SATINews, Issue02 (June 2014)

Welcome!

Welcome to the 2nd SATINews! Since our last update our commercial partners have been working hard on developing a range of prototype foods and drinks that aim to fill people up quicker and for longer. These prototypes have been tested in our in vitro platform to look at their likely impact on key satiety triggers within the body. Now as we move into the second phase we are in the midst of selecting the most promising products to enter the human trials. In this newsletter we will give a quick update on progress to date, the experiences of our young scientist, our work with other projects and industry.

Not satiated yet? Then continue reading.

Jason C. Halford, Project Coordinator

Inside this Issue

SCIENCE OF SATIETY UPDATE

Filling Food Under Testing

SATIN aims to develop new food products using the latest processing innovation techniques. Exploiting better understanding of the biological processes in the stomach and the brain that underpin what makes us feel "full" and supresses hunger until the next meal, the project will evaluate whether a satiety based approach, using a variety of foods with enhanced satiating properties, is a viable weight management tool.

By using novel food processing technologies to alter the structure of foods we aim to accelerate the feeling of fullness and to reduce appetite. In a first phase of the project industry and SME partners developed novel food processing technologies, combining optimized foods structures and active ingredients to enhance satiation / satiety.

A comprehensive, in vitro platform suitable for testing the effect of pure ingredients and in vitro digested samples on targets relevant to satiety was developed and applied for the first time in the SATIN program (Axxam, Italy and ProDigest, Belgium). This platform represents an innovative and valuable tool for a preliminary high throughput and cheap identification of novel bioactive foods and food components.

Behind the Science

SME and Industrial partners have been developing a range of prototype foods and beverages that aim to fill people up quicker and for longer. Products such as bread, meat and fish meals, juices and yogurts have been developed with every eating occasion from breakfast through to dinner in mind. By targeting different triggers points within the body that affect our appetite, from the moment we begin to consume food in the mouth to post meal digestion in the gut, SATIN aims to develop a range of products that can be incorporated into a healthy balanced diet.

How do we know these products will work? SATIN has developed a laboratory based screening platform, which tests for a range of reactions from the release of flavours in the oral cavity (NIZO, the Netherlands), food structure formation during gastric digestion (NIZO SIMPHYD), to the production of key hormones (Axxam, Italy) and modulation of gut microbiota composition (ProDigest, Belgium – SHIME® model). By screening the products and ingredients we have been able to collect a range of data on the impact on known satiety triggers.

This information is now being used to help select the most promising prototypes to take forward into the mid- and long-term clinical human studies that will be held across Europe. Through these studies we hope to demonstrate the long term consumer benefits and the impact on managing appetite by including such products in a healthy balanced diet.

The Secrets Of Satiety

What turns our appetite on? How do physical and nutritional qualities of food reduce intake during a meal and supress hunger after?

The nature of motivation to eat and food intake has been conceptualised in the satiety cascade. The Satiety Cascade is a crucial tool in the SATIN project and how to implement it across the research work proposed has become a pressing question. In July 2012 John Blundell and Graham Finlayson (University of Leeds) led a workshop at the University of Murcia to enhance the common understanding of satiety and satiation effects and appetite control.

They discussed the scientific research steps in the SATIN project along the Satiety Cascade which leads from the mouth to the post meal digestion. The workshop helped to shape research efforts and resulted in a matrix based on the four levels described in the Satiety Cascade. The SHIME® model was updated by adding a mouth and a dynamic dialysis step as well as mapping food prototypes on satiating effects along the digestive tract. Thus SATIN has been able to use a variety of technologies including SHIME® to model the satiety cascade and optimise the potential effects of prototype foods on human appetite.

Learn more from the Leeds team, visit the recently created „Satiety Cascade"-section on the SATIN website: www.satin-satiety.eu/satiety-cascade

YOUNG SCIENTISTS CORNER

Research Fellow On The Road

Dr. Ruben Lopez Nicolas currently works at the University of Murcia, Department of Food Science and Nutrition. In 2012 and 2013 he was a research fellow in the SATIN project.

Young researcher Ruben from Spain worked in European labs to support the SATIN research

Tell us a bit about yourself!

I have always been interested in human nutrition! We eat several times every day and so I feel that my research has a direct benefit for the general public. SATIN allows me to better understand satiety and satiation mechanisms. This is crucial research to fight an epidemic disease in the developed world: obesity!

What research do you undertake in SATIN?

In the SATIN project I develop experiments to measure the stability and bio-availability of ingredients with a potential benefit to satiation. I measure important biomarkers in the human blood collected from the food studies, which have been completed at Aberdeen University.

You were a young research exchange fellow within the SATIN project. Tell us about your experience abroad.

I worked on ProDigest's (Belgium) platform SHIME® which is an in vitro simulation model of the gut to study for example the influence of the human intestinal microbial community on satiety and satiation. To meet SATIN's research needs it has even been up-graded during my stay. I got tremendous insights into the evolution of the intestinal microbiota after ingestion of satiating ingredients, paying particular attention to probiotic bacteria such as lactobacilli and bifidobacteria.

A simulated human gut – in SATIN the SHIME® model was enlarged by one step

At the University of Liverpool (UK) Kissileff Laboratory I worked on human ingestive behaviour. I gained insight into the methodology relevant for the upcoming clinical studies in SATIN. I learnt a lot about the one-day intervention studies where snacks with enhanced satiating properties are included in the diet. Also the dietary advice sessions, where the "eatwell plate" and food product label information were explained, were revealing.

