



# THE INTERNATIONAL SOCIETY OF NEUROGASTRONOMY **SYMPOSIUM**

**SATURDAY, DEC. 10, 2016**

UK HealthCare Pavilion A Auditorium  
Lexington, Kentucky

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## MISSION

The International Society of Neurogastronomy (ISN) is a professional organization for culinary professionals, agriculture professionals, and scientists of gastronomy in the context of brain and behavior. The concept of neurogastronomy casts a wide net over all disciplines that are relevant to what we eat, why we like what we eat, and how we eat. The mission of ISN is to advance Neurogastronomy as a craft, science, and health profession, to enhance quality of human life, and to generate and disseminate knowledge of brain-behavior relationships in the context of gastronomy.



National Institute on  
Deafness and Other  
Communication Disorders



# PROGRAM

**7:45 – 8:30 a.m.**

Registration & Beverages

**8:30 – 8:45 a.m.**

Welcome Address

Dan Han, PsyD, University of Kentucky

**8:45 – 9:15 a.m.**

How Our Understanding of Taste Evolved on the Grand Scale

Rachel Laudan, author of *Cuisine & Empire*

**9:15 – 9:45 a.m.**

The Evolution of the Neural Mechanisms Relevant to  
Neurogastronomy

Gordon Shepherd, MD, DPhil, Yale University

**9:45 – 10:15 a.m.**

Tasting Food Through Your Nose

Stuart Firestein, PhD, Columbia University

**10:15 – 10:45 a.m.**

Taste Profile Break 1

**10:45 – 11:15 a.m.**

Soil and Plant Biome, Flavor, and the Gut Biome

Mark Williams, UK Horticulture

**11:15 – 11:45 a.m.**

Genetics of Taste Perception

Gary Beauchamp, PhD, Monell Chemical Senses Center

**11:45 a.m. – 12:45 p.m.**

Lunch & Poster Session 1

**12:45 – 1:15 p.m.**

Taste the Rainbow: Tasting the World Through  
Gustatory Synaesthesia

Taria Camerino, pastry chef & gustatory synesthete

**1:15 – 1:45 p.m.**

Food Addiction and Stress

Kelly Weber, PhD, MPH, RD, LD, UK Dietetics and Human Nutrition

**1:45 – 2:15 p.m.**

Human Taste and Its Role in Food Consumption

Barry Green, PhD, Yale University

**2:15 – 2:45 p.m.**

The Flavor World of Childhood: Basic Biology and  
Implications for Health

Julie Mennella, PhD, Monell Chemical Senses Center

**2:45 – 3:15 p.m.**

Taste Profile Break 2

**3:15 – 3:45 p.m.**

Taste Changes after Radiation Treatment

Mahesh Kudrimoti, MD, UK Radiation Oncology

**3:45 – 4:15 p.m.**

Taste Buds and Molecules: The Art and Science of  
Food, Wine and Flavors

Francois Chartier

**4:15 – 4:45 p.m.**

Neurogastronomy Panel Discussion

Moderated by a Neurogastronomist, this panel will include experts  
representing Neuroscience, Clinical Medicine, Food Technology  
& Agriculture, and Culinary Arts (featuring Sid Kapoor, MD, Chef  
Jehangir Mehta, and additional participants).

**4:45 – 5 p.m.**

Neurogastronomy Challenge

Two teams, each team consisting of a neuroscientist, a food  
technologist, a healthcare provider, and a culinary professional, went  
head-to-head, preparing dishes that appeal to patients with taste  
impairments. Three patients undergoing chemotherapy will judge the  
dishes and announce the winner.

**5 – 5:10 p.m.**

Closing Remarks

Bob Perry, 2016 ISN Program Chair; Chef & Foods Lab Coordinator,  
Department of Dietetics & Human Nutrition, University of Kentucky

**5:10 – 6 p.m.**

Poster Session 2



# PRESENTERS

## Dan Han, PsyD

Dr. Dong (Dan) Y. Han is the Chief of University of Kentucky Neuropsychology Service's Clinical Section, and Associate Professor of Neurology, Neurosurgery, and Physical Medicine and Rehabilitation at the University of Kentucky College of Medicine. He is also the Director of Neurobehavioral Studies at the Sports Medicine Research Institute of University of Kentucky. He is the past president of the Lexington Board of Brain Injury Alliance, current Chair of the Medical and Scientific Advisory Board of the Association of the U.S. Army, and the 2016-2017 president of the International Society of Neurogastronomy. He is the recipient of the Honor the Fallen Soldier Patriot Medallion by the Association of the U.S. Army, Flexner Master Educator Award, Jack Runyon Service Award, and the Founder's Award by the International Society of Neurogastronomy. Dr. Han is a funding recipient by the NIH, DOD, and other federal and state mechanisms, foundational grants, and clinical trials involving studies of brain-behavior relationships and curriculum development. His work in neurogastronomy primarily focuses on translational applications of neuroscience of flavor perception and their impact on health and disease.



