



# 2021

## ANNUAL REPORT



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# Introduction



## **The North American 3Rs Collaborative's mission is to advance science, innovation, & research animal welfare.**

We facilitate collaborative opportunities to refine, reduce, and replace animals in research. We are unique in growing partnerships between academics, pharmaceutical companies, vendors, technology providers, contract research organizations, government organizations, regulatory agents, and other non-profits. This diversity is reflected in our organizational leadership. Such partnerships are essential for the development and implementation of the 3Rs. We aim to be a leading authority on the 3Rs in North America & globally.

### **Strategic Goals**

- 1. To facilitate key collaborative initiatives for meaningful 3Rs impacts.**
- 2. To increase awareness of new 3Rs research.**
- 3. To be a foundational partner for institutional 3Rs programs.**



# Our 3Rs Initiatives



## Refinement

### Helping institutions refine research animal lives.

Our Refinement Initiative has created 16 refinement open access resource pages that have been viewed over 7500 times. We've also focused on promoting refined methods for picking up mice.

#### What have we done?

- Given 4 panel presentations on refined mouse handling at AALAS, MSMR, University of Michigan, & University of Washington attended by over 650 individuals.
- Created a [comprehensive, open-access resource page](#) that includes answers to FAQ about refined mouse handling.
- Written LAS pro articles on hot topics with NHP and on refining methods of picking up mice to be published in 2022.

#### In 2022, we will expand our efforts by:

Working towards producing a refined mouse handling certificate course, published LAS Pro Articles, benchmarking survey results and year 2 of data collection, downloadable & editable slide deck + SOP on refined mouse handling, additional 7 more presentations at NJABR, CALAS, and more. We will also be creating a blood collection resource hub.



# Our 3Rs Initiatives



## Translational Digital Biomarkers

**Refining & reducing research animal use by advancing the science and acceptance of translational digital biomarkers.**

Translational Digital Biomarkers are objective, quantifiable, psychological, and behavioral data that are collected and measured by means of digital technologies in the home cage. They are clinically relevant, enabling improved research reproducibility and translational of preclinical in vivo studies.

**We've engaged 23 individuals from 17 institutions** – both end-users and technology providers – to collaborate to advance the field. In 2021, we authored a manuscript accepted for publication in *Frontiers in Behavioral Neuroscience: Emerging Role of Translational Digital Biomarkers Within Home Cage Monitoring Technologies in Preclinical Drug Discovery and Development*.

### **In 2022, we will expand our efforts by:**

- Creating a user-friendly technology hub of commercially available translational digital biomarkers systems
- Presenting at 5 conferences and webinars & regularly sharing relevant material on LinkedIn to reach new scientific audiences and regulators
- Inviting collaborations with additional translational digital biomarker technology providers
- Creating an educational webpage on translational digital biomarkers





## Rodent Health Monitoring

### Helping institutions replace soiled bedding sentinels with environmental health monitoring.

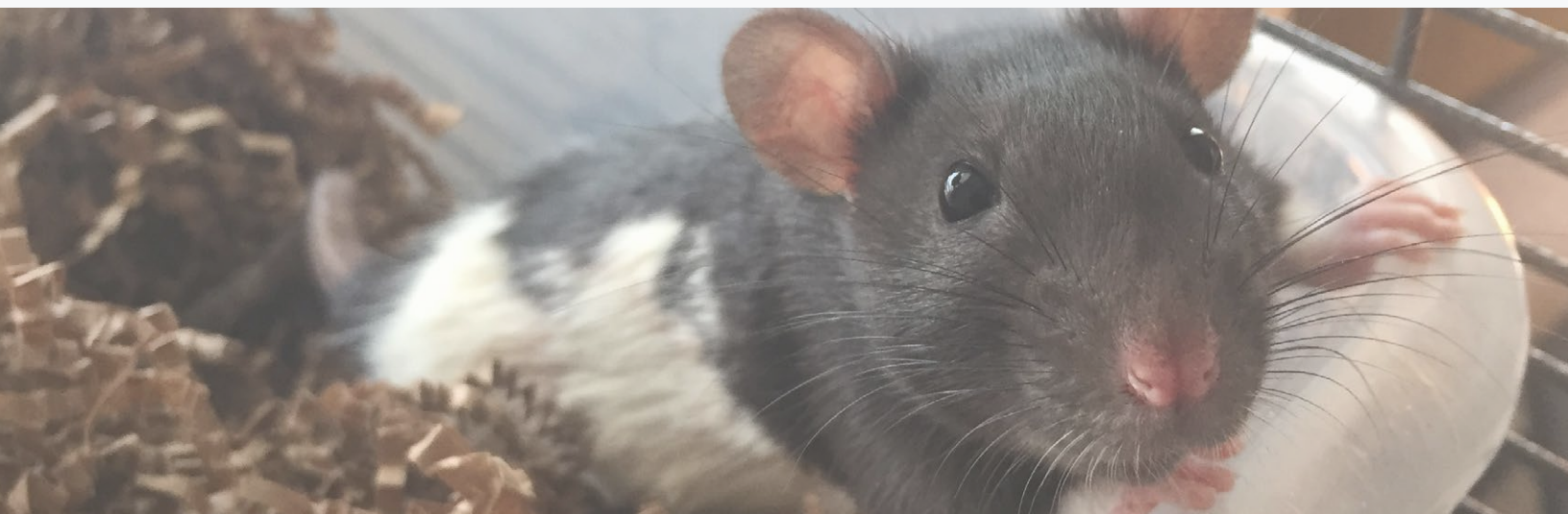
Our Rodent Health Monitoring Initiative sparked at least 5 major institutions to switch from using live sentinel rodents to environmental monitoring thereby replacing >8,000 rodents annually.

