The BSC as a public-private partnership: HESI’s involvement in the BSC

Connie Mitchell
Scientific Program Manager
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Outline

• Introductions
• Overview of the BSC
  • Mission
  • Objectives
  • Strategy
• HESI’s role
• Organizational Structure
  • General Public
  • Stakeholder Council
  • Technical Working Groups
  • Steering Committee
• Timeline
Introductions – HESI Staff

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…as with other commodities that the agency regulates, it’s critical that FDA continue to work closely with our partners in industry to achieve our primary goal of protecting public health and safety. As the dietary supplement industry develops new products and ingredients, advances new delivery systems and innovates in other ways, the FDA must do more to leverage its existing resources and authorities to evaluate these products. This requires collaborative research and a shared understanding.

I’m pleased to announce that we’ve recently created the Botanical Safety Consortium, a public-private partnership that will gather leading scientific minds from industry, academia and government to promote scientific advances in evaluating the safety of botanical ingredients and mixtures in dietary supplements. This group will look at novel ways to use cutting-edge toxicology tools, including alternatives to animal testing, to promote the goals of safety and effectiveness we share with consumers and other stakeholders.”
The Botanical Safety Consortium

19 Nov 2019

FDA Announces Convening of the Botanical Safety Consortium

Constituent Update

November 14, 2019

The U.S. Food and Drug Administration (FDA) announced today that the Botanical Safety Consortium (BSC) has formally been convened. This milestone is the result of a Memorandum of Understanding (MOU) that was recently signed between the FDA, the National Institutes of Health’s National Institute of Environmental Health Sciences, and the Health and Environmental Sciences Institute (HESI). This MOU establishes the framework for the BSC.

The BSC was originally announced in the FDA’s February 2019 statement on the agency’s new efforts to strengthen regulation of dietary supplements through modernization and reform. The Consortium’s mission is to provide a forum for scientists from government, academia, consumer health groups, industry, and non-profit organizations to work collaboratively to generate a sound scientific basis for integrating existing safety data and the latest toxicology tools to evaluate botanical safety in dietary supplements. With the execution of the MOU, specific guidelines for membership and participation in the BSC will be established by early 2020.
History of the Botanical Safety Consortium

2018-2019
- Conceptualization of the BSC
- Formation of working groups
- Identification of mission & objectives

3Q 2019
- Discussions initiated between FDA, HESI, and NIEHS

4Q 2019
- MOU signed
- HESI named as convener
- Announcement made by FDA
- Scoping meeting held

2020
- Launch & official announcement of the BSC
- Website launched
- Adding new members
Mission of the Botanical Safety Consortium

To enhance the botanical safety toolkit and bring clarity to botanical dietary ingredient assessments for manufacturers and regulators.
Botanical Safety Consortium Objectives

- Engage with a broad group of global stakeholders to leverage the best scientific approaches
- Establish the appropriate levels of chemical characterization for complex botanical ingredients
- Identify pragmatic, fit-for-purpose *in vitro* & *in silico* assays to evaluate botanical safety
- Evaluate the application of these tools via comparison to the currently available safety information
- Integrate these tools and approaches into a framework that will facilitate robust evaluation of botanical ingredients
Botanical Safety Consortium Strategy

- Identify Botanical Candidates
  - Develop a list of botanical ingredients that have available safety information
  - Create a reference botanical ingredient library

- Substance Characterization
  - Utilize analytical approaches and chemometrics for adequate characterization
  - Develop strategies to address variability between botanical ingredients for safety assessment

- Identify Suitable Approaches & Assays
  - Identify suitable in vitro/in silico assays that are within the identified domain of applicability for botanical ingredients

- Evaluation of Library
  - Evaluate the reference botanical ingredients in a battery of selected in vitro/in silico assays

- Analysis & Reporting
  - Perform suitable data analysis
  - Compare the results from the testing battery to existing animal and human safety data
  - Make data publicly available

- Framework & Toolbox Development
  - Leverage learnings to determine suitable in vitro & in silico approaches for botanical ingredient evaluation
  - Identify challenges for botanical application
  - Prioritize research and evaluation needs
Health and Environmental Sciences Institute (HESI)

