



Academic Workshop

“Biobased Chemical production”

Japan-Europe academic workshop for sharing ideas and experiences
towards strategic partnership building

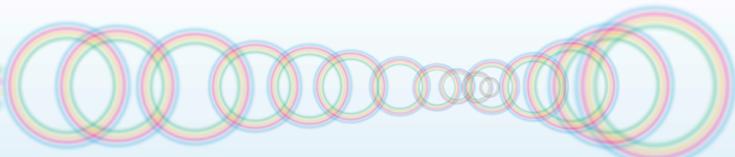
Date: wed. 4 February, 2015 13:00~17:00

Place: Kobe University Centennial Hall

Chair: Ken-ichi Yoshida,
Director , Centre for EU Studies /
Executive Director , Brussels European Centre /
Kobe University

* Programme *

- 13:00 **Opening Address**
Hideki Fukuda , President of Kobe University
- 13:10 **Introduction to JEUPISTE project**
Toshiyasu Ichioka , EU-Japan Centre for Industrial Cooperation
- 13:30 **European Bioeconomy - Bio-based Industries**
Tom Kuczynski , The delegation of the European Union to Japan
- 14:00 **International networking biobased chemical production in Asia**
Chiaki Ogino , Kobe University
- 14:20 **European bio-based chemical production**
Florian David , Chalmers University of Technology , Sweden
- 14:50 **Break (Networking)**
- 15:20 **Bio-lipid platform: fermentative and enzymatic lipid production and transformation for future chemical industry**
Jun Ogawa , Kyoto University
- 15:40 **Fabrication and Bio-fabrication in Nanomedicine: The Spanish Research Center in Bioengineering, Biomaterials and Nanomedicine**
Esther Vazquez Gomez , CIBER-BBN , Spain
- 16:10 **Towards a sustainable society: R&D Activities at Nagase**
Xiaoli Liu , NAGASE CO., LTD
- 16:30 **2G commercialization in Asia Pacific**
Bas Melssen , Novozymes Malaysia , Malaysia



Japan - Europe academic workshop for sharing ideas and experiences towards strategic partnership building

“Biobased Chemical production”



Toshiyasu Ichioka

Project manager
Institute for International Studies and Training /
EU-Japan Centre for Industrial Cooperation

Toshiyasu ICHIOKA is responsible for the promotion of EU-Japan cooperation in innovation, science and technology at the EU-Japan Centre for Industrial Cooperation. Among others he is managing the project, Japan-EU Partnership in Innovation, Science and TEchnology (JEUPISTE), co-financed under FP7 (GA No. 609585). Activities include contribution to the EU-Japan STI policy dialogues, organization of seminars and workshops, EU-Japan bilateral dissemination, and liaising with various stakeholders. Since November 2013, he has been the Japanese National Contact Point (NCP) Coordinator for Horizon 2020.

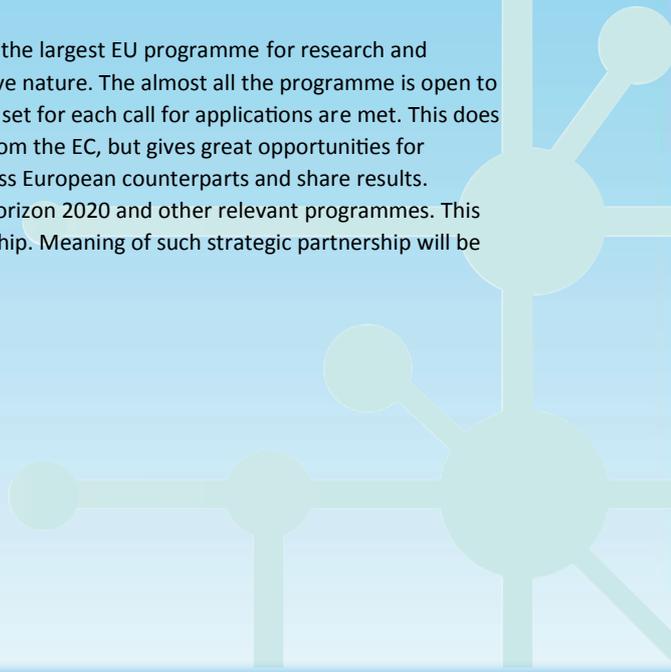
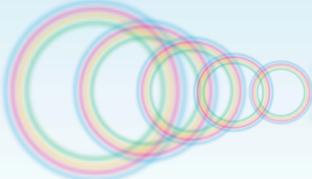
Prior to joining the EU-Japan Centre for Industrial Cooperation, he had a career as project manager for FP6 eHealth project at Universitat Pompeu Fabra (ES) and as researcher on experimental atomic physics at various research institutions: Marie Curie Fellow at University of Latvia (LV), Max-Planck-Institute for Nuclear Physics (DE), Aarhus University (DK), CERN (CH) and RIKEN (JP). He holds a PhD and MSc in Multi-Disciplinary Sciences from University of Tokyo and a BSc in Physics from Kyoto University (JP).