2016-2017 ISN President

Chief, University of Kentucky  
Neuropsychology Service, Clinical  
Section

Director of Neurobehavioral Studies  
Division, UK SMRI

University of Kentucky College  
of Medicine

## Rachel Laudan, PhD

Rachel Laudan is author of two prize-winning food histories, *Cuisine and Empire: Cooking in World History* (2013) and *The Food of Paradise: Exploring Hawaii's Culinary Heritage* (1996). In a former career, Rachel was a recognized academic historian with a PhD from University College London. Specializing in the history of science and technology, she held appointments at American research universities and received grants from Fulbright, the National Science Foundation, and the National Endowment for the Humanities. The academic life gave her the opportunity to cook in England, France, Spain, Mexico, Argentina, as well as the United States, building on the practical knowledge of food she acquired in her childhood on a dairy and wheat farm in England.



Author of *Cuisine and Empire: Cooking in  
World History* and *The Food of Paradise:  
Exploring Hawaii's Culinary Heritage*

## Gordon Shepherd, MD, DPhil

Dr. Gordon M. Shepherd grew up in Iowa, and received his B.S. at Iowa State College in 1955, his MD at Harvard in 1959, and DPhil at Oxford in 1962. After postdoctoral training at NIH, MIT and the Karolinska Institute, he joined the faculty at Yale Medical School, where he is Professor of Neurobiology. He introduced the olfactory system as a model for analyzing the properties of neurons and synapses in the brain and the formation of neural images of olfactory molecules. His research has contributed to properties of neuronal dendrites and spines, olfactory processing, and development of the new fields of computational neuroscience, brain microcircuits, neuroinformatics and neurogastronomy. His books include *The Synaptic Organization of the Brain*; *Neurobiology*; *Handbook of Brain Microcircuits*; *Neurogastronomy*; *Foundations of the Neuron Doctrine*; *Creating Modern Neuroscience*; and *Mosso's Circulation of Blood in the Human Brain*. He served as a Deputy Provost of Yale University, received honorary degrees from the Universities of Copenhagen and Pavia, and is a member of the American Academy of Arts and Sciences and past president of the Association for Chemoreception Sciences and the Cajal Club.



The Father of Neurogastronomy  
Professor of Neurobiology  
Yale School of Medicine

## Stuart Firestein, PhD

Dr. Stuart Firestein is the Chair of Columbia University's Department of Biological Sciences where his colleagues and he study the vertebrate olfactory system, possibly the best chemical detector on the face of the planet. His laboratory seeks to answer the fundamental human question: How do I smell? Dedicated to promoting the accessibility of science to a public audience, Dr. Firestein seeks to reach broader audiences through nonscientific writing, public appearances, and his support of science in the arts. Dr. Firestein also serves as an advisor for the Alfred P. Sloan Foundation's program for the Public Understanding of Science. Recently he was awarded the 2011 Lenfest Distinguished Columbia Faculty Award for excellence in scholarship and teaching. Most notably, Dr. Firestein's commitment to engaging the public in science can be seen in his TED Talk entitled "The Pursuit of Ignorance", which has garnered 1.5 million views and counting. He is the author of the books *Ignorance: How it Drives Science* and *Failure: Why Science is So Successful*.



Professor and Chair,  
Department of Biological  
Sciences  
Columbia University



# PRESENTERS

## Mark Williams, PhD

Dr. Mark Williams has been a faculty member in the Department of Horticulture at the University of Kentucky since 2001. His research interests are in sustainable agriculture, with a particular focus on evaluating and developing sustainable organic horticulture production systems. Dr. Williams has conducted a range of experiments in organic farming, from optimizing the production of direct-marketed vegetables to developing control options for specific pest problems in cucurbits, peppers, tomatoes and apples. Recent research has been focused on characterizing the soil-derived microbiome that resides inside of plants, and elucidating how farming practices can impact these potentially beneficial internal microbes. A logical extension of this work is to investigate how the plant microbiome association may impact food quality attributes that could lead to improved human health.