OUR VISION
Science-based solutions for a sustainable, healthier world

OUR MISSION
Engage scientists from academia, government, industry, and other scientific organizations to identify and resolve global health and environmental issues

OUR CORE PRINCIPLES
- Create opportunities to collaborate
- Driven by solutions
- Transparent
- Independent
- Committed to excellence
The HESI Model: Bridging Research to Application

IMPROVED
SAFETY AND INNOVATION FOR HUMAN AND ENVIRONMENTAL HEALTH

Academic, Clinical, & Research Scientists & Organizations

Industry Research & Development

NGOs, Patient Advocacy Groups, & Foundations

Government Research & Regulation

30
THIRTY YEARS
HESI
Science for a Safer, More Sustainable World
HESI Participation & Support

- 65% Public Sector
- 35% Private Sector
- >250 Active Partner Organizations, >600 scientists
- Research Program Funding from Both Public & Private
Over 335 peer-reviewed publications from HESI scientific programs have been published over the last 30 years, with more than 100 publications in the last decade.

HESI citations by the numbers:
- 20,000 total citations
- 3,600+ scientific journals citing HESI work
- 1,600+ citing organizations
- 75 citing countries

MEMORANDUM OF UNDERSTANDING

Among
The Food and Drug Administration (FDA)
And
The National Institutes of Health
National Institute of Environmental Health Sciences (NIEHS),
Division of the National Toxicology Program (NTP)
And
Health and Environmental Sciences Institute (HESI)

I. PURPOSE
Cardiovascular safety is a significant public health concern and challenge for those seeking to improve understanding of and develop medicines and medical devices.

CDER Biomarker Qualification Program

Qualified biomarkers can make drug development more efficient.
HESI Committees

- Cardiac Safety
- Developmental & Reproductive Toxicology (DART)
- Genetic Toxicology
- Immuno-Safety
- Multi-Component Substances (MCS) & UVCBs
- PBPK Models
HESI’s Role as Convener

- Scientific program design and strategy
- Managing project teams and convening partners
- Leveraging expertise from other HESI projects
- Pooling data and resources
- Ensuring public benefit and communication
Structure of the BSC

GENERAL PUBLIC
• Open to all

STAKEHOLDER COUNCIL
• Interested parties with justification statement; private sector must provide financial contribution

STEERING COMMITTEE

TECHNICAL WORKING GROUPS
• Scientific/technical experts on working group topics
Resourcing for the BSC

Foundational Multi-Year Funding from NIEHS + FDA
- Private sector funding to support additional activities + research
- In-kind support from all participants (time, expertise, etc.)
- Trade Associations can join – $10,000 sponsorship plus 2 member companies must join the BSC

<table>
<thead>
<tr>
<th>Yearly sales (US Dollars)</th>
<th>BSC Annual Sponsorship Fee</th>
<th>HESI Annual Affiliate Sponsorship Fee**</th>
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<tbody>
<tr>
<td>Sales ≤ $49.99 million</td>
<td>$2,000</td>
<td>$500</td>
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<tr>
<td>Sales $50 million – 499.99 million</td>
<td>$8,000</td>
<td>$2,000</td>
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<tr>
<td>Sales &gt; $500 million</td>
<td>$16,000</td>
<td>$4,000</td>
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**Organizations that are already HESI Sponsors pay NO Affiliate Sponsorship Fees
General Public

- Open to all
- Access to BSC materials via website
- All scientific publications will be available open access
- Opportunity to attend Annual Meeting
Stakeholder Council (SHC)

Individuals & organizations that provide input & mission support to the BSC via:

- Voting on the Steering Committee composition
- Nominating self or other scientists for participation in the TWGs
- Participation in quarterly BSC update webinars
- Providing direct financial or in-kind resources
- Submitting proposal for new areas of scientific work by the BSC
- Responding to specific requests for input from the SC or TWGs

NOTE: All TWG and Steering Committee members are, by definition, part of the SHC
Technical Working Groups