“ Introduction to JEUPISTE project ”

Abstract:

The Japan-EU Partnership in Innovation, Science and TEchnology, JEUPISTE, project is co-financed under European Framework Programme FP7, aiming at further enhancing the level of Japan-Europe cooperation in science, technology and innovation. In this talk, the overall structure and activities of the project and rationale behind the organization of the academic workshop will be presented.

Horizon 2020, started in 2014 after FP7 and other European programmes, is the largest EU programme for research and innovation in Europe. It is characterized with its openness and comprehensive nature. The almost all the programme is open to participation from countries outside Europe, as long as minimum conditions set for each call for applications are met. This does not mean that Japanese participants will be eligible for automatic funding from the EC, but gives great opportunities for Japanese researchers and research organizations to collaborate with top-class European counterparts and share results. The JEUPSITE project is promoting the Europe-Japan cooperation through Horizon 2020 and other relevant programmes. This topical workshop is organized to help the community actively build partnership. Meaning of such strategic partnership will be discussed.





Chiaki Ogino

Associate Professor, Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Japan

Education:

1993.4 – 1995.3 Department of chemical engineering, Faculty of engineering, Kobe University
1995.4 – 1997.3 Department of chemical science and engineering, Graduate school of science and technology, Kobe University

1997.4 – 1999.7 Division of molecular science, Graduate school of science and technology, Kobe University (Doctor course)

2001.3 Awarded the degree of Ph.D, Kobe University for thesis entitled “Characterization of phospholipase D (PLD) from *Streptovorticillium cinnamomeum* and its application for phospholipid synthesis”.

Research and Professional Experience:

1999.1 – 1999.7 JSPS Research Fellowships for Young Scientists (DC2)

1999.8 – 2001.12 Assistant professor, Department of chemistry and chemical engineering, Kanazawa University

2002.1 – 2007.7 Assistant Professor, Division of Material Engineering, Graduate School of Natural Science and Technology, Kanazawa University

2007.8 -Present Associate Professor, Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University

Awards: 2007.3 Young research award for encouragement in Society of Chemical Engineers, Japan (SCEJ)

2010.9 Young research award for encouragement in Society for Biotechnology, Japan (SBJ)

Research interests:

Yeast breeding for bio-refinery
Ethanol fermentation from cellulosic material
Metabolic engineering in *Streptomyces*
Protein expression by fungi and *Streptomyces*
Application of AFM to bimolecular interaction assessment

Membership:

Society of Chemical Engineering, Japan (1993 ~)
Society for Biotechnology, Japan (1999 ~)
Japan Society of Enzyme Engineering (2000 ~)
Chemical Society of Japan (2003 ~)
Society for Actinomycete Japan (2006 ~)
Japan Society for Bioscience, Biotechnology, and Agrochemistry (2007 ~)

“International networking biobased chemical production in Asia”

Abstract:

There can be a number of natural not-yet-discovered microorganisms that enables us to overcome the problems in direct fermentation of lignocellulosic biomass. However, natural isolates rather often require specific conditions for their cultivation, which restricts us to select out the best performing candidate strains.

Strains of *Saccharomyces cerevisiae* are used traditionally for industrial production of ethanol, but most of ever-established strains are susceptible to aforementioned inhibitors and other stress conditions related to lignocellulosic biomass conversion. And thus some artificial strains tolerant to inhibitors, such as furfural and 5-HMF, have been developed based on the metabolic engineering strategy; however their performance is far from being ideal. Therefore, we focus on potential in the culture collections in Asian countries, including Japan, Indonesia, Thailand, and Malaysia, since these collections are already-established resources of strains that could possess higher tolerance to the inhibitors.

