 2021 with others soon to be completed by the working groups of the ISO Technical Committee 194 (ISO/TC 194) <https://www.iso.org/committee/54508.html>.

Here is a summary of recently published and upcoming standards and guidance:

ISO 10993-12: 2021

Biological evaluation of medical devices — Part 12: Sample preparation and reference materials

Though there were not many technical changes compared to the 2012 version of the guidance, it includes the following changes and updates:

- Emphasis on extraction conditions only for biological testing (ISO 10993-18 provides guidance on extraction conditions for chemical characterization)
- Harmonization of definitions with ISO 10993-18 (e.g. Blank, Reference Material, Test Sample, Stability)
- Recommended extraction conditions for cytotoxicity testing are now to conduct a 72-hour extraction for prolonged and long-term devices unless you can provide a justification that 24 hours is long enough
- Recommendation that non-patient contacting portions of the medical device should (if possible) be excluded either physically from test sample extracts or by exclusion of the surface area in the calculation of the extraction ratio
- Additional requirements for documentation of extract appearance and portions of the device tested
- Additional guidance on exhaustive extractions for biological testing

ISO 10993-23:2021

Biological evaluation of medical devices — Part 23: Tests for irritation

Tests for irritation will no longer be included in ISO 10993-10 (which will only be tests for sensitization; see below for the coming update). The normative text of ISO 10993-23 is primarily concerned with *in vitro* and *in vivo* irritation testing. The *in vitro* irritation clause is based on the results of the recent *in vitro* irritation round robin study that was sponsored by ISO/TC 194 Working Group 8. The *in vivo* irritation clause, which concerns rabbit skin irritation testing, was carried forward from the existing ISO 10993-10:2010 standard.

A Stepwise approach for evaluation of irritation was introduced. This includes following one or more of the following steps:

- Performing a chemical characterization of medical device materials, residue, and additives.
- Conducting a literature review to evaluate a device's chemical and physical properties, as well as the irritation potential of any extracts or constituents.
- Conducting *in-vitro* testing using reconstructed human epidermis (RhE).

- Conducting *in vivo* testing when device materials cannot be characterized and risk assessments cannot be undertaken.
- Performing non-invasive clinical studies only after irritancy potential is established using one of the aforementioned methods.

The annexes provide additional information about *in vitro* testing, human skin testing, and a background summary on irritation tests.

ISO/TS 37137-1:2021

Biological evaluation of absorbable medical devices — Part 1: General requirements

This document addresses specific considerations for absorbable medical devices including overall evaluation within a risk management process and conduct of specific biological tests which may be confounded by degradation products released into extraction media or tissue. For example, some tests may require evaluating a range of extract dilutions. *In vivo* implantation study considerations to address absorbable materials are also included. Chemical characterization of degradation products, evaluation of particulates, and biological risk assessment are addressed.

ISO/TR 21582:2021

Pyrogenicity — Principles and methods for pyrogen testing of medical devices

This TR provides an expanded list of potential pyrogens including:

- Endotoxins (from gram negative bacteria), but it also includes pyrogens from the outer membrane of gram-positive bacteria.
- Lipoproteins, viral double-stranded RNA, and bacterial flagella are all associated with pyrogenicity.

In addition to the material mediated pyrogens listed in Annex G of ISO 10993-11, material mediated pyrogens in this TR include microspheres, and nanoparticles including wear debris from implanted devices.

Test methods include those for endotoxin and non-endotoxin sources and introduces the *in vitro* pyrogen test using human immune cells [Human Cell-Based Pyrogen Test (HCPT)] which can detect pyrogenic endotoxins and pyrogens from other microbial components. The only test for detecting material mediated pyrogens is still the rabbit pyrogen test.

ISO/FDIS 10993-10

Biological evaluation of medical devices — Part 10: Tests for skin sensitization

This Final Draft International Standard (FDIS) version of the new Part 10 standard focuses solely on skin sensitization. The clauses concern the three *in vivo* sensitization tests: Local lymph node assay (LLNA), Guinea pig maximization test (GPMT), and closed-patch Buehler test. The information about these tests, which was carried forward from the existing ISO 10993-10:2010 standard, has been updated in the FDIS.

A Stepwise approach has been introduced (similar to ISO 10993-23). It starts with literature review, considers chemical characterization and risk assessment, *in vitro* test methods, and finally *in vivo* sensitization testing when required.

ISO/CD2 10993-17

Biological evaluation of medical devices — Part 17: Toxicological risk assessment of medical device constituents

The second Committee Draft (CD) of the updated Part 17 standard will soon become a Draft International Standard; the final version is expected in Summer 2022.

It represents a major update and expansion of the existing ISO 10993-17:2002 standard.

Key themes include obtaining toxicological information, determining exposure doses, derivation of tolerable intakes and tolerable contact levels, the threshold of toxicological concern, toxicological screening limits, calculating margins of safety, and judging acceptability of toxicological risk.

Two additional standards are being actively revised; more information coming on these in a future newsletter.

- **ISO/DIS 10993-2** Biological evaluation of medical devices — Part 2: Animal Welfare Requirements
- **ISO/CD 10993-3** Biological evaluation of medical devices — Part 13: Tests for genotoxicity, carcinogenicity and reproductive and developmental toxicity

MDCPSS Mission

The mission of the Medical Device and Combination Product Specialty Section is to:

- Provide an international focus group for toxicologists working in the area of medical devices and combination products including a device component.
- Promote the development of new experimental methods for the evaluation of medical devices.
- Sponsor scientific and educational programs that emphasize current developments and issues in the toxicological evaluation of medical devices.
- Promote proactive communication and interactions among toxicologists in government regulatory agencies, regulated industry, and academia regarding current issues in medical device toxicology.
- Stimulate interest in medical device safety as a career path for new toxicologists.

Don't forget to visit the MDCPSS Website for regular updates:

<https://www.toxicology.org/groups/ss/MDCPSS/index.asp>