International Life Sciences Institute

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Tuesday, April 20, 11:00 am – 1:00 pm US Eastern Time

Session 6 – Alternative Proteins

Session Co-Chairs: **Louise Dye**, PhD, Leeds University, United Kingdom and **Catherine Lefranc Millot**, PhD, Roquette, France

Biography: **Louise Dye** is Professor of Nutrition and Behaviour in the School of Psychology and Academic Lead for the University of Leeds of the N8 Agrifood Programme. She sits on BBSRC Strategy Board for Integrated Understanding of Biosciences for Health and chairs the Neuroscience and Mental Health Working Group. Louise is a Chartered Health Psychologist and British Psychological Society member. She began her career in Human Psychopharmacology and has over 30 years' experience in the assessment of nutritional and pharmacological intervention on cognitive function and wellbeing. She is Associate Editor of Nutritional Neuroscience and the European Journal of Nutrition. Louise has served on several ILSI Europe's expert groups is now President and chairs the Scientific Advisory Committee.

Biography: Catherine Lefranc-Millot qualified as a Doctor of Veterinary Medicine from the National Veterinary School, Maisons-Alfort, France and later obtained a French PhD in Biotechnology from the University of Technology, Compiègne, France. She has been working for Roquette since 2005, first as the Corporate Scientific Communications Manager for Nutrition and Health (R&D), then (since 2016) as a Senior Research Manager Nutrition and Health. Her research is specifically focused on long-term, prospective research, around plant-based proteins and their derivatives, interested in their potential impact on nutrition and health. Prior to working for Roquette, she had managed for several years a research team in a French dairy company, working around milk peptides, proteins and hydrolysates with specific biological activities, compatible with food and nutraceutical applications.

1. **Scalable Technologies for the Production of Alternative Proteins: A Review**, **Blake Byrne**, The Good Food Institute, United States

Abstract: The presentation will embark on a quick but systematic review of the key production methods for making meat from plants, microbes, and animal cells. Their scalability and current and future cost of goods sold (COGS) potential will be discussed at a high-level.

Biography: **Blake Byrne** leads the Good Food Institute's Science & Technology team's efforts to understand the input, infrastructure, and investment needs of scaled alternative protein production. He conducts market research, builds models, authors reports (incl. the forthcoming 2020 Cultivated Meat State of the Industry report), and advises both investors and entrepreneurs. A former strategy consultant, advisor to an institute for regenerative medicine, and student of public health, Blake believes that the production of animal products via plants, microbes, and animal cells will fundamentally upgrade our global system of agriculture.

2. **Alternative Proteins: Consumers and Market Landscape**, **Armando Perez-Cueto**, PhD, University of Copenhagen, Denmark

Abstract: An overview will be given of the landscape and market of alternative proteins from a consumer perspective. The presentation will incorporate the market scoping made by EU Project Smart Protein as well as insights from our recent publications, particularly on which are the relevant characteristics of plant-based foods required by consumers that are strategic for innovation in the sector.

Biography: **Federico J.A. Perez-Cueto** (Armando) is Associate Professor at the University of Copenhagen, Department of Food Science, and deputy head of Research Group on Sensory and Consumer Research. He has consolidated his area of research on behavioural interventions to promote sustainable healthy food choices, in particular focusing towards facilitating the choice of plant-based foods and meals. He collects regularly consumer data and investigates behaviour change strategies (nudges) at the Future Consumer Lab in Copenhagen.

3. **Food Safety Considerations of Alternative Proteins**, **Clare Mills**, PhD, University of Manchester, United Kingdom

Abstract: An overview will be given of the issues in assuring the safety of alternative proteins, based on their source (is it from insects? Algae? or an new plant source?) and the processed form in which it is intended to be used (a whole insect? a protein enriched flour? or functional protein fraction?). A brief overview of the types of risk that need to be considered will be given spanning microbiological safety, chemical contaminants and biotoxins/antinutritional and other factors. This will be followed by a more detailed summary of the allergenic risks posed by alternative proteins to the existing food allergic population as well as their potential to become "new" allergens.

Biography: E.N. **Clare Mills** currently has a chair in Molecular Allergology at the University of Manchester and led the EU integrated projects iFAAM and EuroPrevall and now coordinates the European Food Safety Authority Project ThrAll. Her personal research interests are focused on structure-function relationships in food proteins particularly with regards what makes some proteins, and not others, become allergens, including the effects of the food matrix and processing on resistance of food proteins to digestion and the role this plays in determining the allergenicity of foods.

4. **Nutrition and Alternative Proteins**, **Emanuele Zannini**, PhD, University College Cork, Ireland & European Union funded Smart Protein project coordinator

Abstract: Consumer are increasingly demanding foods that are more sustainable, affordable, nutritious and ethical to enhance their health and the health of the planet. Food industry is push towards the development of a new generation of alternative plant-based product that mimic those that omnivores are familiar with such as fish, meat, eggs, milk and their derivate. Beside the sensory attributes (texture, colour, flavour, appearance, mouthfeel, functionality) the nutrition value and safety aspect of these alternative food products deserve a particular attention. While protein quantity is generally not an issue, protein quality, digestibility and antinutrients/allergens content could represent a challenge for the wide adoption by the consumers. In the presentation an overview of the key aspects of plant protein nutrition and highlights areas where further research is required will be provided.

Biography: After successfully completing two PhD in Applied Biomolecular Science in 2007 and in Food Science in 2015, Emanuele is holding a position as Senior Research Coordinator at the School of Food and Nutritional Sciences – University College Cork -Ireland. A strong area of scientific interest for Dr Zannini is the medical nutritional therapy. Fundamental and orientated research activities on food microbiology, food engineering, and food nutrition are carried out to formulate food and beverage products able to address consumers' preference and dietary needs as well as complement the medical therapy requirements. He was the scientific advisor of the H2020 PROTEIN2FOOD project and currently he is the coordinator of the H2020 SmartProtein project, funded under grant agreement No. 862957, which has 33 partner institutions from 22 countries. This project aims to develop the next generation of smart protein foods which are cost effective, resource-efficient, affordable, and nutritious.