#### How did we accomplish this?

- 5 panel presentations at NJABR, ACLAM, MSMR, AALAS, & NC3Rs attended by over 1000 individuals.
- Creating a [comprehensive, open-access resource page](#) (visit >2500 times) that includes answers to FAQ, social proof, and a downloadable & editable slide deck.
- Sharing SOPs with institutions looking to switch.
- Published a LAS Pro article overviewing why & how to make the switch

#### What do we have planned for 2022?

A systematic review, publishing results from our year 1 benchmarking survey and running year 2, posting freely accessible SOPs, 3 presentations to reach new audiences, and revising our webpage including cost comparison resources.



## Microphysiological Systems

**Increasing industry adoption & regulatory acceptance of Microphysiological systems that can reduce & replace some research animals.**

We have engaged **82 individuals** from **39 institutions** who are working together to advance the field.

### What have we done?

- Created a user-friendly technology hub of commercially available systems.
- Presented a talk on Roadmap to Regulatory Acceptance from the Developers Perspective & poster on Engineering Aspects of MPS at the MPS World Summit Symposiums
- Posted weekly on LinkedIn highlighting MPS Systems
- Given 3 presentations introducing MPS to end-users
- Hosted our first webinar for the IQ Consortium MPS Affiliate
- Drafted a paper outlining current MPS technologies
- Defined 10 contexts of use for MPS for regulatory use

### What will we do?

- Improve the use, design & content of our Technology hub
- Host 3 additional webinars and 4 workshops with the IQ MPS Affiliate
- Submit 2 papers on MPS on regulatory acceptance & overview of the status quo
- Present on MPS regulatory acceptance
- Create useful MPS resource pages & continue LinkedIn posts

## Compassion Fatigue Resiliency

### Promoting compassion fatigue resilience and workplace wellness for research animal professionals.

NA3RsC currently hosts [the most comprehensive resource page](#) for CF in our field. In August of 2021, we formed a new initiative focused on helping promoting compassion fatigue resiliency across the field.

In the spring of 2022, we are running a 2-year longitudinal study at 7 independent sites in the US & Canada with over 700 staff members to evaluate the efficacy of institutional compassion fatigue resiliency programs. As part of this study, we have created a starter pack for institutions who want to start their own programs.

### Compassion Fatigue Resiliency Starter Pack

- Longitudinal survey on compassion fatigue, stress, resiliency, workplace satisfaction, and employee retention
- 5 NA3RsC hosted webinars on the topics of compassion fatigue for research animal personnel, mindfulness, creating great work relationships, culture of care, & meaning making
- Additional team activities to promote compassion fatigue resiliency
- Printed posters to promote compassion fatigue awareness that link to resources
- Guidance on forming a compassion fatigue committee & gaining leadership support for these efforts (includes an editable slide deck for in-house house)
- Example budget
- Recommended managerial, policy, & procedures changes
- Additional culture of care materials



**To create these materials, we've engaged 26 individuals from 18 institutions to collaborate with them on their content and design.**



# Our 3Rs Initiatives



## **3Rs Certification Course**

### **Creating accessible, reputable, and high-quality 3Rs educational content.**

We know there is a lot of great 3Rs work being done in this field, but that specific, specialized, and widely accessible training on the 3Rs is lacking. We've engaged 23 experts in the 3Rs from 22 institutions to design this course.

