



VITAGORA[®] quarterly

Quarterly Newsletter of the Food Industry Cluster

Vitagora[®] Taste-Nutrition-Health

No. 3 October 2008

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Vitagora[®] builds its international network

Special Issue
Vitagora[®] Taste-Nutrition-Health
exhibitor at the
SIAL 2008, Paris



Vitagora[®] Taste-Nutrition-Health Vitagora[®] present on all fronts

Welcome to the third edition of *Vitagora[®] Quarterly*, the international newsletter of Vitagora[®] Taste-Nutrition-Health

Taking place in Paris Nord-Villepinte, the *Salon International de l'Agroalimentaire* (SIAL), this year from the 19th to the 23rd of October, is one of the major events of 2008 for Vitagora[®]. This is once more the chance for us to present our cluster to a huge international audience, in terms of our national and international strategies, our areas of expertise and our growing international network.

This edition of the SIAL is all the more important for Vitagora[®] for the fact that we are hosting in Dijon that same week a delegation from the National Food Institute (NFI) of Thailand. This will be the occasion for us to sign a Memorandum of Understanding with the NFI, with whom we first made contact during our first visit to Asia in May 2008. This partnership will involve setting up student and teacher exchange programs, sharing information on scientific and technological advances coming from the research teams of the NFI, Vitagora[®] and partners of the two organizations, as well as launching joint projects.

This partnership agreement is one of the first major outcomes of the program of international development that we have undertaken, mainly through the organization of international missions, the latest (and the third in total, following the visits to Asia and the USA) taking place in Canada last September. During this last mission, we visited a number of research centers in various regions of the country, in particular in Winnipeg, in the Manitoba, Toronto (Ontario) and Montreal (Quebec). Once again, organizations in Canada have expressed their interest in setting up partnerships with Vitagora[®]. By mid November of this year, we will have hosted two successive Canadian delegations in Dijon.

By multiplying initiatives, Vitagora[®] is progressively developing its reputation in an international level, a reputation that can only reinforce the image of a mature cluster, already established on an national level.

Christophe Breuillet
Directeur de Vitagora[®]



A unique collaboration between Frutarom, the Dijon Business School and Vitagora®

Accredited by Vitagora®, DEFICASSIS is a perfect example of a successful partnership between one of the companies involved in this project, Frutarom, and the students of a new business Master, specialized in Food and Health Marketing (Mastère MAS) offered by Dijon's business school (ESC Dijon) and directed by Valérie Philippon. Alain Etiévant, Manager of Food Systems for Frutarom France, reflects on this unique collaboration made possible by the Vitagora® cluster.

Vitagora Quarterly – How did the project DEFICASSIS start and what is its goal?

Alain Etiévant – The region of Burgundy is one of the main producers worldwide of blackcurrant buds, which are mainly used in perfume manufacturing. For a few years, consumption of this product has been declining slightly. The CEPPARM* thus came up with the idea of finding new outlets for the Burgundy production. The idea, developed with the help of a number of partners** and Vitagora®, is to develop a “Burgundy spice” using the traditional, but highly aromatic, blackcurrant bud. Frutarom is specialized in the development and production of food flavors, fruit preparations for the dairy industry and functional ingredients. As such, we decided to take part in this project lead by the CEPPARM.

Vitagora Quarterly – What was the interest of the partnership with the students of the Mastère MAS of the ESC Dijon?

Alain Etiévant – I made a presentation of Frutarom's activities for the students of the Mastère MAS. During the year of the Mastère, they undertake a group project on an original topic. Finding outlets for blackcurrant buds was one of the topics that they were offered. As such, a joint project was set up between Vitagora®, Frutarom and a group of students. It was a genuine pleasure for me to lead a group of such sharp and motivated students. I must admit that I have rarely come across students as keen to learn, as well as with creative and strong personalities. These qualities were a real asset during our discussions on the various obstacles regarding the project DEFICASSIS, in particular concerning the development of food industry applications for blackcurrant buds.

Vitagora Quarterly – Is this the first time you have worked with students in

this way?

Alain Etiévant – Not exactly in this manner, no. I have already worked with “student enterprises”, but the approach is different. It was of course a university project, but going much further than a mere bibliographical study. The students had to get to grips with all the main aspects of a project developing a new food product. They had to deal with marketing, nutrition, as well as problems of patent applications, not to mention the “practical” stages of finding applications for the new spice in cheeses, drinks, even yoghurts.

