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
I. Opening Remarks

- USP General Chapters
- USP Monographs
- US Dietary Supplement Regulatory Oversight System
- International Regulatory Submissions – Government Agencies
II. Probiotic Standards – General Comments

- Unique Dietary Ingredient – Biological
- Dietary Supplement Health & Education Act (DSHEA)
- Probiotic Raw Materials
- Probiotic Finished Dosage Forms
III. Industry Challenges with Probiotics – Finished Dosage Forms

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

In accordance with Section 5 of the Rules and Procedures of the 2016-2020 Council of Experts, the Chairperson of the Council of Experts forms with this charge the Probiotics Expert Panel. The purpose of this Expert Panel is to develop quality standards for probiotics used for dietary supplements. The Expert Panel will work at the direction of the Expert Committee responsible for the monograph, the Non-Botanical Dietary Supplements Expert Committee chaired by Dr. Dennis Gorecki. The candidate Chair of the Expert Panel is Mary Ellen Sanders, Ph.D. Expert Panel membership and additional background information are included below.
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<thead>
<tr>
<th>Name</th>
<th>Member</th>
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<tbody>
<tr>
<td>Sanders, Mary Ellen</td>
<td>Chair</td>
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<td>Elkins, Chris</td>
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<td>Schoeni, Jean L.</td>
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<td>Brooks, James</td>
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<td>Bradley, Mike</td>
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<td>Roe, Amy</td>
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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
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
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

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<tr>
<th>Name</th>
<th>Title</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maria Monagas</td>
<td>Scientific Liaison, DSHM</td>
<td><a href="mailto:MJM@USP.org">MJM@USP.org</a></td>
<td>301-230-6366</td>
</tr>
<tr>
<td>Kit Streusand Goldman</td>
<td>Director, DSHM</td>
<td><a href="mailto:kit.goldman@USP.org">kit.goldman@USP.org</a></td>
<td>301-692-3597</td>
</tr>
<tr>
<td>Mengmeng Niu</td>
<td>Associate Scientific Liaison, DSHM</td>
<td><a href="mailto:Mengmeng.Niu@USP.org">Mengmeng.Niu@USP.org</a></td>
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Questions

Empowering a healthy tomorrow
Thank You

Empowering a healthy tomorrow