

# NEWSLETTER

Centre for Advanced Sensory Science (CASS) Newsletter

Sept 2015

## Dedicated to inspire

It is already three weeks ago that we returned from a very inspiring Pangborn symposium in Gothenburg Sweden. With a group of 4 CASS scientists we showcased our latest research which generated a lot of attention, interesting discussions and most of all great research ideas for the future. Dr Megan Thornton gave a talk about comparative methods of aroma analysis using Gas Chromatography-Olfactometry during the American Chemical Society Conference in Boston.

In this newsletter we share our latest research and how this research can help your business. CASS is dedicated to inspire and meet your consumer and sensory needs for now and in the future.

## Latest news

CASS is now 6 months in operation and we are proud to say we have made some substantial progress. Our latest research on Fat taste will soon be published in the leading journal 'Obesity'. This research shows that the ability to taste fat is a factor in the development of obesity. This is important knowledge for the food industry because current strategies to address obesity have not worked, this novel role of the taste system opens up opportunities for new strategies (see page 2). We are making progress with our trained consumer Quality panel which aims to capture rich data from consumers with regards to their perception of food quality (see page 2). Recently we finished our cross cultural milk study in which we investigated how Chinese differ from Australian consumers in their expectations of and liking for milk (see page 3). Just in case you could not make it to the symposia where we presented our research, we have added the posters and abstracts to this newsletter. Enjoy reading.



CASS (from left to right). Dr Megan Thornton, Rivkeh Haryono, Prof Russell Keast, Penny Oliver, Robert McBride, Kathryn Colla, Dr Dieuwerke Bolhuis, Andrew Costanzo, Julia Low, A/prof Xiaobo Hu, Dr Gie Liem

*"It is really good to see that the Asian Pacific region now has a substantial research centre which aims to provide the best innovative consumer and sensory science which meets industry and academic needs."*

- Pangborn delegate

## In This Issue

- The crystal ball of sensory science
- Let fat taste not make you FAT
- Is the route to China the Milky way?



Participant tasting fat solutions

## Let Fat taste not make you FAT

It hit the world press earlier this year. Professor Russell Keast proposed Fat to be the 6th taste quality humans can perceive. This has been a result of a decade of research within CASS and other research groups around the world. Humans have a dedicated taste system to pick up fat.

Sensitivity to fat taste has been inversely related to how much fat people consume. So the bad news is that being less sensitive to fat means that you need to eat more fat to get the same feeling of fullness as someone who is more sensitive to fat. The good news is that the discovery of mechanisms linking fat taste and obesity opens up new opportunities to replace fat without losing the pleasure and sensory properties of fat taste. Traditionally fat replacers were mainly focussed on mimicking the mouthfeel of fat. Now we can start looking for replacers which actually activates the same taste receptors as real fat does.

The search for unique taste qualities is far from over. In the next decade it is likely that new tastes will be discovered. We are even thinking that what constitutes a taste needs to be redefined. CASS is at the forefront of these developments, with innovative research investigating the possibility of carbohydrate taste.

The understanding of how different tastes are perceived will help us in finding better replacers for food ingredients such as salt, fat and sugar which often make food tasty.



## The crystal ball of Sensory Science

The ideal sensory tests should be able to predict market success. Given the multiple factors in such prediction, the crystal ball of sensory science is yet to be invented. At CASS we are developing a new Trained Quality Consumer Panel which marries rich descriptive data with focus group insights and simple hedonic measures. This new approach aims to explain short and long term liking. The initial results suggest that trained consumer are able to provide rich data about liking and quality perception. This might be the first glance at what future sensory science will provide.

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Chips can contain high levels of fat and salt

## What's that taste?

While hedonic analysis of foods gives us information on what consumers may purchase, it becomes interesting when chemical analysis of the foods is performed. Identifying a particular chemical compound, or group of compounds, which are associated with a particular product and its liking gives greater definition to the food industry on which food ingredients or products are providing this desired smell or flavour, and how this may be increased, as well as in the identification of off-flavours and how they may be decreased.

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## Did you know that .....?

Sensory science is more than just 'liking' studies

Our sensory system plays a key role in the feeling of fullness

CASS is the largest university based sensory science group in Australia

Fat is now recognized as a 6th taste



Chinese milk (source: [www.thewanderist.com](http://www.thewanderist.com))

## The Milky way to China

With 1.3 billion consumers and a vastly growing dairy demand, China is a promising market for Australian Dairy. The Chinese and the Australian dairy consumers are however different in their perception of different types of milk, their liking for these milks and how milk is part of their traditional diet.

Recently CASS conducted a study which sought to answer the simple question: "what do Chinese and Australian consumers think of Long and Short shelf life milk and how does this influence their liking of Long and Short shelf life milk . The results suggest that although Chinese consumer prefer the taste of Long shelf life milk, the positive expectations they have about Short shelf life milk makes them like both Long and Short shelf life milk as long as it is labelled as Short shelf life milk. CASS will continue this research with conjoint research investigating whether taste and health related messages change Australian and Chinese consumers' expectations of milk. In addition a review about Chinese milk consumers is being drafted.

This line of research aims to help the Australian dairy industry who wants to expand their product into China.