What benefits does the involvement in a European Project offer a young researcher?

It was a great training opportunity, especially in learning new methods on satiety and satiation in humans. I understood the close working relationship between industry and academic partners, which is crucial to finally bring novel and satiating food products to the shop shelves.

Florence's First Contact With SATIN

Florence is a young scientist, employed at the Dutch partner company BioActor. Within the SATIN project she works on Ussing Chamber experiments and hormone analysis. In other projects she is busy with immunological tests. She recently joined the SATIN consortium and was interviewed after the latest consortium meeting in Murcia.

Florence, this is your first SATIN meeting. What is your impression as a young scientist?

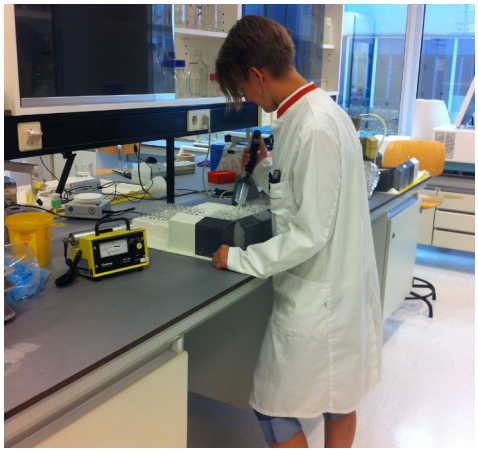
The meeting in Murcia was the first time I met all the participants in the SATIN project. I was pleasantly surprised by the enthusiasm of all partners in the consortium and by their warmth to welcome a new young researcher.

What is your opinion about SATIN as a research project?

Studying the effects of different ingredients on satiety and satiation is very important in the current obesity-epidemic. It has always interested me why people show specific eating behaviour and why some people can more easily maintain their body weight than others. The satiating properties of our food can play a major role in this respect, and I see that the SATIN project is the perfect platform for intensive research in this area.

What is your personal motivation to work in the field of satiation and satiety?

For me the field of satiety was relatively new. SATIN is a wonderful opportunity



Florence working in the lab at BioActor

to gain experience from satiety experts from all over Europe. I truly hope we can collaborate in future trials within the SATIN project and that I will be able to keep learning from the other scientists.

COLLABORATIONS

A Strong Appetising Trio

The European Commission has awarded funding to three projects related to appetite, satiety and food. The fact that these projects also have cross-overs in terms of consortium membership provides a great opportunity for joint activities. SATIN – Satiety Innovation, Full4Health and NeuroFAST collaborate in terms of dissemination, promotion and continuing professional development (CPD) activities.

Julian Mercer is involved in all three projects and addressed both the High Level Group of Member States on Nutrition and Physical Activity (made up of European Government representatives) and the EU Platform for Diet, Physical Activity and Health (European-level organisations from the food industry to consumer protections NGOs) on the topic of 'Research targeting food reformulation in the regulation of hunger and satiety'.

Other events where the projects were promoted included the Abcam meeting 'Programming Obesity: Central and Peripheral contributors' where Full4Health and SATIN were promoted in a presentation entitled 'Food for the future: can food be part of the solution?'. In conjunction with the British Society for Neuroendocrinology, the three projects, along with EurOCHIP, have also been actively engaged in developing a CPD activity for Early Career Researchers.

Full4Health

Satin
Satiety Innovation

NeuroFAST

Satiety And Appetite Control Claims: Getting It Right To The Consumer

This title of a Workshop organized by ILSI Europe in November 2012 in Brussels attracted representatives from leading companies in the food industry, including Cargill and Coca Cola, both partners in the SATIN project.

The shared interest of the participants was translating EU research investments, academic knowledge and industrial innovation into responsible communication and consumer confidence in products that benefit satiety and appetite control. The speakers' presentations and participant discussions clearly confirmed that this is a common goal for industry, academic, consumer, regulatory, as well as for political stakeholders.

Eat Less, Feel Full – Engaging With The Media

The Euronews team interviewed volunteers at the first food testing study at the University of Aberdeen (Rowette Institute, University of Aberdeen). Find out if the food tasted well and how satiating it was in the exciting TV report available in 12 languages on: www.euronews.com/2013/02/01/eat-less-feel-full

Since obesity is a topic of interest for big parts of the modern society it is the projects commitment to address and inform not only stakeholders, scientists and industry but all citizens. The SATIN team is committed to providing visibility to the outside world through being proactive in the engagement with the media and publicise important topical news items relating to SATIN's work. We will also engage in unplanned dissemination opportunities as they arise.

EVENTS

Event Highlights

Get in contact with us at conferences and other events.

Upcoming Conferences:

- Rowett-INRA 2014 – Gut Microbiology: From Sequence to Function, 16-19 June 2014, Aberdeen (UK)
- ESOF2014 – Euroscience Open Forum 2014, 21-26 June 2014, Copenhagen (DK)
- IPC2014 – International Scientific Conference on Probiotics and Prebiotics, 24-26 June 2014, Budapest (HU)

Find details on www.satin-satiety.eu/category/events/

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This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration Grant agreement number: 289800.