In 2021, we focused on determining the key content and format for the course. We currently have nearly every module's content fleshed out. We are now working to refine the content, add visuals and interaction, and put the content into the software to provide the best user experience.

### **What will this course look like?**

- Virtual
- Interactive
- Self-paced
- 5 one-hour modules on Introduction/History of the 3Rs, Refinement, Reduction, Replacement, Applications & Related Topics
- Quizzes at the end of each module
- North American centric with a global perspective
- Designed to be widely applicable regardless of your role with animal research

We plan to release the course in mid to late 2022 with pricing options for individuals or institutions.

# Our Communications



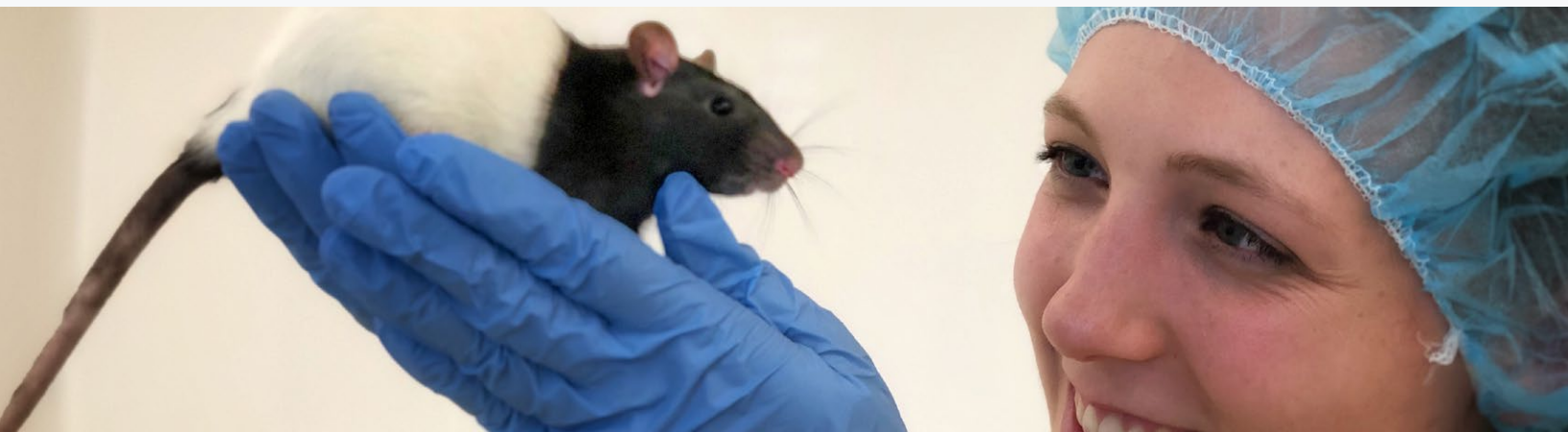
**We're reaching thousands of scientific professionals.**

**In 2021, our communications reached more people than ever.**

- **Newsletter** recipients increased 15% from 2000 to 2300.  
21 newsletters published in 2020 versus 10 in 2020  
30% open rate & 10% click rates
- **LinkedIn** followers increased >3x from 316 to 1023.  
170 posts with >55k impressions.
- **Twitter** followers increased exponentially from 0 to 230.  
200 posts with >100k impressions
- **Website** traffic increased by 8x  
15k people with 32k views (versus 4k and 11k in 2020).

