国際シンポジウム
"微細藻類のバイオテクノロジー～食糧・環境・エネルギー
Microalgal Biotechnology－Food・Environment・Energy"

2010 年 5 月 31 日（May 31st, 2010）
東京大学農学部弥生講堂・一条ホール&アネックス
(Ichijo Hall & Annex, Yayoi Hall, The University of Tokyo)

Morning Session 午前の部

(Presentation in English 英語による講演)

10:00　Opening Address 開会の辞

10:15　Plenary Lecture 基調講演：

Dr. Shigetoh Miyachi (Professor Emeritus at the University of Tokyo, Former Director General of the Research Institute of Marine Biotechnology, Former President of the Japanese Society for Marine Biotechnology)

宮地　重遠（東京大学名誉教授・元海洋バイオテクノロジー研究所長、元マリンバイオテクノロジー学会長）

Prospects on microalgal and marine biotechnology

(微細藻類テクノロジーとマリンバイオテクノロジーの将来展望)

10:50　Plenary Lecture 基調講演：

Dr. Horst Senger (Former Professor at the Phillip's University of Marburg, Germany)

H. ゼンガー（元マールブルク大学教授、ドイツ）

Some historical aspects on the role of microalgae in biotechnology

（微細藻類研究の歴史的背景とバイオテクノロジーにおけるその役割）

11:25　Plenary Lecture 基調講演

Dr. Claude Gudin (Scientific Advisor of AlgoSource Technologies, France)

C. グダン（AlgoSource Technologies サイエンスアドバイザー、フランス）

Totipotency of microalgae biotechnologies

（微細藻類バイオテクノロジーの多様なポテンシャル）

12:00　Video Message ビデオメッセージ

Dr. Andrew A. Benson (Professor, Scripps Institution of Oceanography, University of California, San Diego)
A. A. ベンソン（カリフォルニア大学スクリプス海洋研究所）
Importance of microalgal research-Message to Japanese scientists-
（微細藻類研究の重要性―日本の科学者へのメッセージ）

12:30　Lunch　昼食

午後の部 Afternoon Session

(日本語による講演 Talks in Japanese)

13:15　ポスターセッション ＆ パネル展示（Poster　Session　& Panel Presentation）

14:00　佐藤　朗（ヤマハ発動機）　Dr. Akira Satoh (Yamaha Motor Co., Ltd)
微細藻類の商業的屋内培養システムの開発と健康食品産業における応用
(Development and application of commercial scale indoor cultivation system for microalgae in functional foods industry)

14:30　竹中　裕行（マイクロアルジェコーポレーション）　Dr. Hiroyuki Takenaka (MicroAlgae Corporation)
食糧としての微細藻類－生理機能を中心に－
(Microalgae as provisions - keep our health -)

15:00　蔵野 憲秀（(株)デンソー）　Dr. Norihide Kurano (DENSO　CORPORATION)
微細藻類によるバイオ燃料生産―デンソーのアプローチ―
(Biofuel from microalgae -DENSO's approach-)

15:30　コーヒー

15:45　福澤 秀哉（京都大学）　Dr. Hideya Fukuzawa (Kyoto University)
微細藻類の CO_2 濃縮機構
(CO_2-concentrating mechanism in microalgae)

16:15　宮下英明（京都大学）　Dr. Hideaki Miyashita (Kyoto University)
クロロフィル *d* 生物アカリオクロリスの分布と地球規模の炭素循環への寄与）
(Distribution of *Acaryochloris* species and possible contribution of chlorophyll *d* to the global carbon cycle)

16:45　桜井英博（神奈川大学）　Dr. Hidehiro Sakurai (Kanagawa University)
シアノバクテリアによる水素生産
(Hydrogen production by cyanobacteria)

17:15　松永　是（東京農工大学）　Dr. Tadashi Matsunaga (Tokyo University of Agriculture & Technology)
海洋微細藻類によるバイオ燃料生産の可能性
(Possible potential of biofuel production by microalgae)

17:45　閉会の辞 Closing Remarks

9:30-18:50　ポスターおよびパネル展示（コアタイム；13:15-14:00 & 17:50-18:50）
・研究発表ポスター
・パネル展示

懇親会 Party

19:00-21:00

東京大学農学部弥生講堂・一条ホール&アネックス
Ichijo Hall & Annex, Yayoi Hall, The University of Tokyo

ポスターセッション

P-1 Functional diversity of aluminum-activated malate transporters
Takayuki Sasaki and Yoko Yamamoto
Institute of Plant Science and Resourses, Okayama Univ., Japan

P-2 Extracellular hydrophilic carboxy-terminal domain regulates the activity of TaALMT1, the aluminum-activated malate transport protein of wheat
Takuya Furuichi[1], Takayuki Sasaki[1], Yoshiyuki Tsuchiya[1], Peter R. Ryan[2], Emmanuel Delhaize[2], and Yoko Yamamoto[1]
[1]Research Institute for Bioresources, Okayama Univ., Japan, [2] CSIRO Plant Industry, Australia

