The road to evidence-based dietary recommendations for flavonoids: how do we get there?

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- Evidence Based Reviews and Workshops
- Epidemiological Investigations
- Dietary Guidance or Intake Recommendations
Background and Perspectives

• **Historical Perspective**
  – Vitamin P, Vitamin E, Lutein, Fiber
  – Nutrients: Essential Nutrients vs Non-Essential

• **Evidence Based (Study Quality/Heterogeneity)**

• **A path to intake recommendations**
  – Biomarkers of Health
  – Food vs Drug Paradigm

• **Dietary Guidance vs A DRI type recommendation**
Session Objectives

• This session will cover important factors to consider in making evidence-based dietary guidance for flavonoids possible, including:
  – Recommendations for designing, implementing and reporting studies
  – Discussion of the type and level of evidence needed to support dietary recommendations
  – An overview of the limitations of applying the current DRI development process in the U.S. and elsewhere to flavonoids
  – Elements that need to be considered in developing a path forward for dietary guidance involving flavonoids

• Conclude with a Panel Discussion
Summary and Points for Discussion
Raise the Bar for Research & Strive for Global Harmonization

**Design & Reporting Consideration**

- Definition and assessment of Flavonoid Materials
- Development of databases (Intake Determination)
- Design and outcomes of Human Studies
- Design and outcomes of Preclinical Studies (MOA)

**Flavonoid Rich Foods/Diets**

**Development of Evidence Based Dietary Guidance**
Specifically.....

• Apply **consistency in reporting** according to standardized flavonoid nomenclature and guidelines for material sourcing and QC

• **Improve characterization** of the specific identity and quantity of constituents in test materials
  – (e.g. flavonoids, as well as other bioactive compounds)

• **Develop appropriately matched controls** for the flavonoid materials being investigated

• **Proper consideration of the background diet** that is unlikely devoid of flavonoids
The Entire Path is Critical in Achieving the Goal: From Data to Databases to Function

- Data
  - Food Composition Analysis
  - Database Classification and Organization
  - Dietary Intake
  - Validation of Exposure
  - Range of Intake
  - Function
  - Flavonoid Reference Value
The Existing Data Show Promise

• Results from numerous trials support the concept that the consumption of select plant food products can result in acute (1 - 30 days) improvements in vascular health parameters that are suggestive of a decreased risk for select chronic diseases. Epi data support this concept.

• Accumulating evidence supports the idea that in certain cases, specific non-essential nutrients are driving the positive health effects associated with some plant foods.

• BUT......
  – Established, and validated, biomarkers for an individual's status of the above non-essential nutrients are largely lacking.
Are There Consequences of Inaction?

- Suppression of critical research to close gaps in knowledge
- “Open range” for supplement claims
- Further confusion among consumers
- Status quo for current food consumption patterns, i.e. poor consumption of fruits, vegetables and whole grains which are high in flavonoids
For Discussion - Biomarkers

• When considering the development of biomarkers for following the effects of a food or a non-essential nutrient on the risk for select diseases, consideration should be given to using a multiple component model that takes into consideration the potential effects of the food/nutrient on multiple factors.

• Biomarkers of Health vs Biomarkers of Disease Risk Reduction?
For Discussion - Evidence

• Standards of Evidence
  – Evidence based reviews with clear evaluation criteria
  – Is the model a drug model or is there a nutrient or food based model

• At issue is the Amount and Type of Evidence which supports recommendations.

• The amount of evidence necessary depends upon Risk - Benefit of consuming the substance
An Alternative Framework for Evaluating Flavonoids (&w other non-essential BFCs)

The current DRI framework may limit scholarly evaluation and potential “accreditation” of the contributions of flavonoids.

The goal of public health recommendations should be to provide consumers with guidance about healthy food choices that provide both essential and “accredited” bioactive food components that enhance the quality of life.