**Our 2022 communications strategy will refine our current methods to education more individuals in the 3Rs.**

- Continue publishing 2 newsletters a month focused on 3Rs news/events/resources from within & outside NA3RsC
- Periodically publish targeted email newsletters focused on a single initiative or 3Rs effort
- Refine our social media postings to regularly include education about the 3Rs and directing individuals to our resource pages
- Publish in LAS Pro Regularly
- Conduct an external review of our social media activity & website



# Our Outreach

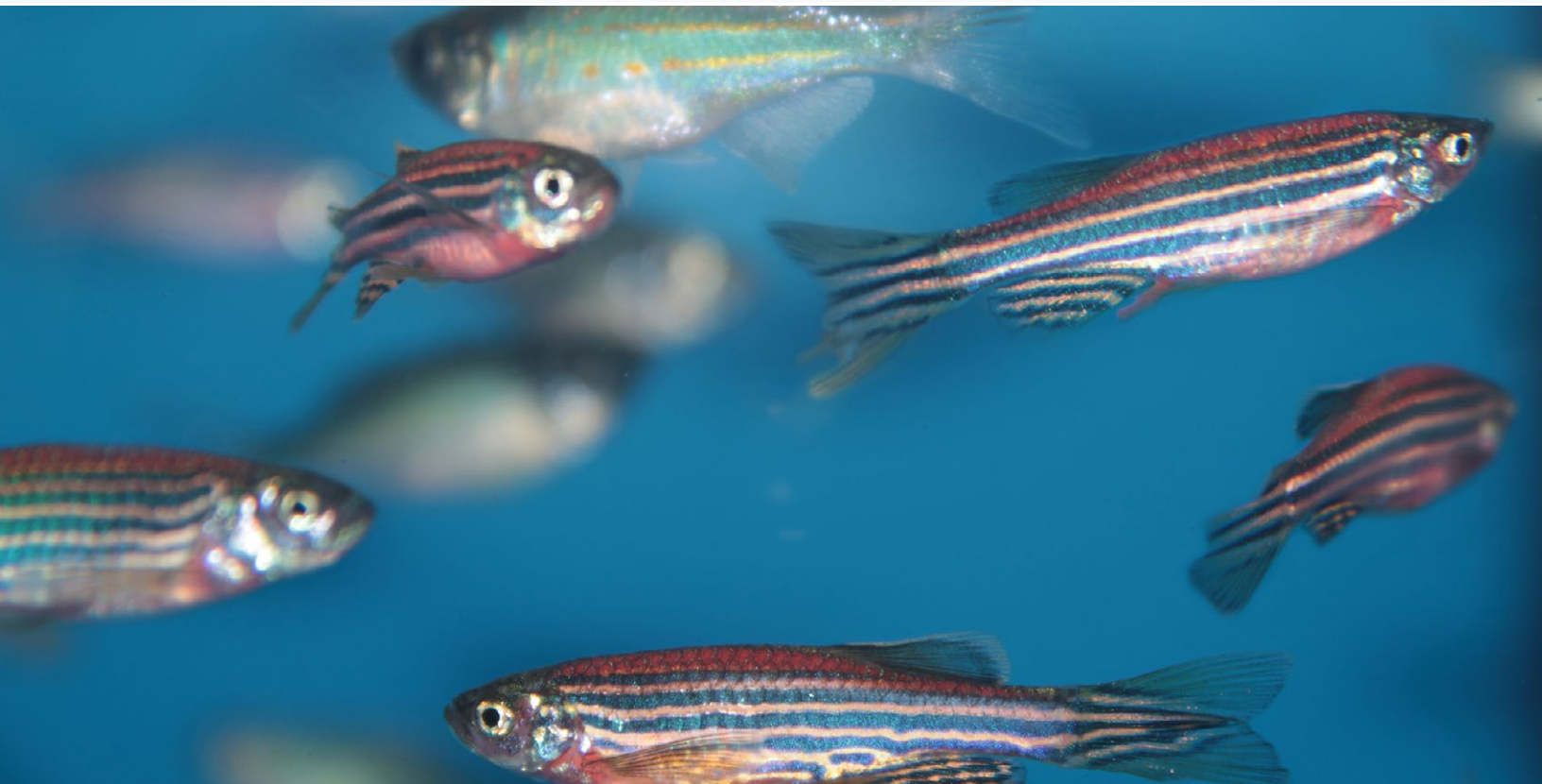


## We're educating stakeholders on the 3Rs.

- We presented >25 times to >3,500 attendees on topics such as Applying the 3Rs for Superior Science, Rat Tickling, Refined Mouse Handling, Microphysiological Systems, and Rodent Health Monitoring.
- We contributed to **12 new 3-Minute 3Rs podcasts** in conjunction with Lab Animal & NC3Rs.