Professor, Department of Horticulture  
University of Kentucky

## Gary Beauchamp, PhD

Dr. Gary Beauchamp is Distinguished Member and Emeritus Director and President of the Monell Chemical Senses Center. He is also an Adjunct Professor at the University of Pennsylvania. Dr. Beauchamp has served as a scientific advisor to numerous governmental and private organizations, including the National Science Foundation, The Institute of Medicine of the National Academies of Science, Wildlife Services of the Department of Agriculture and the National Institutes of Health. Dr. Beauchamp maintains an active research program at Monell, exploring varied topics related to taste, olfaction and chemesthesis. He has published over 325 research papers, reviews and book chapters and has edited several books on the senses of taste and smell. His awards include the Claude Pepper Award of Excellence from the National Institute on Deafness and Other Communication Disorders of the NIH and the Outstanding Achievement in the Chemical Senses Award from the Association for Chemoreception Sciences.

He is a Fellow of the American Society of Nutrition and an Honorary Member of the Society of Flavor Chemists. He serves as a Board Member and Vice President of the Ambrose Monell Foundation and the G. Unger Vetlesen Foundation. Current research interests include genetics of chemosensation, olfactory communication in humans and other animals, development and aging of taste and smell, taste interactions and the role of smell and taste in food and beverage choice and acceptance. Dr. Beauchamp received his bachelor's degree in biology from Carleton College and his PhD in biopsychology from The Pritzker School of Medicine of the University of Chicago.



Emeritus Director and President  
Monell Chemical Senses Center

## Taria Camerino

Chef Taria Camerino has lived a life made entirely of taste. With a self-described addiction to spices, she has practiced her trade across the globe, studying, teaching and cooking. Taria is also a gastoral synaesthete who has dedicated her life's work to engaging methods of communication that share her unique observations in ways that others can digest. In much the same way some synaesthetes see specific colors when they hear musical notes, Taria's synesthesia enjoins her to use the vocabulary of flavors to express her expertise, and this medium proves to be her greatest resource for collecting, distilling, and feeding back familiarity. Being also a chef with training in classical French pastry, Japanese confectionery, coastal Italian cooking and extensive training in chocolate and the ideas of terroir, Taria parses bits of information and translates them into the energetic vibrations ascribable to their equivalents on the flavor spectrum. It is with an insatiable need for knowledge and the intimate relationship she has developed with not only food, but with flavor itself, that this chef has found a way to share, feed anyone who is willing to taste the listening to an album or the flavors from a 10 hour train ride through hillside Vietnam. Having worked closely with contemporary art galleries, like the Tate Modern, as well as being a member of the International Association of Synaesthetes, Artists and Scientists (IASAS), she is well adept at communicating the essential of how we taste. By working with the International Society of Neurogastronomy, Chef Taria hopes to make full use of this unique gift.



Chef; featured on Andrew  
Zimmern's "Bizarre Foods America  
- Atlanta".

## Kelly Webber, PhD, MPH, RD, LD

Dr. Kelly H. Webber is an Associate Professor and Director of Graduate Studies in the Department of Dietetics and Human Nutrition at the University of Kentucky. She is also a registered dietitian (RD). She received her PhD in Nutrition from the UNC Chapel Hill School of Public Health. Dr. Webber conducts research in the field of adult obesity. Her research has included technology-based interventions, meal replacements, motivation and stress management for weight loss. She has also worked in the field of eating disorders. She is currently leading a team to develop a community tailored phone app to address obesity in rural counties in Kentucky. Dr. Webber's research has been funded by various agencies including NIH and CDC. Her interest in neurogastronomy stems from how food addiction relates to obesity in adults.