- Genotoxicity
- Hepatotoxicity / ADME
- Developmental and Reproductive Toxicity (DART)
- Cardiotoxicity
- Systemic Toxicity / IVIVE

Chemical Analysis
Data Analysis
### Technical Working Group: Topic Selection

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<tr>
<th>Topic</th>
<th>Details</th>
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<td>Severity of associated disease</td>
<td>(e.g., genotoxicity and cancer, cardiotoxicity and heart disease)</td>
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<tr>
<td>Adverse event reporting and research on botanicals</td>
<td>(e.g., hepatotoxicity, cardiotoxicity)</td>
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<tr>
<td>Building bridges with current gold standard - animal safety data</td>
<td>(e.g., <em>in vitro</em> systemic toxicity vs repeat dose <em>in vivo</em>)</td>
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<td>Availability of alternative assays to measure effects in that system</td>
<td><em>In vitro</em></td>
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<tr>
<td></td>
<td><em>In silico</em></td>
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Current Steering Committee

**Government**
- Cynthia Rider
  - NTP/NIEHS

**Industry**
- Joe Dever
  - Amway
  - (Liaison: Systemic Tox)
- Dan Marsman
  - P&G
  - (At-large)

**Trade Association**
- Jim Griffiths
  - CRN
  - (At-large)

**Non-Profit**
- Stefan Gafner
  - American Botanical Council
  - (Liaison: Chemical Analysis)

**HESI**
- Michelle Embry
- Connie Mitchell
Overview of the BSC Membership Process

Interested Party

Online Submission
- Basic contact info
- Brief statement on interest in BSC

Evaluation by the Steering Committee
- Interest in the topic of botanical safety
- Can provide resources as required from private sector/trade associations

Meets criteria?

General Public

Stakeholder Council

Meets criteria?

TWG Member

Interested in TWG

Online Submission
- Brief statement (300 words) on expertise in particular TWG topic
- Submission of CV

Evaluation by TWGs
- Expertise in the TWG topic
- Addition would provide value to the TWG
- Contributes to overall "balance of the TWG"

Meets criteria?

Y

N

Y

N
Working group objectives refined
Additional experts contacted
Continued membership recruitment

- May
  - Survey literature for suitable assays and already tested botanicals
  - Annual Meeting!

- Late May
  - Collect scientific literature already know about botanical ingredients
  - Begin to select assays and botanical ingredient candidates
  - Coordination between groups to share information

- June → July
  - Update webinar for Stakeholders

- August
  - Finalize list of candidate methods and botanicals ingredients
  - Create literate reviews of existing data on botanical ingredients and methodologies

- Sept → October
  - Perform scoping / in silico work to prioritize in vitro assays
  - Exploratory / method development work as needed

- November
  - Initiate in vitro assay work with botanicals library

2021
- BSC Timeline

Botanical Safety Consortium
The Botanical Safety Consortium (BSC) was officially convened in November 2019, as the result of a Memorandum of Understanding between the US Food and Drug Administration (FDA), the National Institutes of Health’s National Institute of Environmental Health Sciences (NIEHS), and the non-profit Health and Environmental Sciences Institute (HESI).
Application Form

Name

Affiliation

Address

Phone

Email

Optional 2nd Email

Sector

Select One

*Private sector and trade association applicants must pay an annual BSC sponsorship fee.

Please provide a brief statement regarding your or your organization's specific interest in the BSC (150 words or less):
Sign up for our general distribution list!

* Email

* First Name

* Last Name

* Company

By submitting this form, you are consenting to receive marketing emails from: HESI, 740 P Street, NW, Suite 900, Washington, DC 20001, US, http://www.hesiglobal.org. You can revoke your consent to receive emails at any time by using the SafeUnsubscribe® link, found at the bottom of every email. Emails are serviced by Constant Contact.

Sign Up!
• Website: www.botanicalsafetyconsortium.org
• Email: botanicalsafety@hesiglobal.org
• cmitchell@hesiglobal.org
• membry@hesigloal.org