Joint Symposium
The 2nd joint symposium "Development of Natural Products" has been held.

The joint symposium regarding IMT project and "Promotion Program for Integrative Bio-Imaging Researchers" has been held at Asakura Campus, Kochi University on Saturday, July 2, 2011. There were approximately 280 participants from inside and outside of Kochi including students and faculties of this university or the others, educational institutions, a local government and companies. Fortunately, it has been finished with a great success. Dr. Kataoka Masanori, Specially Appointed Lecturer, has served as a lecturer and presented his research results. The lecturers and TT researchers has participated the poster sessions in order to strengthen fellowship with others after the end of the symposium.

(Top) Dr. Kotsuki, Chief Director
(Bottom) Dr. Katatoka, Specially Appointed Lecturer

(Top) Hall
(Bottom) Poster Session

The lecture was provided by Professor Masashi Tsuda, who was responsible to implement IMT project, after opening speech from Dr. Kotsuki as a representative of chief director. Each lecture will be introduced by responsible teachers who serve as chairman of each session.

Dr. Masashi Tuda, Professor

(Chairman: Dr. Keiji Nakano, Associate Professor)

Dr. Masaki Tsuda explained the outline of bio-imaging technology, which is expected as the next generation of diagnosis and medical treatment technology, entitled "The Integrated Bio Imaging: Development of New MR Imaging Method". He also talked about nuclear magnetic resonance using the dynamic nuclear polarization (DNP). It has been aware that this latest technology significantly improves the detection sensitivity around 10,000 times more compared to the existing technology.

Dr. Masanori Kataoka is a Specially Appointed Lecturer for "Promotion Program for Young Scientists and COE for Innovation of Marine Science and Technology (IMT)" at Science Research Center, Kochi University. He explained the prospects and development of "Universal Nucleic Acid" by utilizing "Universal Base" and nucleic acid base, entitled "Structure Changes of Nucleic Acid Base by Recognizing Relative Bases". The universal base changes its structure freely and also configures the arbitrary base and its pair. On the other hands, the nucleic acid bases encrypt DNA corresponds to the blueprint of biosis.

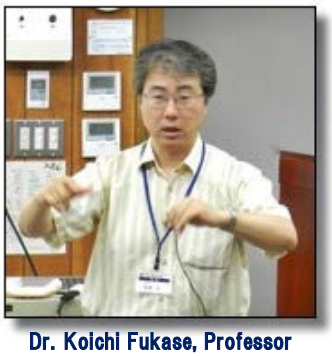
Dr. Tomofumi Miyamoto, Professor

Dr. Isao Kadota, Professor

(Chairman: Dr. Masashi Tuda, Professor)

Dr. Tomofumi Miyamoto, Graduate School of Pharmaceutical Science, Kyushu University, has presented research achievement in the last few years, entitled "Natural Products Chemistry for Isolation and Structural Determination of Organic Metabolites". He utilized molecular-targeted screening for searching molecular probe so as to clarify new drug seeds and physiological function, and also antibody cross reactivity in metabolites of marine invertebrates found in the sea near Kyushu and Okinawa. Therefore, he has developed new screening method to efficiently isolate necessary compounds from natural resources which are complex mixtures in wide variety of compounds". Many undergraduates, who studying natural product chemistry, were able to comprehend his lecture about research result from his laboratory in spite of difficulty.

Dr. Isao Kadota, Graduate School of Natural Science and Technology, Okayama University, has lectured "Total Synthesis of Cyclic Polyether in basis of Intramolecular Allylation". He establishs a synthetic method combining intramolecular allylation of medium-sized cyclic ethers and ring closing metathesis (RCM) common to polyether marine toxins, such as gambierol and brevetoxin B. He talked about his research on total synthesis of ciguatoxin CTX3C (ciguatera toxin component) prior to this method. Despite convergent synthesis, his capability and effort to achieve the total synthesis of more than 30 processes gave a major impact on postgraduates who major in synthetic chemistry.



Dr. Koichi Fukase, Professor

Dr. Toru Oishi, Professor

(Chairman: Dr. Daisuke Kaneno, Associate Professor)

Professor, Koichi Fukase (Graduate School of Science, Osaka University) explained micro-flow and stereoselective synthesis method of glycan as well as in vivo imaging by effective labeling of glycoprotein and glycan cluster, entitled "Exploring the Glycan Functions with Organic Synthesis". There were many audiences who seem to be impressed by the importance and applicability of his research contents.

Professor, Toru Oishi (Graduate School of Science, Kyushu University) talked about the structure determination of amphidinol 3 (AM3) which was bioactive natural products, entitled "The Structure Determination of Bioactive Natural Product Effective on Cell Membrane by Synthetic Chemical Approach". He mentioned that AM3 was very difficult to determine the absolute configuration. However, it could be clearly refined its structure by synthesizing a partial structure as well as comparing the data of the NMR spectrum and GC-MS with the natural products based on the case studies he brought out.

Dr. Koichi Honke, Professor

Dr. Seiichi Nakamura, Professor

(Chairman: Yoshiyasu Ichikawa, Professor)

Dr. Koichi Honke from Kochi System Glycobiology Center, Kochi University and Department of Biochemistry, Kochi Medical School has presented "Seeking the Vision of the Molecules". He utilized Enzyme-Mediated Activation of Radical Sources (EMARS) reaction to analyze the membrane microdomains on the plasma membrane which functioned as a platform of biological phenomenon. As a result, he developed a method to label on molecules of less than 300 nanometers from the cell-surface molecule. It is expected to be a useful tool to understand the network between molecular of membrane microdomains at the molecular level.

Dr. Seiichi Nakamura, Graduate School of Pharmaceutical Sciences, Nagoya City University, has presented his research achievements, entitled "Total Synthesis of Zwitterionic Marine Natural Products Affecting on the Iron Channel". Dr. Uemura, Department of Biosciences and Informatics, Keio University, determined isolation structure of Pinnatoxin which is zwitterionic macrocyclic polyether compound by *Pinna muricata* found in Okinawa. Dr. Nakamura developed double hemiketal formation/hetero-Michael cascade reaction in progress of basic conditions. Thus, he achieved total synthesis of Pinnatoxin A after succeeding in the stereoselective construction of dispirosketal ring structures. These are latest high level of research achievements, and at the same time indicate guidance and direction to undergraduate and graduate students who majored in natural product chemistry.

Dr. Toru Hukuyama, Professor

Dr. Isao Saito, Professor

(Chairman: Dr. Hiyoshizo Kotsuki, Professor)

The last session was performed by Professor, Toru Hukuyama from Graduate School of Pharmaceutical Sciences, Tokyo University and Professor, Isao Saito from Kyoto University as well as Senior Researcher at College of Engineering, Nihon University as a closing of the symposium. Dr. Fukuyama has presented research process and perspective about the expeditious synthesis of kainic acid of marine natural product and antineoplastic drug ecteinascidin-743 (ET-743), entitled "The Synthesis of Natural Products Seeking for Practical Application". This great opportunity gave deep impression to all participants with the world top level of his research content in this field.

Dr. Saito has presented the strategy on the development of fluorescent molecules based on intermolecular interaction toward nucleobase, entitled "Design of Photofunctional Molecule Useful in Biotechnology". He also mentioned about necessary characteristics of researcher who belong to the university. His speech attracted many research beginners with eloquent and persuasive arguments. At the same time, it was easy to understand unique research technique through his explanation. He established the field of chemical biology in our country and educated many students to be researchers. Many participants were impressed by his research attitude and depth of his knowledge in this field.