We have developed a method to screen out candidate yeasts, which are simultaneously capable to grow well and ferment lignocellulosic lysate into ethanol and fine chemicals such as lactate. Applying the method to the Asian culture collections, including National Bio-resource Collection (NBRC) Japan and Indonesian National Culture Collection (InaCC), the actual screening was conducted to discover candidate strains with better growth and fermentation capacities even in the medium containing the inhibitors. In this presentation, potential of Asian bio-resources for bio-refinery will be also discussed.



Tom Kuczynski

The delegation of the European Union to Japan

Born in 1977 in Poland

Master of Finance and Banking, Cracow University of Economics, Poland completed in 2001

Doctor of Economics (corporate finance), Hiroshima Shudo University, Japan, completed in 2006

From 2006 to 2012 working at the Embassy of the Republic of Poland in Japan (First Secretary) covering Science, Technology and Innovation, Energy and Climate Change issues

Since 2012 working as a science advisor at the S&T section of the EU Delegation to Japan, responsible for issues related to the research cooperation between the EU and Japan

“European Bioeconomy - Bio-based Industries”

Abstract:

European Bioeconomy - Bio-based Industries

(Horizon 2020 and Joint Undertaking BBI)

Over the coming decades, the world will witness increased competition for limited and finite natural resources. A growing global population will need a safe and secure food supply. Also, in the context of climate change, a transition is needed towards an optimal use of renewable biological resources.

Bioeconomy – encompassing the sustainable production of renewable resources from land, fisheries and aquaculture environments and their conversion into food, feed, fiber bio-based products and bio-energy as well as the related public goods – is an important element of Europe’s reply to the challenges ahead. Bioeconomy includes primary production, such as agriculture, forestry, fisheries and aquaculture, and industries using / processing biological resources, such as the food and pulp and paper industries and parts of the chemical, biotechnological and energy industries. Bioeconomy represents a market estimated to be worth over EUR 2 trillion, providing 20 million jobs and accounting for 9 % of total employment in the EU in 2009.

EU-level Bioeconomy related research and innovation is carried out under Horizon 2020, EU’s new framework programme for research and innovation, through the activities of the Bio-Based Industries Joint Undertaking and other initiatives and instruments.

Horizon 2020 is the new EU framework programme for R&I running from 2014 to 2020 with the biggest ever budget of nearly EUR 80 billion. Research on Bioeconomy in H2020 is carried out mostly under, Societal Challenge 2 'Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy' and the Key Enabling Technologies 'Biotechnology' programme. Every euro invested in Bioeconomy research and innovation under Horizon 2020 is expected to generate about 10 EUR in value added. It will also contribute to the Commission's Europe 2020 goal on moving to a low-carbon economy by 2050.

The European Institute of Technology with its Knowledge and Innovation Communities (funded under Horizon 2020) also contributes to the advancement of the broadly defined Bioeconomy in Europe.

The Bio-Based Industries Joint Undertaking (JU BBI) is a new EUR 3.7 billion Public-Private Partnership between the EU and the Bio-based Industries Consortium aiming at increasing investment in the development of a sustainable bio-based industry sector in Europe. EUR 975 million of its budget (26%) comes from Horizon 2020 and leverages EUR 2.7 billion of private investment (74%). It aims at providing environmental and socio-economic benefits for European citizens, increasing the competitiveness of Europe and contributing to establishing Europe as a key player in research, demonstration and deployment of advanced bio-based products and biofuels. The JU BBI will play an important role in developing European Bioeconomy, reducing Europe’s dependency on fossil-based products, helping the EU meet climate change targets, and leading to greener and more environmentally friendly growth. The key is to develop new biorefining technologies to sustainably transform renewable natural resources into bio-based products, materials and fuels. Currently, the private partner of BBI called BIC (Biobased Industries Consortium) has 77 full members (large industries, SMEs and clusters) and 137 associate members (universities, research institutes, associations, European Technology Platforms and one bank). BBI calls are open to all participants (including international partners), following the general rules of Horizon 2020 i.e. openness, transparency and excellence.