It was during this project that the idea of creating a “burgundy” spice came up, combining distinctive regional elements such as peach tree leaves, vine leaves, mustard seeds and blackcurrant buds, resulting in spices with a autumnal, even wintery, flavor that works perfectly with red meat.

Vitagora Quarterly – Is it difficult to introduce a new spice into an already crowded market?

Alain Etiévant – Absolutely. It's even a first in the sense that it is fairly rare to launch a new spice. Hence the idea of working mainly on the “terroir” [regional identity] aspect in order to transform the challenge into a commercial success starting from 2009-2010. All this is why marketing and communication are key areas of the project DEFICASSIS.

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Frutarom

Alain Etiévant

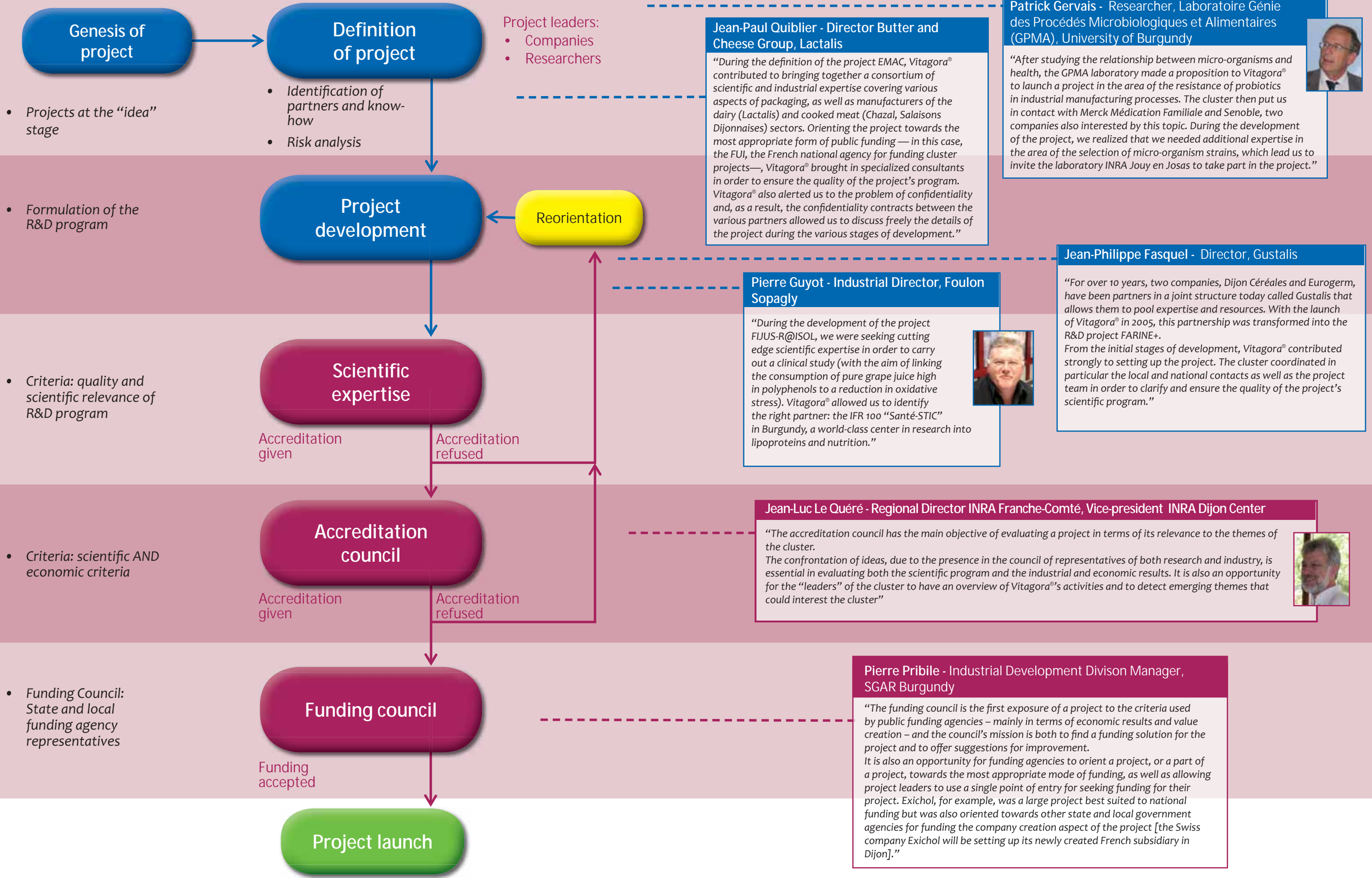
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* CEPPARM - Economic Committee of Aromatic and Medicinal Plants (Comité Economique des Plantes à Parfum Aromatiques et Médicinales)