## We will continue educating stakeholders on the 3Rs.

- We will attend 8 conferences with booths/talks including SOT, 3D Tissue Models Summit, MPS World Summit, FELESA, CALAS, AALAS, ASLAP, and PRIMR to reach thousands of individuals across fields and countries.
- We will present an additional 8 webinars throughout the year to reach individuals that may not have the capacity to attend conferences.
- We will contribute to 12 new 3-Minute 3Rs podcasts in conjunction with Lab Animal & NC3Rs.



# Our Funding



## We're engaging exponentially more institutions & individuals.

- In 2019, we had a 1 donation for a total of \$2,500.
- In 2020, we had 45 donations for a total of \$73,210.
- In 2021, we had 117 donations that totaled \$138,536

Donation Type	Number	Amount
Institutional	24 (+14)	\$105,232
Initiative	30 (+11)	\$29,842
Individual	64 (+55)	\$3,462
<b>Total</b>	<b>117 (+80)</b>	<b>\$138,536</b>

**Our overall donor retention was 91%.**





# Financial Statement



We made a net 40k in 2021 that will be used to expand our capacity.

<b>Starting Balance</b>	<b>\$107,727</b>
Program Support & Salaries	\$82,417
Communications & Outreach	\$8,170
Development	\$51
Accounting, Bookkeeping, & Taxes	\$1220
Insurance	\$1891
Memberships	\$2165
Other	\$39
<b>Total Income</b>	<b>\$138,536</b>
<b>Ending Balance</b>	<b>\$150,310</b>

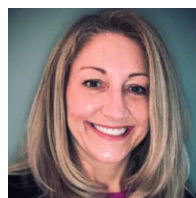




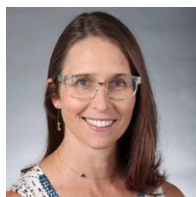
# Leadership Team



**President**  
**Benjamin Cappiello**  
AxoSim, Inc.



**Past President**  
**Lisa Stanislawczyk**  
Bristol-Myers Squibb



**Vice President**  
**Elizabeth Nunamaker**  
University of Florida &  
Charles River Laboratories



**Treasurer**  
**Jennifer McMillan**  
Yerkes NPRC,  
Emory University



**Vice-President Elect**  
**Sally Thompson-Iritani**  
University of Washington

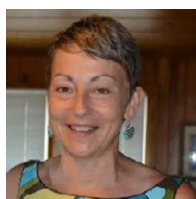


**Secretary**  
**Norman Peterson**  
Seagen

## Staff



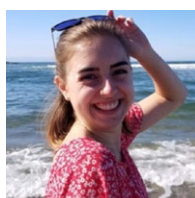
**Program Manager**  
**Megan LaFollette**



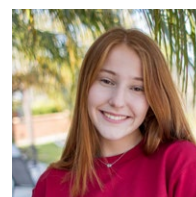
**Administrator**  
**Alice White McVey**



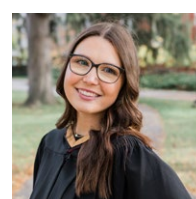
**Amelia**  
**Eigerman**



**Sara**  
**Zeman**



**Caroline**  
**Clement**



**Lauren**  
**Young**

## Interns

# Board Members



Our board of directors spans across industries.



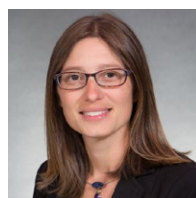
**Alan Hoberman**  
Charles River Laboratories



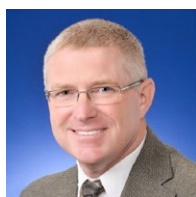
**Judy MacArthur Clark**  
JMC Consultancy and  
JMC Welfare International



**James Curry**  
Zoetis



**Laura Schaevitz**  
Recursion Pharmaceuticals



**Jerry Poling**  
Eli Lilly and Company



**Meaghan Loy**  
Scientist.com



**Jessie Kull**  
AWIC-USDA



**Suzanne Fitzpatrick**  
FDA



**Joseph Garner**  
Stanford

## Ad Hoc Advisors



**Vicky Robinson**  
NC3Rs



**Armand Mensen**  
Swiss3RCC

# Thank you!



## Individual Donors

Alan Hoberman	Larry Carbone	Suzie Stevens
Alice McVey	Lena Levison	Theresa Faughnan
Armand Mensen	Lisa Stanislawcyk	Yesenia Galindo
Christopher Manuel	Liz Nunamaker	8 Anonymous
Coralie Zegre Cannon	Mark Sharpless	
Cynthia Pekow	Meaghan Loy	
Denyse Levesque	Megan LaFollette	
Derek Fong	Noel Dybdal	
Elizabeth Tobey	Norman Peterson	
Eric Balboa	Patricia Foley	
Jeanie Flanagan	Robert Gump	
Jennifer McMillan	Sally Thompson-Iritani	
Jerry Poling	Shannon Stutler	
Jim Curry	Sonja Wallace	
Judy Macarthur Clark	Stacy Pritt	