Research and Innovation in bioeconomy is carried out also under other initiatives. Smart specialisation is a new innovation policy concept designed to promote the efficient and effective use of public investment in research, through funds dedicated to European regional policy. Its goal is to boost regional innovation in order to achieve economic growth and prosperity, by enabling regions to focus on their strengths.

Furthermore, Horizon 2020 provides matching funding to the European Innovation Partnerships in the three areas: 'Agricultural Productivity and Sustainability', 'Water' and 'Raw Materials'.

Finally, many EU Member States have developed and actively pursue national bioeconomy R&I programmes, which are complimentary to the EU initiatives.



Horizon 2020 is open to the whole world and Japanese participation is welcomed in all Calls for Proposals. Current calls related to bioeconomy/bioindustries:

- Converting CO₂ into chemicals (deadline 1st stage: 14 Feb 2015)
<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-isib-2015-1.html>
- The next H2020 calls in bioeconomy (for 2016-17) are expected to be published in autumn 2015, and the next call of BBI (for 2015) in spring 2015. For more details, see Participant Portal
<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html>

Contact: tom.kuczynski@eeas.europa.eu

¹EIPs are a new approach to EU research and innovation, challenge-driven, focusing on societal benefits and a rapid modernisation of the associated sectors and markets. EIPs act across the whole research and innovation chain, bringing together all relevant actors at EU, national and regional levels in order to: (i) step up research and development efforts; (ii) coordinate investments in demonstration and pilots; (iii) anticipate and fast-track any necessary regulation and standards; and (iv) mobilise 'demand' in particular through better coordinated public procurement to ensure that any breakthroughs are quickly brought to market. Rather than taking the above steps independently, as is currently the case, the aim of the EIPs is to design and implement them in parallel to cut lead times. EIPs are launched only in areas, and consist only of activities, in which government intervention is clearly justified and where combining EU, national and regional efforts in R&D and demand-side measures will achieve the target quicker and more efficiently. http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=eip



Florian David

Systems & Synthetic Biology Group, Department of Biology and Biological Engineering,
Chalmers University of Technology, Sweden

e-mail: davidfl@chalmers.de

General Information

Date of birth: 1981, Braunschweig, Germany Citizenship: German

Education and Degrees

2007 Diploma (M.Sc.) in Biotechnology, Technische Universitat (TU) Braunschweig, Germany

2011 Ph.D. in Biotechnology, Institute of Biochemical Engineering, TU Braunschweig, Germany

2011 Engineering Degree, Faculty of Mechanical Engineering, TU Braunschweig, Germany

Positions

2003-2005 Research assistant at the Department of Cell and Molecular Biology, TU Braunschweig

2007-2011 PhD student, Institute of Biochemical Engineering, TU Braunschweig, Germany

2011-2013 Post doc at the Collaborative Research Center SFB578, Institute of Biochemical Engineering, Prof. Christoph Wittmann, TU Braunschweig, Germany

March 2013 Post doc at the Department of Chemical and Biological Engineering, Prof. Jens Nielsen, Chalmers University of Technology, Goteborg, Sweden

Feb 2014 Cofounder and Director of Biopetrolia AB

Awards and Honors

2007 Biotechnica Award for best Diploma in Biotechnology of the year in Germany

2011 BluesenscCompetition Award, 2nd place (worldwide competition for optimizing gas analysis in bioprocesses)

Management Experience

2007-2009 Public relation work – organization of Public Open Days, courses for school children

2008 Writing a research proposal (SFB578, TPB8) which was approved for funding from the Deutsche Forschungsgemeinschaft (DFG)

2008-2012 Coordinator of the subproject B8 as part of the Collaborative Research Center SFB578; Close collaborations with departments at the TU Braunschweig, MPI Magdeburg, Fraunhofer (ITEM), Germany; Axetris/Leister company, Switzerland

2008-2012 Bioreactor and Flow Cytometer facility management

2014-2015 Cofounder of Biopetrolia AB, Director -acquiring seed funding, business plan development

Teaching

Organizing and teaching 2 practical student courses and 2 lectures for master students in the field of Advanced Biochemical Engineering and Biotechnology.