** Caneo, two Burgundy fruit producers, Coteaux Bourguignons and Socofruit, the laboratory Spiral, two regional technology transfer structures, the Critt 2ABI and the Critt Agro-Environnement, INRA Flaviv and the Chambre d'Agriculture de Côte d'Or.

The graduates of the Mastère MAS class of 2008







A multidisciplinary approach: an asset of the CESG

One of the unique points of the **European Center for the Sciences of Taste** (*Centre Européen des Sciences du Goût – CESG*) is its multidisciplinary approach. The center's staff of 80, organized in 5 research teams, work on a range of basic and applied research topics concerning the mechanisms of olfaction and gustation, their relationship to dietary behavior, cognition and human metabolism. Directed by **Benoist Schaal** and with few equivalents throughout the world, this center is one of Vitagora®'s main research partners with the cluster accrediting nearly three quarters of the CESG's research projects.

“Until recently, whether through lack of time or contacts, companies had few opportunities to come to the CESG, to find out about our activities and what solutions we could offer them. Since its launch, Vitagora® has been able to create the necessary momentum to strengthen the contacts between industry and research, including for local SMEs,” explains Benoist Schaal. The results for the CESG : 7 R&D projects accredited by Vitagora® in which the center's research teams take part, already financed by French national funding agencies, with another 4 projects in development. This is an excellent level of success for the center which has a long history of working with multinationals such as Danone, Nestlé, Unilever or Masterfoods.

Five multidisciplinary research teams

The multidisciplinary approach advocated by much of the research world is taken seriously at the CESG. This can be seen in the research topics of the 5 teams, which go from a cellular level to the whole organism, even studying the individual in a social setting. As such, the “Neurophysiology of Chemical Senses” team, directed by Gilles Sicard, studies the mechanisms used by chemico-sensory systems for coding information, the neural pathways of olfactive memory and the plastic rearrangements imposed by sensory learning. The team works mainly on a molecular or cellular level or concerning neuron pathways.

The Ethology and Sensory Psychobiology team, lead by



Benoist Schaal, has the aim of understanding the sensory, cognitive and emotional mechanisms of behavior derived from olfaction. The research of this team on young mammals, in particular young humans, from fetus to teenager, aims to better understand the organization of perceptive knowledge in adults according to an individual's experience. This team is one of few in France to deal with the influence of cultural factors on perception and to work with American, Asian and African research teams.

The "Metabolism and Dietary Behavior" team, lead by Daniel Rigaud, focuses its work on the interactions between the sensory, dietary behavior and energy metabolism, both in healthy subjects (young or old) and in overweight subjects or those suffering from dietary behavioral problems. This team is often involved in clinical research.

Finally, the "Industry-Research Interface and Sensometry" team, lead by Pascal Schlich, is oriented towards applications: the team mostly works on sensory evaluation of food products and the associated statistical techniques, and manages the cohorts of subjects used by the other teams.

Research that interests food companies

Over the years, the CESG has been a part of a number of significant scientific advances. "We were able to show scientifically that the human fetus memorizes odors present in the pre-natal environment," recalls Benoist Schaal, "and that olfactive memories acquired by a newborn while breast-feeding can last for months, even years." Another important breakthrough by the CESG, in collaboration with a team of the University of Burgundy, concerns the understanding of molecular phenomena responsible for the taste of fat. Finally, many studies have confirmed the great sensitivity of the olfactive system to the effects of experience, whether through exposure to odors in everyday life, through a professional or laboratory environment (for professional tasters of wine or beer, for example) or through a guided learning process (factors of culture and upbringing). For Benoist Schaal, "all this

research comes together to show that chemical senses are present from the very beginning of brain function and that childhood is a major period for inscribing preferences and aversions that last into adult life. However, overlaying the base of early but long-lasting impressions, there is a degree of suppleness that allows room for the appreciation of new sensations and the continual adjustment of an individual's sensory nature according to the offers of the environment and the bodily requirements of the moment."