## Initiative Members

### Refinement

Cecelia Paculba, Genetech	Julia Harrington, AstraZeneca
Christine Buckmaster, Stanford	Lauren Young, University of Guelph
Coralie Zegre Cannon, BD	Mark Prescott, NC3Rs
Deborah Calantropio-Covington, BMS	MaryAnn Vasbinder, GSK
Denyse Levesque, Emory	Meaghan Loy, Sciencsit.com
Donna Goldsteen, AstraZeneca	Penny Reynolds, University of Florida
Elizabeth Nunamaker, University of Florida & Charles River Laboratories	Sally Robinson, AstraZeneca
Heath Decker, University of Florida	Sally Thompson-Iritani, University of Washington
Jennifer McMillan, Emory	Sarah Thurston, Charles River Laboratories
Joseph Garner, Stanford	

# Thank you!



## Initiative Members

### Compassion Fatigue

Alison Hayward, MIT

Beth Greenhough, Keble College,  
University of Oxford

Crystal Johnson, Georgetown

Elizabeth Clemmons, Southwest National  
Primate Research Center  
Texas Biomedical Research Institute

Emily Pearson, Cornell

Fabienne Ferrara, Consultant

Francesca Perrotta,  
University of Washington

Heather Hersh, Thrive Well-Being

Jennifer McMillan, Emory

Lace Lively, Texas Biomedical  
Research Institute

Lauren Healy, BMS

Lisa Kelly, University of Georgia

Lisa Stanislawczyk, BMS

Megan LaFollette, NA3RsC

Pat Frost, Texas Biomedical Research Institute

Preston Van Hooser, University of Washington

Raphael Malbrue, Nationwide Children's  
Hospital and The Ohio State University

Rhonda MacAllister, Oregon National Primate  
Research Center

Rita Bellanca, University of Washington

Sally Robinson, AstraZeneca

Sally Thompson-Iritani,  
University of Washington

Sarah Thurston, Charles River Laboratories

Taylor Carroll, MIT

Temeri Wilder-Kofie, NIH/NIAID/CMB

Theresa Martin, University of Guelph

Vanessa Lee, Emory

### Rodent Health Monitoring

Caroline Winn, Pfizer

Chris Manuel, University of Colorado Denver

Christina Pettan-Brewer,  
University of Washington

Cris Torres, UCLA

Joe Garner, Stanford University

Kate Gates, Stanford University

Ken Henderson, Charles River laboratories

Kerith Luchins, University of Chicago

Norm Peterson, Seagen

Patricia Foley, Georgetown University

Theresa Faughnan,  
Long Island University, Post Campus

Wai Hanson, Emory

# Thank you!



## Initiative Members

### 3Rs Certificate Course

Armand Mensen, Swiss 3RCC

Brianna Gaskill, Novartis

Elizabeth Nunamaker, University of Florida  
& Charles River Laboratories

Erin Vogelsong, Drexel

Frederic Chatigny, UPEI

Ismene Dontas, University of Athens

Jerry Poling, Eli Lilly

Jim Curry, Zoetis

Kate Hoffman, Harvard

Kristen Bell, AstraZeneca

Lisa Stanislawczyk, BMS

Mandi Taylor, NIH/Priority One Services

Margaret Hull, University of Florida

Melissa Farwell, Takeda

Natalie Bratcher-Peterson, AbbVie

Pat Turner, Charles River Laboratories

Sally Thompson-Iritani,  
University of Washington

Shayna Halverson, AltaSciences

Stacy Pritt, University of Texas Southwestern

Sylvie Cloutier,  
Canadian Council for Animal Care

Theresa Martin, University of Guelph

Tim Ryan, McMaster University





# Thank you, sponsors!



## Gold Level



## Silver Level



## Bronze Level



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StemoniX

Stem  
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TARA

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Emulating Human Biology

VYANT bio

# Thank you, sponsors!



## TDB Initiative Members