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## Latest publications and presentations

Boltong A, **Keast R.** (2015) Chemosensory science in the context of cancer treatment: Implications for patient care. *Chemosensory Perception* DOI 10.1007/s12078-015-9180-0

**Colla K & Gamlath S.** Inulin and maltodextrin can replace fat in baked savoury legume snacks. *International Journal of Food Science and Technology* 2015, 50, 2297–2305

Grimes CA, Baxter JR, Campbell KJ, Riddell LJ, Rigo M, **Liem DG, Keast RSJ**, He FJ, Nowson CA. Cross-Sectional Study of 24-Hour Urinary Electrolyte Excretion and Associated Health Outcomes in a Convenience Sample of Australian Primary Schoolchildren: The Salt and Other Nutrients in Children (SONIC) Study Protocol. *JMIR Res Protoc.* 2015 Jan 15;4(1):e7. doi: 10.2196/resprot.3994.

**Keast R, Costanzo A.** Is fat the sixth taste primary? Evidence and implications. *Flavour* 4(5). 2015 doi:10.1186/2044-7248-4-5

**Keast R, Swinburn B, Sayompark D, Whitelock S & Riddell L.** (2015) Caffeine increases sugar sweetened beverage consumption in a free living population. A randomized control trial. *British Journal of Nutrition* 8. 2015 pp1-6

**Keast R.** Emerging evidence supporting fat taste in humans. In Flavour Science. Proceedings of the XIV Weurman Flavour Research Symposium. Context. ISBN 97811899043705. 2015 p271-278

**Keast, R.** Taste 101. In K Vaidya (Ed) Food Science and Technology for the Curious. Why Study Food Science and Technology. 2015 ISBN 978-1-925128-67-3

**Keast RSJ, Liem DG, Thornton M and Bolhuis D.** Sensory: Sensory and consumer research update [online]. Food Australia, Vol. 67, No. 2, Apr/May 2015:

**Keast RSJ, Liem DG, Thornton M and Bolhuis D.** Sensory and consumer research update [online]. Food Australia, Vol. 67, No. 3, Jun/Jul 2015: 43-45.

**Keast RSJ, Liem DG, Thornton M and Bolhuis D.** Sensory research [online]. Food Australia, Vol. 66, No. 6, Dec 2014 - Jan 2015: 22-24.

**Keast RSJ, Liem DG, Thornton M and Bolhuis D.** Sensory research [online]. Food Australia, Vol. 66, No. 5, Oct/Nov 2014: 42-45.

Mennella, JA, **Liem DG**, Bobowski NK. Taste and Smell. In Swaiman's pediatric neurology, in press 6th edition

Parkinson L, Kestin M, **Keast R.** (2016) The perceptual properties of the virgin olive oil phenoloc oleocanthal are not associated with PROP taster status or dietary intake. *Food Quality and Preference* 48 pp17-22

Russell CG, Worsley A, **Liem DG**. Parents' food choice motives and their associations with children's food preferences. *Public Health Nutr.* 2015 Jun 2:1-10.

Webb J, Bolhuis DP, Cicerale S, Hayes JE, **Keast R.** (2015) The relationship between common measures of taste function. *Chemosensory Perception* 8(1) pp11-18

Wiltgren AR, Booth AO, Kaur G, **Cicerale S**, Lacy KE, Thorpe MG, **Keast RS**, Riddell LJ. (2015) Micronutrient supplement use and diet quality in university students. *Nutrients* 7(2) pp1094-1107 doi: 10.3390/nu7021094

## Presentations

**Keast RSJ** 2015 ANZOS Conference. Does fat taste play a role in development of obesity. Melbourne (Invited speaker)

**Keast RSJ, Haryono R** 2015 Pangborn Symposium. A pathway to prevent obesity. Satiety and fat taste sensitivity are increased on a low fat diet. Sweden

**Keast RSJ** 2015 Dairy Innovation Australia. Effects of dietary fat on fat taste perception. Melbourne (Invited Speaker)

**Keast RSJ** 2015 Dietetic Association Australia Conference. Functional relevance of fat taste. Perth (Invited Speaker)

**Keast RSJ** 2015 AIFST Summer School. Sensory and Consumer Science. Melbourne (Invited speaker)

**Liem DG**. Sensory Science in Academia. Invited speaker. Annual meeting of the Australian Institute for Food Science and Technology

**Liem DG**, Bolhuis D, Hu X, Keast RSJ Influence of labelling on Australian and Chinese consumers' liking of Short and Long Shelf Life Milk Pangborn

**Oliver P, Cicerale C and Keast RSJ.** (2015) Evaluation of Three Rapid Methods of Sensory Evaluation, Presented at the Australasian Association for ChemoSensory Science (AACSS) Conference Brisbane, Australia, 3-5 December 2014, Chem. Senses 40: 357– 367.

**Oliver P, and Keast RSJ.** (2015) The role of training in rapid methods of sensory evaluation, Presented at the annual Deakin University School of Exercise and Nutrition Sciences Higher Degree by Research Symposium, Melbourne, Australia.

**Oliver P, and Keast RSJ.** (2015) A comparison of rapid methods of sensory evaluation using a trained panel and untrained consumers, Presented at the 11<sup>th</sup> Pangborn Sensory Science Symposium, Gothenburg, Sweden.

**Thornton MT.** (2015). Application of Sensomics to Commercial Flavour Analysis. Invited oral presentation. American Chemical Society (ACS) Fall Meeting.

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