USP Dietary Supplements Stakeholder Forum
Tuesday, May 15, 2018

USP Probiotics Program

Mike Bradley, Ph.D.
Member – USP Probiotic Expert Panel
Member – USP Non-Botanical Dietary Supplement Expert Committee

Kit Goldman, Ph.D.
USP Staff – Director, Dietary Supplements and Herbal Medicines

Industry Perspective – USP Probiotic Standards

Mike Bradley
Member, USP Probiotic Expert Panel
Member NBDS EC

USP Standards Probiotics Industry Perspective

I. Opening Remarks

- USP General Chapters
- USP Monographs
- US Dietary Supplement Regulatory Oversight System
- International Regulatory Submissions – Government Agencies

USP Standards Industry Perspective - Probiotics

II. Probiotic Standards – General Comments

- Unique Dietary Ingredient – Biological
- Dietary Supplement Health & Education Act (DSHEA)
- Probiotic Raw Materials
- Probiotic Finished Dosage Forms

USP Standards Industry Perspective - Probiotics

III. Industry Challenges with Probiotics – Finished Dosage Forms

- Product Development – Quality by Design
  - Incompatible Ingredients
  - Overages by Design
  - Combination Products
  - Product Lifecycle Management

USP Standards Industry Perspective - Probiotics

III. Industry Challenges with Probiotics – Finished Dosage Forms (Cont.)

- Stability Testing
  - Testing Protocols & Conditions
  - Extrapolation of Data
  - Acceptance Criteria
  - Shelf Life Assignment
  - Corrective Actions / Reformulation

USP Standards Industry Perspective - Probiotics

III. Industry Challenges with Probiotics – Finished Dosage Forms (Cont.)

- Identity Testing
  - Test Method Standardization (DNA, Selective Media, Biochemical Reactions)
  - Combination Products (RMs and FDFs)
  - Species versus Strain

USP Standards Industry Perspective - Probiotic

III. Industry Challenges with Probiotics – Finished Dosage Forms (Cont.)

- Compliance Requirements – 21 CFR 101.9(g)
  - Measurement Uncertainty
  - Efficacy versus Potency
  - Reduced Testing Applications

USP Standards - Probiotics

Expert Panel / Expert Committee

- USP Non-Botanicals Dietary Supplement Expert Committee
- Probiotics Expert Panel
- Identity, Strength, Purity, Composition
- Limits on Contaminants

USP Probiotics Expert Panel

- USP appointed Dr. Mary Ellen Sanders to chair the panel.
- “Call for Candidates” in Feb 2017
- Formed Expert Panel in April 2017

USP Probiotics Expert Panel (cont'd)

Name	Member	Affiliation
Sanders, Mary Ellen	Chair	ISAPP
Elkins, Chris	Government Liaison	CDC
Davis, Cindy Dyann	Government Liaison	NIH
Dreher-Lesnick, Sheila	Government Liaison	NIH
Tartera, Carmen	Government Liaison	FDA
Boyte, Marie Eve	Member	Lallemand Health
Burguière, Pierre	Member	AMA Research Solutions
Jackson, Scott	Member	NIST
Keller, David	Member	Ganeden
Pane, Marco	Member	Probiotical Healthcare
Schoeni, Jean L.	Member	Covance
Stahl, Buffy	Member	DuPont
Vegge, Christina	Member	Chr Hansen
Brooks, James	EC	USP-NBDS
Bradley, Mike	EC	USP-NBDS
Roe, Amy	EC	USP-NBDS

Activities to date

- To date, eight official meetings via conference calls
- One face-to-face meeting October 25, 2017
- Reviewed monographs for *Bacillus coagulans* and *B. coagulans* capsules
- General Chapter <64> Probiotics Tests

Bacillus coagulans and *B. coagulans* capsules Monographs

- Title: Changed to species level
- Definition: Changed to species level
  - To limit number of individual monographs.
  - Additional strains will be added as monographs are received
- Identification – PCR based primers shown to be specific for the strain
- Enumeration – currently cfu/g
- Performance tests for *Bacillus coagulans* Capsules
- Contaminants – harmonize with FCC
- Additional requirements – storage
- Approved by EC in February 2018 ballot

GC <64> Probiotic Tests

- Chapter provides tests procedures for typical probiotic testing requirements for ID, enumeration, contaminants and other required tests
- Chapter reorganized with sections for spore-forming, non-spore forming and yeast and mold probiotics for clear differentiation
- Labeling
  - Ingredients – strain specific label only
  - Dosage forms – An ingredient or a dosage form of probiotics should be labeled with the genus and species names, or genus, species, and strain names.
- Due to revisions chapter will be resubmitted to PF for comment in May 2018

Expert Panel Path Forward

- Standards to develop in Future
  - *Bifidobacterium longum* subsp. *longum*
  - *Bifidobacterium bifidum*
  - *Lactobacillus casei*
  - *Lactobacillus fermentum*
  - *Lactobacillus plantarum*
  - *Lactobacillus reuteri*
  - *Lactobacillus rhamnosus GG*
  - *Streptococcus thermophilus*
  - Others
- Publication of a peer-reviewed paper on probiotics related to specifications developed, new technology and 3rd party verification

USP Contacts

Maria Monagas
Scientific Liaison, DSHM
United States Pharmacopeia
MJM@USP.org
Phone: 301-230-6366

Kit Streusand Goldman, Ph.D.
Director, DSHM
United States Pharmacopeia
kit.goldman@USP.org
Phone: 301-692-3597

Mengmeng Niu
Associate Scientific Liaison, DSHM
United States Pharmacopeia
Mengmeng.Niu@USP.org

Questions

Empowering a healthy tomorrow

Thank You

Empowering a healthy tomorrow