AGENDA BY SESSION

Sunday, September 25

7:30 – 8:30pm

Changing the Game of Antibody Validation

David McAdams | Duke University

Monday, September 26

8:30 – 9:00am

Welcome, Workshop Charge, and Defining the Problem

Leonard Freedman | The Global Biological Standards Institute

9:00 – 10:30am

The Science Behind Antibody Validation Standards

Challenges and Opportunities: An overview of the antibody problem, concepts on how to approach validation, and the pre-workshop Validation Consensus Building document, which highlights the major issues raised in the online discussion and survey.

Speaker: **David Rimm** | Yale University

A discussion on the science and challenges of antibodies used in research, strategies for antibody validation, and use of emerging technologies for improving reliability of antibodies.

Moderator: **Véronique Kiermer** | PLOS Journals

Panelists: **Andrew Bradbury** | Los Alamos National Laboratory
Joshua LaBaer | Arizona State University
Fridtjof Lund-Johansen | Oslo University Hospital
David Rimm | Yale University
Mathias Uhlén | KTH Royal Institute of Technology

11:00 – 11:45am

Open Forum on Validation Strategies

Attendees will have an opportunity to comment on the challenges and inherent complexity of validation strategies for research antibodies.

Moderator: **Leonard Freedman** | GBSI

Facilitator: **Kavita Berger** | Gryphon Scientific

1:00 – 2:15pm

Integration of Recombinant Antibodies

Brief presentations and discussion on the merits and limitations of recombinant antibodies for use in research, their use in the current and future market, and their role in addressing antibody quality and reproducibility.

Moderator: **Joshua LaBaer** | The Biodesign Institute, Arizona State University

Panelists: **Brian Kay** | University of Illinois, Chicago
Andreas Plückthun | University of Zurich
Roberto Polakiewicz | Cell Signaling Technology
Valerie Quarmby | Genentech
Jie Zhou | Morrison & Foerster

2:15 – 3:15pm

Validation Standards: Facilitated Breakout Sessions

Small group discussions in which attendees will deliberate about the comparative utility, limitations, benefits, and other key considerations of validation strategies for specific applications.

Breakout Group Chairs: **Tara Hiltke** | National Cancer Institute
Ruud Hulspas | Cellular Technologies Bioconsulting
Simon Goodman | Merck KGaA
Margaret Karow | Amgen
Achim Knappik | Bio-Rad
James Wells | University of California, San Francisco
David Soll | Developmental Studies Hybridoma Bank
Blaine Stine | AbbVie

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Monday, September 26 (continued)

3:30 – 5:00pm

Validation Standards: Group Reporting

Integrated discussion on the outcomes of each small group session, focusing on priority strategies for validation of antibodies for different applications.

Moderator: **Kavita Berger** | Gryphon Scientific

Panelists:
Simon Goodman | Merck KGaA
Tara Hiltke | National Cancer Institute
Ruud Hulspas | Cellular Technologies Bioconsulting
Margaret Karow | Amgen
Achim Knappik | Bio-Rad Laboratories
James Wells | University of California, San Francisco
David Soll | Developmental Studies Hybridoma Bank
Blaine Stine | AbbVie

5:00 – 6:00pm

Finding Common Ground: Building Consensus

Attendees will have an opportunity to comment on the highest priority and most informative, effective or/useful strategies for validating antibodies used for different applications as well as appropriate controls for validation.

Facilitators: **Kavita Berger** | Gryphon Scientific
Emily Billings | Gryphon Scientific

7:30-8:15pm

Incorporating Antibody Databases

Discussion on the capabilities and limitations of online platforms for reviewing or listing reliable antibodies.

Moderator: **Karen Padgett** | Bio-Techne

Panelists:
Anita Bandrowski | SciCrunch
Andrew Chalmers | CiteAb
Cecilia Lindskog-Bergstrom | Human Protein Atlas
Michael Okimoto | Biocompare, CompareNetworks
Hanqing Xie | Labome

Tuesday, September 27

8:15 – 8:45am

Recap of Previous Day's Discussion

A review of the key points from the previous day's discussion, highlighting key areas of consensus reached and recommendations identified. This will be followed by a brief summary of the preworkshop consensus building paper on the role of companies.

Speaker: **Leonard Freedman** | GBSI

8:45 – 10:15am

Producers and Service Providers in a Pivotal Role: QC/QA and Certification

A discussion of current methods for validating antibodies and information-sharing practices to inform consumers about product validation results, and the role of certification of antibody validation standards employed in the QA/QC process. This discussion will examine the difficulties encountered in assuring quality and consistency of antibodies, and will explore the role that producers and service providers play in countering or otherwise addressing issues of reproducibility.

Moderator: **David McAdams** | Duke University

Panelists:
Carl Ascoli | Rockland Immunochemicals
Matt Baker | Thermo Fisher Scientific
Elizabeth Iorns | Science Exchange
Alejandra Solache | Abcam
Roberto Polakiewicz | Cell Signaling Technology

10:45 – 11:00am

Introducing Drivers for Adoption

A summary of the findings of the Drivers for Adoption consensus-building paper.

Speaker: **Leonard Freedman** | GBSI

Tuesday, September 27 (continued)

11:00 – 12:00pm

Ensuring Validation through Training and Proficiency

A discussion about the merits and limitations of training and proficiency testing of researchers for antibody validation, described through specific examples, social science analysis of educational efforts, key attributes of successful efforts, and incentive mechanisms such as badges displayed at the time of publication reflecting shared antibody validation data.

Moderator: **C. Glenn Begley** | Akriveia Theraputics

Panelists: **Matt Baker** | Thermo Fisher Scientific
Sunil Badve | University of Indiana
Stuart Buck | Laura and John Arnold Foundation
Vivian Siegel | GBSI
Timothy Springer | Harvard Medical School

1:15 – 1:45pm

Rigor, Reproducibility, and Antibodies: The View from NIH

Presentation on the key issues surrounding reproducibility associated with validation requirements for antibodies used in research from the perspective of the NIH. The presentation will draw, in part, from the NIH guidelines on Rigor and Reproducibility.

Speaker: **James Anderson** | National Institutes of Health

1:45 – 2:45pm

Advancing Validation Standards through Journals

A dialogue on the role of journals in promoting implementation of validation measures, including topics about the different levers or incentives, such as publishing validation tables or raw data that could be used to encourage adoption.

Moderator: **Vivian Siegel** | GBSI

Panelists: **Nathan Blow** | BioTechniques
Natalie de Souza | Nature Methods
Ann Goldstein | Cell Press
Véronique Kiermer | PLOS Journals
Valda Vinson | Science

2:45 – 4:30pm

Solidifying Consensus and Strategies for Implementation

A two-part discussion: Part 1: final confirmation of effective, high-priority validation strategies, and guidelines for testing antibodies used in different experimental applications; Part 2: key considerations for implementation and adoption of the validation strategies, including recommended roles and responsibilities, drivers for adoption, increased production and use of recombinant antibodies, training, certification, and proficiency testing.

Moderator: **Leonard Freedman** | GBSI

Facilitators: **Kavita Berger** | Gryphon Scientific
Emily Billings | Gryphon Scientific

4:30 – 5:00pm

Roadmap for Moving Forward

A review of the primary conclusions from the workshop and discussion of next steps and assignments for forward movement, particularly within the broader context of enhancing reproducibility in research.

Speaker: **Leonard Freedman** | GBSI

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