A number of projects are developed by the Dijon-based teams of the CESG, mostly within projects accredited by Vitagora®, such as MELALIM (understanding how the nose extracts relevant information from olfactive complexes carried by food and artificial mixtures); EDUSENS (analysis of the effects of a sensory education on children); OPALINE (observatory of food preferences in newborns and toddlers); "Distance Sensory Testing" (carrying out international sensory tests by internet in order measure cultural differences in the area of food); EPIPREF (the epidemiology of preferences) that has just been launched. These research projects are of great interest to food companies. "The momentum initiated by Vitagora® allowing an integration of the scientific community into the economic fabric of the region has led to a number of collaborations over the last few years. It is now important to extend and amplify this movement on the condition of making sure the scientific excellence and long term attractiveness of our research structures are not unbalanced by the favoring of applied research projects. This must be taken into account when selecting projects for funding," states the director of the CESG

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INSERM UMR 866: a working partnership between industry and research

Created in January 2007, the UMR 866 “Lipids Nutrition Cancer” research unit of INSERM and the University of Burgundy was the result of a movement to pool the expertise and knowledge of several Dijon-based research structures. A large structure involving 220 people, the UMR 866 has 9 research teams including 4 involved in cancer research, 4 others oriented towards lipid metabolism, nutrition and cardiovascular diseases, and a final team working in the area of clinical epidemiology, mainly cancer. All these teams are involved in research projects developed and accredited by Vitagora®. One of these teams, directed by Laurent Lagrost, is specialized in metabolism and lipoproteins and is involved in two of Vitagora®’s major projects, Vitalim’Senior and Exichol.

For the outsider, the UMR 866, under the direction of Eric Solary, can appear disparate. However, the scientific breakthroughs carried out in recent years have showed that there is a direct link between lipid metabolism and obesity, diabetes and even cancer. “The most recent research clearly shows that there is a higher risk of cancer in people suffering from obesity. This is an area that needs further study. It is therefore this strategy that guides the research carried out within the UMR 866,” explains Laurent Lagrost. Grouping all the researchers in a single unit allows pooling of technological platforms previously set up so that all 9 research teams have access to these resources.

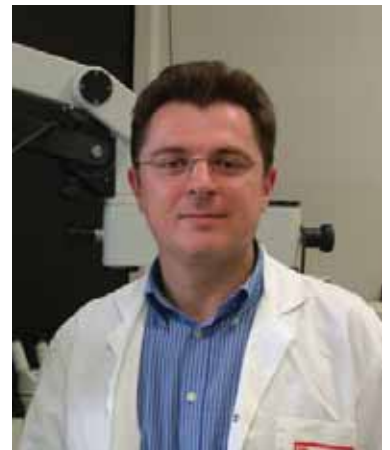
Faster transfer of knowledge towards industry

With around 20 researchers, Laurent Lagrost’s team is essentially interested in two lipid-transferring plasma proteins, the first that transfers cholesterol (CETP) and the second that transfers phospholipids (PLTP). “We have observed that the second, PLTP, can have multiple effects. Of course, they transfer phospholipids, but they also play a complex role in atherosclerosis, probably also inflammation, and probably in immunity,” explains Laurent Lagrost. This research covers an area from molecules, in particular isolated proteins, all the way to clinical studies, carried out in collaboration with the Dijon University Hospital. Laurent Lagrost’s team and the UMR 866 in general forge more and more links with industry partners with the aim of ensuring

a rapid transfer of scientific advances from the laboratory to applications in innovation projects.

“Vitagora® has allowed us to establish a closer relationship between researchers and food manufacturers and to set up the necessary conditions to help innovation projects such as Vitalim’Senior or Exichol to emerge,” underlines Laurent Lagrost.

The aim of these two projects is to integrate food and nutritional active ingredients – one of which has been developed by Exichol, a Swiss company that is setting up in Dijon, the other by the Burgundy laboratory Lara Spiral – and to develop consumer products with an effect on the metabolism of certain groups that are potentially at risk. “We will be attempting to identify the target groups for the nutritional active ingredients, first by studying animal, then humans.” In time, the two projects should result in the launch of a number of products. In the case of Vitalim’Senior, it is a product that helps to prevent and treat weight gain in the elderly. Exichol aims at the treatment of unbalances



Laurent Lagrost



of the energy metabolism, in particular metabolic syndrome.