Mentoring

Supervision of Bachelor Students 7

Supervision of Master Students 4

Supervision of PhD Students/Postdocs 4

Publications & Presentations

Peer reviewed publications 16

Conference Contributions 18

(10 posters, 8 oral presentations)

“European bio-based chemical production”

Abstract:

Implementing bio-based chemical production has three main challenges: Developing biotechnology itself, restructure industrial and economic systems and raising social awareness and acceptance. In these fields Europe developed special funding programs and created infrastructures for interdisciplinary and international research visioning a biosustainable future. Interdisciplinary research happens on various levels ranging from projects within universities, national research centers to international framework programs. Among them Horizon 2020 is a new European program, which involves both academia and industry to combine research and innovation activities on a multinational level, aiming for the translation of knowledge into marketable products and services. The development of efficient cell factories is fundamental for establishing such a biosustainable economy. Fine chemical production by microorganisms is increasingly reliant on tools derived from metabolic engineering and synthetic biology. The use of high throughput techniques and automation for the design of these cell factories, especially platform strains, is playing an important role in the transition from laboratory research to industrial production. Model organisms such as *Saccharomyces cerevisiae* and *Escherichia coli* are widely used as host strains due to their robust and desirable traits. Academia and industry have in many cases joined forces where we are starting to see the fruits of these joint ventures in products that have reached the market and are now seen in our food, pharmaceuticals and fuels.



Jun Ogawa

Professor, Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan

Education Background:

1990 Bachelor of Science, Department of Agricultural Chemistry, Kyoto University, Japan
1992 MS (Master of Science), Department of Agricultural Chemistry, Kyoto University
1995 Ph.D. (Doctor of Agriculture), Kyoto University

Work Career:

1994~1995 Research fellow of Japan Society for Promotion of Science
1995~ Assistant Professor, Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan
2006, Aug~ Visiting Researcher of INRA, France
2007, Feb (Unité de Génétique Microbienne, L'Institut National de la Recherche Agronomique)
2008, Oct~ Professor, Research Division of Microbial Sciences, Kyoto University, Japan
2009, Oct~ Professor, Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Japan

Research Field:

Applied microbiology, Microbial biochemistry, Microbial physiology, Fermentation physiology, Enzyme engineering, Environmental microbiology, Microbial molecular biology.

“Bio-lipid platform: fermentative and enzymatic lipid production and transformation for future chemical industry”

Abstract:

Fermentative and enzyme-catalyzed bioprocesses are promising for future environmental friendly industries and sustainable societies using biomass as energy and material sources.

Lipid fermentation is promising to replace petroleum-derived highly reduced chemical materials by biomass derived ones. Bio-lipid fermentation development through chemical mutant- and molecular-breeding of an oleaginous filamentous fungus *Mortierella alpina* 1S-4^{1,2}) and bio-lipid transformation by anaerobic bacteria will be discussed as new technologies for food and chemical industry^{2,3}).

To make wider the use of bio-lipid derived chemicals, it is important to diversify available lipid-transforming reactions by developing multi-component enzymatic processes, which are functional combination of enzymatic reactions and complex biological systems providing energy or reducing power for the reaction. As examples, hydratase^{3,4}), monooxygenase⁵), dioxygenase⁶), and aldolase⁷) will be discussed.

- 1.Sakuradani, E. et al, J. Biosci. Bioeng., 116, 417-422 (2013).
- 2.Ogawa, J. et al, Eur. J. Lipid Sci. Technol., 114, 1107-1113 (2012).
- 3.Kishino, S. et al, Proc. Natl. Acad. Sci. USA, 110, 17808-17813 (2013).
- 4.Takeuchi, M. et al, Eur. J. Lipid Sci. Technol., 115, 386-393 (2013).
- 5.Sulistyaningdyah, W.T., et al., Appl. Microbiol. Biotechnol., 67, 556-562 (2005).
- 6.Hibi, M., et al., Appl. Microbiol. Biotechnol., 97, 2467-2472 (2013).
- 7.Horinouchi, N., et al., Microbial Cell Factories, 11, 82 (2012).