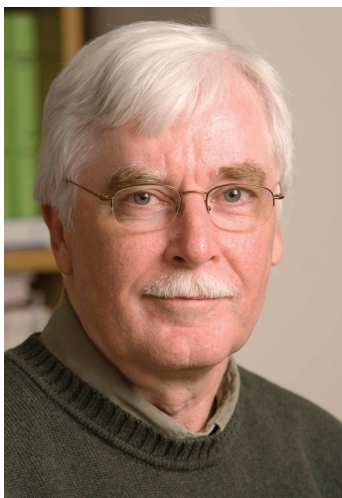


Associate Professor & Director of  
Graduate Studies  
Department of Dietetics and  
Human Nutrition  
University of Kentucky

# PRESENTERS

## Barry Green, PhD

Dr. Green has been a Fellow of the John B. Pierce Laboratory since 1996 and the Director since 2009. He first came to the laboratory in 1975 as a postdoctoral fellow in the psychology group, working on topics in tactile and thermal psychophysics. He continued his postdoctoral work on tactile psychophysics at Princeton University before moving to Indiana University in 1980 to conduct a research project on the communication of speech information through the skin. In 1983 Dr. Green took a faculty position at the Monell Chemical Senses Center in Philadelphia, PA. While at Monell Dr. Green developed a research program on sensory interactions between chemical irritants and the senses of taste, temperature, and pain which led to the concept of chemesthesis. After returning to the Pierce Laboratory, Dr. Green continued his work on chemesthesis while developing a new program on spatial and temporal factors that affect the sensitivity to temperature and pain. Research in his laboratory now focuses on studies of human taste, flavor, and chemesthesis and the relation of these sensitivities both to current theories of sensory mechanisms and to their roles in driving the consumption of foods and tobacco products.



Director and Fellow, The John B. Pierce Laboratory  
Professor, Dept. of Surgery (Otolaryngology)  
Yale School of Medicine

## Julie Mennella, PhD

Dr. Julie Mennella obtained a PhD from the Department of Behavioral Sciences at The University of Chicago in Chicago, IL. She subsequently did postdoctoral work on the transfer of volatiles from maternal diet to amniotic fluid and human milk at the Monell Chemical Senses Center in Philadelphia. She joined the faculty there in 1990 where she is now a member. Her major research interests include investigating the timing of sensitive periods in human flavor learning and growth during breastfeeding and formula feeding; uncovering how children are living in different taste worlds than adults and their vulnerabilities to the current food environment as well as medication adherence; and the development of psychophysical tools to study individual variation in taste and flavor perception as related to genetic variation. In addition to her research, she founded a program at Monell Center that encourages under-represented minority high school and undergraduate students to pursue careers in science and medicine. Dr. Mennella has held a number of leadership positions in professional scientific societies and working groups at the National Institutes of Health and other international scientific and health organizations. She is the recipient of several grants from the National Institute of Deafness and Other Communication Disorders and the Eunice Kennedy Shriver National Institute of Child Health and Human Development; the author or co-author of numerous peer-reviewed research papers and an internationally recognized speaker whose interest in neurogastronomy is to understand why we like the foods we do and how that impacts health and nutritional programming.



Biopsychologist  
Monell Chemical Senses Center

## Mahesh Kudrimoti, MD

Dr. Kudrimoti has a background in oncology with specialization in using radiation to treat cancer. He has been practicing as a radiation oncologist for the past 15 years in an academic setting. Currently he serves as a professor in the Department of Radiation Medicine at the University of Kentucky. Dr. Kudrimoti's specific areas of interest are in the clinical practice and research in head and neck cancer. He has been involved in several clinical trials – investigator initiated, national and industry sponsored in head and neck cancer and other sites. He has also participated in several very complex and data intense industry sponsored mucositis trials in head and neck cancer with high accrual. He is the principal clinical investigator on a NIH sponsored R01 grant investigating diffuse optical monitoring of cancer during radiation therapy. Dr. Kudrimoti has also served as a Principal Investigator for a clinical trial involving biochemical assessment of nicotine use by cancer patients during radiation therapy. Dr. Kudrimoti served as the National Principal Investigator in a randomized trial evaluating a new molecule in relief of mucositis in cancer. Dr. Kudrimoti also serves as the Principal Quality Control physician for industry sponsored studies to verify the validity and accuracy of radiation treatment plans. He serves on several cancer committees at the UK Markey Cancer Center including the GI, Head/Neck, Melanoma/Sarcoma/Skin, Gynecological, Hepato-biliary. His research interest in mucositis and side effects of radiation therapy on the head neck area on the quality of life of patients has attracted him to the concept of neurogastronomy. He hopes that use of novel measures beyond the realm of traditional medicine will aid in the rehabilitation and improve the quality of life of cancer survivors.