The interest of private-public partnerships

In parallel to these two projects, the UMR 866 is also involved in two other projects accredited by Vitagora®. The first, SENSO FAT, carried out by Philippe Besnard, attempts to understand the protein Fatty Acid Transporter CD36, thought to be responsible, among other things, for the perception of lipids. The second, FIJUS-RAISOL, aims to create a range of pure grape juice products with improvements in terms of nutrition and taste (less sugar, rich in polyphenols and with a controlled acidity). "Today, we have all understood the interest, or even the need, to work with private sector partners. It is also an approach that is fully in line with the mission of the INSERM which is to improve treatment of patients and, more generally, human health and wellbeing," concludes Laurent Lagrost.

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The 4th International Taste-Nutrition-Health Congress

March 18-20, 2009, Dijon

The International Taste-Nutrition-Health Congress organized by Vitagora® will have its 4th edition on March 18-20, 2009 and proclaims its ambition of approaching the central problem of nutrition from the two complementary angles of taste-sensory and health.

With an overall theme of "Taste-Nutrition-Health: from birth to old age", the Congress proposes a full program of scientific conferences, round table debates and workshops on such topics as "Dietary behaviors and health, from birth to old age", "Immunity and nutrition in children", "Antioxidants and aging", and "Taste and allergies". In addition, participants will be able to take part in one-to-one business meetings, presentations on market regulations and a special one day training session on "Developing food products for older consumers". The training session is organized by UB Filiale-CRITT 2ABI on March 20, 2009, in Dijon.

Finally, to put the patient-consumer at the heart of the debate, the congress opens to the public on March 20 and 21: the Village Goût-Nutrition-Santé offers a program of fun and informational activities for all ages in Dijon's town center.

From October 30, visit our website:
www.taste-nutrition-health.com

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Vitagora® builds an international network

Gérard Michel - Gérard Michel – Scientific Director, Vect'œur / Vectoplast



“During the international missions of Vitagora®, the objectives of VECT'OEUR and VECTOPLAST were to promote the expertise of our two companies in the area of wine-making.
The Asian visit to countries with a smaller wine-making sector allowed us to meet new partners in various areas: logistics, storage, packaging... all very interested by the activities of our companies.
We have already set up partnerships and projects with companies such as SIAM WINERY, THAI BOX-COFIMA in Thailand.”

Olivier Moinard - Commercialization Unit, Eurogerm



“The objectives of Eurogerm in taking part in the international missions of Vitagora® were to carry out prospection of areas where we had no activities. It was important to meet not only players in the food industry, but also to visit points of sale and especially to meet potential new clients. Our impressions of the missions were extremely positive: in each country we were able to clearly grasp the market of ingredients linked to bread-making as well as being able to exchange information with prospects who had already been informed of our company's activities.
The fact that the meetings were organized by the embassies and overseas economic bureaus allowed us to open a number of doors that might have remained closed if we had been on our own.”

Wanee Chinsirikul, Ph.D. - Packaging Research Program Leader, MTEC (NSTDA), Thailand

“We first learnt about the cluster during a visit of Vitagora®'s delegates to NSTDA (National Science and Technology Development Agency) in May 2008. Having learned about Vitagora®'s activities, I then planned a visit to Dijon. This was possible with great help of Christophe Breuillet (Cluster Manager) and his team.
I was impressed by the strength of the integration of knowledge and expertise of people in different fields for several stand-out projects. Researchers or members involved in such projects were eager to contribute to the projects based on well-defined goal.”

Lee-Anne Murphy - Manitoba Agri-Health Research Network (MAHRN), Canada

“MAHRN is very interested in how Vitagora® includes commercial as well as institutional members in the cluster and in how Vitagora® is moving ideas forward into the marketplace from research, through development and commercialization. MAHRN members have globally-recognized capacity and capabilities in cereals and grains, and this is an area we would like to explore for potential collaborative activities. In follow up to the visit by Vitagora® to Manitoba, MAHRN is bringing a delegation to Dijon in November to discover more about the activities of Vitagora®. Our expectations are to continue to build relationships with the members of Vitagora®.”



Michel Content - Deputy Director, Direction Régional du Commerce Extérieure (DRCE), Burgundy



“Vitagora® is one of the few food industry clusters to carry out an annual program of international missions (3 in average), funded by national and regional bodies. The 2008 missions of Vitagora® were carried out in an optimal and professional manner and, in some cases, partnership agreements have already been signed in the wake of the visits. Follow-up missions will also be organized systemically, this being an excellent means of solidifying initial contacts. The profile of the delegation, bringing together manufacturers, laboratories and research centers, is particularly interesting and should be maintained for future missions.”