Esther Vazquez Gomez

1 Senior Researcher. Institut de Biotecnologia i de Biomedicina, Universitat Autònoma de Barcelona, Bellaterra, 08193 Barcelona, Spain
2 Associate Professor. Department de Genètica i de Microbiologia, Universitat Autònoma de Barcelona, Bellaterra, 08193 Barcelona, Spain
3 Member of the CIBER en Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Bellaterra, 08193 Barcelona, Spain.
e-mail: esther.vazquez@uab.es
Previous positions:

1. Predoctoral fellowship holder. Universidad de Oviedo. 1993.
2. Predoctoral fellowship holder. Universidad de Valladolid. 1994-1996.
3. Assistant professor. Universidad de Valladolid. 1996-1997.
4. Postdoctoral researcher. Universidad de Valladolid. 1997-1999
5. Associated professor. Universitat Pompeu Fabra. 1999
6. Visiting professor. Universitat Pompeu Fabra. 1999-2000
7. Assistant professor. Universitat Pompeu Fabra. 2000-2003
8. Lecturer. Universitat Pompeu Fabra. 2004-2007

Academic background:

1. Master in Molecular Biology. 1992. State University of New York. USA.
2. Degree in Medicine. 1993. University of Valladolid, Spain.
3. PhD in Medicine. 1996. University of Valladolid, Spain. Special doctorate award.

Research interests:

Protein drug design, recombinant protein production, nanobiotechnology, self-assembling of protein-based nanoparticles for drug delivery, gene therapy, regenerative medicine, cáncer, innovative research in protein production and aggregation.

“Fabrication and Bio-fabrication in Nanomedicine: The Spanish Research Center in Bioengineering, Biomaterials and Nanomedicine”

Abstract:

The Nanobiotechnology Research Unit belongs to the Biomedical Research Networking Center in Bioengineering, Biomaterials and Nanomedicine (CIBER-BBN), one of nine CIBER consortia in Spain, created to promote research excellence and build a critical mass of researchers in the field of Biomedicine and Health Sciences. The research programs of the CIBER-BBN are: Bioengineering and biomedical imaging, Biomaterials and tissue engineering and Nanomedicine, stressing as an overall main objective the enhancement of the research capabilities of the member groups by sharing resources, coordination and promotion of synergies. Apart from the scientific programs, the CIBER-BBN has several cross programs; one of them, the Platform of Production of Biomolecules, supply customized design and production of recombinant proteins, antibodies and synthetic peptides needed to the development of research projects framed in the strategic lines of Tissue Engineering, Intelligent Devices, Implants, and specially Therapeutic Nanoconjugates and Biosensors. Inside this cross program the Nanobiotechnology Research Unit serves as Protein Production Platform to other groups and institutions in a collaborative framework or as a service, to design, produce and purify recombinant proteins as well as to optimize protocols. This platform also offers formation courses and counseling to their users.

The Nanobiotechnology Research Unit is also part of the Institute of Biotechnology and Biomedicine, located at the University Autònoma de Barcelona, where we combine research and education. Our experience in recombinant protein production in different biological systems is complemented by the synergistic collaboration with other groups from the Institute and the University, to perform a rational protein design towards the generation of complex and functional protein materials.

In this context, the Nanobiotechnology Unit enjoys an optimal environment to develop its research activity moving between biotechnology, biomaterials and nanomedicine, to modify and create proteins for therapeutic uses. On one hand, we design multidomain protein vehicles for a targeted drug delivery and therapies to improve the specificity and diminish the toxicity of chemotherapy agents in different tumor models. These studies are performed in collaboration with different CIBER-BBN hospitals. In this research line, we have developed a new architectonic principle based on specific protein domains to promote protein self-assembling as nanoparticles of regulatable size. These are addressed to reach an optimal cell internalization and biodistribution, but also empowered with multivalent domains for specific targeting. On the other hand, we have developed a new technology platform on the use of inclusion bodies as active biomaterials to be used as therapeutic nanopills for protein replacement therapies or as slow protein delivery agents in regenerative medicine. They have been also explored as topographical modifiers that favors mammalian cell adhesion, proliferation and differentiation in tissue engineering.