Professor of Radiation Medicine  
University of Kentucky College of Medicine

## François Chartier

Canadian François Chartier "Créateur d'harmonies" is recognized internationally as one of the pioneering researchers in the realm of recipe creation and wine and food harmonies. World renowned wine critic Robert M Parker Jr. has said of Chartier that he is "Pure Genius!", while elBulli's Ferran Adria and Juli Soler have said of him that he is "the number one expert in flavours". Ever researching and reinventing himself since being crowned best sommelier in the world in French wines and spirits (Grand Prix Sopexa, 1994 Paris), his first findings in the field of molecular harmonies and sommellerie, a discipline he invented in 2004, were published in his book *Taste Buds and Molecules*, which won the Best Innovative Cookbook in the World at the 2010 Gourmand World Cookbook Awards, in Paris. More recently, he published his further research in his book *L'Essentiel de Chartier-L'ABC des harmonies aromatiques a table et en cuisine*, which was also consecrated Best Innovative Cookbook in the World. As a consultant for some of the best chefs in the world for many years, including elBulli's Ferran Adria, Chartier's aromatic science has been turning heads the word over. On top of his gastronomic mission, he's added the trade of wine producer, vintner and merchant to his activities since 2011. In October 2013, he introduced his first wines to the Canadian market, wines that he elaborated in Europe alongside a few select collaborators including renowned Bordeaux oenologist, Pascal Chatonnet. Nowadays, Chartier's range of wines include over 22 different cuvées.



Author of *Taste buds and Molecules* – Best Innovative Cookbook in the World at the Paris Gourmand World Cookbook Awards 2010.  
Créateur d'harmonies, Montreal



# SPECIAL THANKS TO OUR DISTINGUISHED PRESENTERS

# NEUROGASTRONOMY SYMPOSIUM PARTNERS

## Jehangir Mehta

Chef Jehangir Mehta is the chef/owner of Graffiti, Me and You, and Graffiti Earth and was a Next Iron Chef runner-up. Known for his signature eclectic style, he uses an array of ingredients and spices to create an interesting juxtaposition of temperatures, textures and tastes. The popularity of his distinctive style led to a Zagat food rating of 28 out of 30 for Graffiti in 2015. Mehta is the chef ambassador for the National Foundation of Celiac Awareness and the Mushroom Board, and a council member for Menus of Change, an initiative of the Culinary Institute of America and Harvard T.H. Chan School of Public Health. Fifteen years ago, Mehta was a pioneer in ushering in the idea of children's cooking with his "Candy Camp" class, and has since launched a national promotion with Whole Foods for inculcating healthy eating in children with the "Kids Food Adventure with Chef Jehangir" initiative. Mehta was the highly acclaimed pastry chef at some of New York City's finest restaurants including Aix, Union Pacific, Mercer Kitchen, Compass and Jean-Georges, and is the author of *Mantra: The Rules of Indulgence* (Harper Collins).



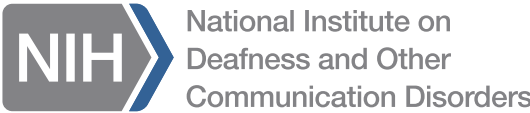
Chef/owner of Graffiti, Me and You, and Graffiti Earth  
"Next Iron Chef" runner-up

## Bob Perry

Bob Perry has been a chef in a wide variety of restaurant operations for over 30 years and is a past board member of Chefs Collaborative and many other sustainable agriculture organizations. He now conducts food system research and teaches "Quantity Food Production" and "CSA Gastronomy: Our Local Food System" at the University of Kentucky. He has scripted local food segments and appeared on the KET program "KY Life" many times. He also wrote and hosted the weekly Farmers Market Report on University of Kentucky's NPR station WUKY. Perry's hope is that examining high umami foods through the lens of neurogastronomy will help with appetites of cancer patients undergoing treatment.



Bob Perry, 2016 ISN Program  
Chair; Chef & Foods Lab  
Coordinator, Department of  
Dietetics & Human Nutrition,  
University of Kentucky





## CULINARY BREAKS

**10:15 – 10:45 a.m.**

Taste Profile Break 1

**11:45 a.m. – 12:45 p.m.**

Lunch & Poster Session 1

**2:45 – 3:15 p.m.**

Taste Profile Break 2

**4:45 – 5 p.m.**

### **Neurogastronomy Challenge**

Two teams, each team consisting of a neuroscientist, a food technologist, a healthcare provider, and a culinary professional, went head-to-head, preparing dishes that appeal to patients with taste impairments. Three patients undergoing chemotherapy will judge the dishes and announce the winner.