Supatchara Sanitwong - National Food Institute of Thailand

“We came to know and learn about Vitagora® when their representatives came over here to Thailand to present their organization and their activities at the National Food institute in Thailand. As a result, the NFI envisages a collaboration with Vitagora® including : networking — each party providing access to their respective network through web links, information sharing and possibly human resource exchange or cooperation. To put in place this partnership, the NFI will sign a Memorandum of Understanding with Vitagora® on October 22nd in Dijon.”

Anne-Marie Oleksy - Singapore Bureau, Regional council of Burgundy



“As a representative of the Burgundy regional council in Singapore, I worked with the French Economic Bureau to put together a program of individual and group meetings for the delegation.
This mission resulted in a number of fruitful exchanges and had a positive outcome for Vitagora® and its members. The local companies that came in contact with the cluster were mostly very impressed with the level of the projects run by Vitagora® and by the innovation dynamic among the Burgundy-based SMEs that were part of the delegation.”

International program highlights 2008

- March 2008 – 3rd International Taste-Nutrition-Health Congress in Dijon
- May 2008 - Mission Asia (Thailand, Japan, Vietnam and Singapore)
- June 2008 – Delegation in Dijon from the MTEC (NSTDA Thailand)
- July 2008 – USA Mission (New Orleans and Atlanta)
- September 2008 – Canada Mission (Toronto, Winnipeg and Montreal)
- October 2008 - Signature in Dijon of a partnership agreement between Vitagora® and the NFI Thailand
- October 2008 – Delegation in Dijon, « The Innovators » from Canada
- November 2008 – Delegation in Dijon of the Manitoba Agri-Health Research Network, Canada

Signature of a partnership agreement between Vitagora® and the NFI Thailand



October 22nd 2008, Vitagora® will host in Dijon a delegation from the National Food Institute of Thailand for the signature of a partnership agreement between the two organizations.

This agreement is the result of the initial contact between Vitagora® and the NFI in May 2008, during the visit to Thailand by a delegation of members of the French cluster. The group lead by Vitagora® also visited 3 other countries in Asia, Vietnam, Singapore and Japan.

The NFI is an information and research organization attached to the Thai Ministry of Industry whose aim is to foster development and the competitiveness of the Thai food industry. The agreement with Vitagora® will involve knowledge sharing and setting up student and teacher exchanges between France and Thailand, with the aim of fostering research and development activities in the areas of food products, packaging and any associated areas.

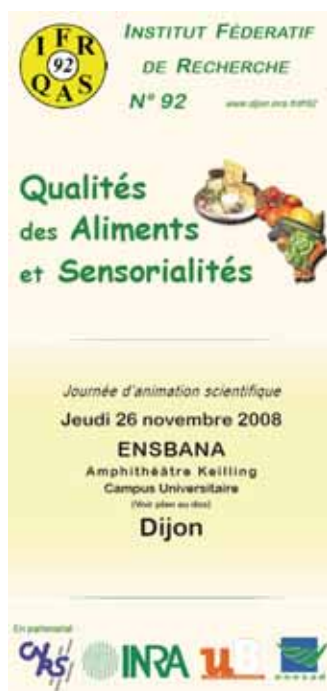
In 2008, Vitagora® organized 3 international missions – in Asia (May), in the USA (July) and in Canada (September), with positive outcomes for the cluster and its members in terms of institutional and business partnerships. In addition, the International Taste-Nutrition-Health Congress, also organized by Vitagora® every year in Dijon (the 4th edition will take place on March 18th -20th 2009), brings together the network set up by the cluster's program of international development.

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Scientific Open Day of the IFR 92 “Food Quality and the Sensory”



The Institut Fédératif de Recherche, IFR 92 “Food Quality and the Sensory” is organizing a scientific open day on November 26th, 2008, in order to present some of the major research projects being carried out by the teams of the IFR 92.

These research topics will be presented in oral communications and posters, and include:

- Chewing simulator; development and applications
- Sensory perception and acceptability by the consumer of low-alcohol wines
- The perception of food odor mixes: example of a dual study of human and rabbit

The IFR 92 groups together 7 research units of the Dijon University Campus, INRA, CNRS and ENESAD.

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