Xiaoli Liu

PhD, NAGASE CO., LTD, Japan

Educations

- 1982-1986 B.Sc. University of Eastern China University of Chemical Engineering (Shanghai, P.R.China) Majored in Biochemistry
- 1990-1993 Ph.D. La Trobe University (Victoria, Australia) Majored in Biochemistry and molecular biology

Employments

- April, 2013-present: Nagase & Co., Ltd.
Position: Division Manager, Research & Development Center
- Oct., 1993-March, 2013: Nagase ChemteX Corporation,
Position: General Manager, Enzyme Division
- Sep., 1986-Nov., 1988: Institute of Microbiology, the Chinese Academy of Sciences
Position: Researcher

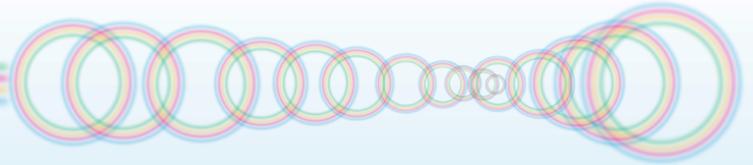
Major Publications:

- Method for hydrolysis and base exchange of phospholipids, A. Daisuke & X. L. Liu, Japanese Patent 4678488, 2011
- Method for preparing a phospholipid composition, M. Shiihara, N. Taniwaki, X. L. Liu, Japanese Patent 4887674, 2011
- Method of removing enzyme and method of base exchange or hydrolysis of phospholipid using the same, X. L. Liu and N. Taniwaki, Japanese Patent 4650746, 2010
- Physiological effects of dietary PIPS soybean-derived phospholipid in Obese Zucker (fa/fa) rats, B. Shirouchi, K. Nagao, K. Furuya, M. Shiojiri, X.L. Liu and T. Yanagita, Biosci. Biotechnol. Biochem., 74(11), 2333-2335, 2010
- GMO and Protein Engineering, Xiaoli Liu, Enzymes in Food technology, 2009:18-41, Robert j Whitehurst & Maarten Van Oort
- Cloning, sequencing and expression of the gene encoding NADH oxidase from the extreme anaerobic thermophile Thermoanaerobium brokii, XL Liu and RK Scopes, Biochim Biophys Acta, Aug 1993; 1174(2): 187-90

“Towards a sustainable society: R&D Activities at Nagase”

Abstract:

Nagase was founded in 1832 as a dyestuff wholesale business entity in handling of natural dyes extracted from safflower and glue plant, as well as starch. Now the company has grown into a Globally-active Corporation and its activities are far beyond trading. Nagase owns affiliated companies where chemicals, enzymes, functional sugars and pharmaceutical intermediates are manufactured and supplied to various industries. Furthermore, it has its own Research and Development Center. Started with handling natural products and thrived with the chemical industry, Nagase is now trying to achieve sustainable growth. One of the key words for sustainability is eco-friendliness. Here, I would like to introduce the mission and activities of Nagase R&D in developing eco-conscious products and processes.



Bas Melssen

Head of Biomass Conversion - Asia Pacific, Novozymes Malaysia Sdn Bhd

Bas has been living and working in Malaysia and throughout the region since 1997 and is a Permanent Resident in Malaysia. He has a State Degree in Business Administration and an Associate Degree in Business & Commerce from The Netherlands.

His background is in strategy consulting and business development. Before joining Novozymes as the Head of 'Biomass Conversion Business Development – Asia Pacific' this year, Bas worked in the Special Innovation Unit in the Malaysian Prime Minister's Office for four years where he has been responsible for conceptualizing and developing Malaysia's National Biomass Strategy

2020 and other High-Impact economic programs. Prior to that he was Global Commercial Director for an Australian company and headed up the Malaysian office for a Global consulting firm.

Internationally he has established commercial ventures throughout Asia Pacific, Europe and the Middle East and has been a regular speaker at Biomass and Biofuels conferences around the world.

"2G commercialization in Asia Pacific"

Abstract:

Novozymes is the global leader in enzyme solutions and Bio Innovation. The company has been at the forefront of cellulosic conversion to 2G BioFuels and BioChemicals.

With 5 commercial scale 2G ethanol plants operational around the world, the industry seems to have decided that enzymatic hydrolysis is the most viable technology.

There's a growing demand for ethanol in Asia Pacific and by 2020 the region will likely run out of capacity to supply itself.

Chemicals derived from ethanol have been produced for decades and can now be produced from 2G Ethanol.

Plenty reasons for biomass owners, ethanol off-takers and downstream investors alike to secure the biomass supply chain for biofuels and chemicals in Asia Pacific region, as those who join in late will have to pay higher mobilization cost for the biomass.

