The Evolving Research Landscape of Low- and No-Calorie Sweeteners

December 7, 2023
Welcome from FDA

Kristi Muldoon Jacobs, PhD
Acting Director
US FDA CFSAN OFAS
Rockville, MD
Colloquium Series

- Partnership of US FDA Center for Food Safety and Applied Nutrition (CFSAN) and the Society of Toxicology (SOT)
- Ninth year of colloquia series, two this year, and this is the 28th event
- Stimulate a dialogue among leading toxicology experts on future-oriented toxicological science relevant to food and food ingredient safety assessment
- Are a forum to discuss the latest toxicological science in the context of food chemical safety
- Not a forum for soliciting regulatory advice or discussing food or food ingredient regulatory issues
Colloquium Series

- Open to the public via webcast at no cost
- General audience from all employment sectors
- Recording and slides for all colloquia are available at www.toxicology.org
Society of Toxicology Vision/Mission

To Create a Healthier and Safer World by Advancing the Science and Increasing the Impact of Toxicology

Among Strategic Objectives

- Promote Transdisciplinary Science and Cooperation with Other Disciplines
- Expand Global Outreach, Engagement, and Collaboration
- Provide Opportunities to Capitalize on Scientific Advancements
- Develop Communication Partnerships with Key Influencers
- Promote Use of Science in Decision Making
SOT FDA Organizing Committee 2023-2024

- **David C. Dorman**, DVM, PhD, DABT, DABVT, ATS, Colloquium Series Chair, North Carolina State University, Raleigh, NC
- **Jason R. Richardson**, PhD, DABT, ATS, Colloquium Series Co-Chair, University of Georgia, Athens, GA
- **Jason L. Aungst**, PhD, FDA Liaison, US FDA, College Park, MD
- **Omari Bandele**, PhD, US FDA, FDA Liaison, College Park, MD
- **Suzanne C. Fitzpatrick**, PhD, DABT, US FDA, College Park, MD
- **Esther Haugabrooks**, PhD, The Coca-Cola Company, Atlanta, GA
- **Rayetta Henderson**, PhD, ToxStrategies Inc, Katy, TX
- **Willie McKinney**, PhD, DABT, McKinney Regulatory Science Advisors, LLC, Henrico, VA
- **Jeffrey J. Yourick**, PhD, DABT, ATS, US FDA, Laurel, MD
- **Chidozie Amuzie**, DVM, PhD, DACVP, DABT, SOT Council Contact, Johnson and Johnson, Toronto, Canada
The Evolving Research Landscape of Low- and No-Calorie Sweeteners

Colloquium Co-Chairs

• Anne Macgregor-Das, PhD
  US FDA, CFSAN
• Daniele Wikoff, PhD
  ToxStrategies LLC
Colloquium Objectives

Sweetness Intensity of Sweeteners Compared to Table Sugar

- **Advantame**
  - Advantame®
  - Times Sweeter: 20,000

- **Neotame**
  - Neotame®
  - Times Sweeter: 7,000 to 13,000

- **Thaumatin**
  - Talin®
  - Times Sweeter: 2,000 to 3,000

- **Saccharin**
  - Sweet and Low®, Sweet Twin®, SweetN Low®, Necta Sweet®
  - Times Sweeter: 200 to 700

- **Sucralose**
  - Splenda®
  - Times Sweeter: 600

- **Steviol Glycosides**
  - Truvia®, PureVia®, Enliten®
  - Times Sweeter: 200 to 400

- **Luo Han Guo**
  - Nectresse®, Monk Fruit in the Raw®, PureLo®
  - Times Sweeter: 100 to 250

- **Aspartame**
  - Nutrasweet®, Equal®, Sugar Twin®
  - Times Sweeter: 200

- **Acesulfame Potassium (Ace-K)**
  - Sweet One®, Sunett®
  - Times Sweeter: 200

**Table Sugar (Sucrose)**
Colloquium Objectives

- Provide an introduction to low- and no-calorie sweeteners (LNCS), including why they are used, their different chemical properties, and the toxicological data used to establish their safety
- Discuss the effects of LNCS consumption on metabolic and endocrine responses
- Provide an overview of the emerging mechanistic and epidemiological studies being done with LNCS
- Discuss the recent re-evaluation of aspartame by the Joint FAO/WHO Expert Committee on Food Additives
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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>9:10 AM</td>
<td>An Introduction to Low- and No-Calorie Sweetener Uses in Foods and Beverages in the US</td>
<td>Corey Scott, PhD, Cargill, Minneapolis, MN</td>
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<td>9:50 AM</td>
<td>Low- and No-Calorie Sweeteners and Metabolic Health: A Review of the Evidence from Acute Metabolic and Endocrine Responses to Long Term Clinical Outcomes</td>
<td>John Sievenpiper, MD, PhD, FRCPC, University of Toronto and St. Michael's Hospital, Toronto, Ontario, Canada</td>
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<td>10:30 AM</td>
<td>Break (10 min)</td>
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<tr>
<td>10:40 AM</td>
<td>Mechanistic and Epidemiological Studies and Their Role in the Safety Assessment of Low- and No-Calorie Sweeteners</td>
<td>Daniele Wikoff, PhD, ToxStrategies LLC, Asheville, NC</td>
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<tr>
<td>11:20 AM</td>
<td>Aspartame as a Case Study in Re-evaluation of Sweetener Safety by the Joint FAO/WHO Expert Committee on Food Additives</td>
<td>Diane Benford, PhD, Chair 96th Joint FAO/WHO Expert Committee on Food Additives, Leighton Buzzard, United Kingdom</td>
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<td>12:00 Noon</td>
<td>Roundtable Discussion</td>
<td>Moderator: Anne Macgregor-Das, PhD, US FDA CFSAN</td>
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