P-3 Genetic and morphological diversity of the genus Nephroselmis from the Ryukyu Islands, Japan
D. G. Faria[1] and S. Suda[2]
[1]Graduate School of Engineering and Science, [2]Faculty of Science, Univ. of the Ryukyus

P-4 バイオ燃料創出のための海産オイル産生株の実用性評価
大井信明・伊藤卓朗・曽我朋義・冨田勝
慶應義塾大学　先端生命科学研究所

P-5 Stress Signal Transduction Network Involving Reactive Oxygen Species and Ca^{2+} in Plants 植物のストレス応答と活性酸素-Ca^{2+}シグナルネットワーク
Kazuyuki Kuchitsu, Takamitsu Kurusu, and Hidetaka Kaya 朽津 和幸、来須 孝光、賀屋 秀隆
Dept. of Applied Biological Science, Tokyo Univ. of Science 東京理科大・理工

P-6 Carbohydrate metabolism in cyanobacteria シアノバクテリアにおける炭水化物代謝
Eiji Suzuki 鈴木英治
Akita Prefectural Univ. 秋田県立大学

P-7 Tomato ICE1 (Inducer of CBF Expression 1) homolog is induced in response to chilling and salt stress.
Takashi Yuasa and Mari Iwaya-Inoue
Faculty of Agriculture, Kyushu Univ.

P-8 Mechanism of the expression of high-CO_2 responsive gene

Masato Baba, Iwane Suzuki, and Yoshihitro Shiraiwa
Graduate School of the Life and Environmental Sciences, Univ. of Tsukuba

P-9 Coversion of Chl *a* to Chl *d* in crushed algae

Shinya Akutsu[1], Shingo Itoh[1], Keisuke Aoki[1], Hayato Furukawa[1], Masaaki Okuda[1], Hideaki Miyashita[2], Koji Iwamoto[3], Yoshihiro Shiraiwa[3], and Masami Kobayashi[1]
[1]Institute of Materials Science, Univ. of Tsukuba, [2]Graduate School of Human and Environmental Studies, Kyoto Univ., [3]Institute of Biological Science, Univ. of Tsukuba

P-10 Models for P740 based on the absorption spectra and redox potentials

Y. Abe[1], S. Ohashi[1], T. Iemura[1], H. Miyashita[2], K. Iwamoto[3], Y. Shiraiwa[3], Y. Kato[4], T. Watanabe[4], and M. Kobayashi[1]
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P-11 Conversion of Chl *a* into Chl *d* by extracts of vegetables

S. Itoh[1], N. Okada[1], K. Aoki[1], M. Okuda[1], K. Iwamoto[2], Y. Shiraiwa[2], H. Miyashita[3], and M. Kobayashi[1]
[1]Institute of Materials Science, Univ. of Tsukuba, [2]Biological Sciences, Univ. of Tsukuba, [3]Graduate School of Human and Environment Studies, Kyoto Univ.

P-12 Epimerization rates of chlorophylls *a*, *b* and *d* in diethyl ether

Hayato Furukawa[1], Tatsuya Iemura[1], Masaaki Okuda[1], Masataka Nakazato[2],Koji Iwamoto[3], Yoshihiro Shiraiwa[3], Hideaki Miyashita[4],Tadashi Watanabe[5] and Masami Kobayashi[1]
[1]Institute of Materials Science, Univ. of Tsukuba, [2]Chlorophyll Reserch Institute,
[3]Institute of Biological Science, Univ. of Tsukuba, [4]Graduate School of Human and Environmental Studies, Kyoto Univ., [5]Institute of Industrial Science, Univ. of Tokyo

P-13 Nonenzymatic conversion of Chl *a* into Chl *d*

K. Aoki[1], S Itoh[1], N. Okada[1], M. Okuda[1], K. Iwamoto[2], Y. Shiraiwa[2], H. Miyashita[3] and M. Kobayashi[1]
[1]Institute of Materials Science, Univ. of Tsukuba, [2]Biological Sciences, Univ. of Tsukuba, [3]Graduate School of Human and Environment Studies, Kyoto Univ.

P-14 群体性微細藻 *Botryococcus braunii* の形質転換法の検討

正岡祥吾[1]・兼田昇[1]・内田英伸[1]・岡田茂[2]・大濱武[1]

[1]高知工科大・環境理工、[2]東大院・農

P-15 *Chlamydomonas reinhardtii* における RNAi 解除株の分子遺伝学的解析
内田英伸・池内絵理・山崎朋人・正岡祥吾・田村友紀・大濱武
高知工科大・環境理工

P-16 Detailed CO_2 Balance Sheet in Microalgal Mass Culture
Katsunori Aizawa and Shigetoh Miyachi
Institute for Clean Earth, Japan

P-17 Restoration of problematic aridisol by terrestrial cyanobacteria
Selection of strains and cultivation on soil
S. Horaguchi[1], S. Obana[1], S. Togashi[1,2], K. Inubushi[1], S. Tobita[3], K. Hayashi[3], M. Ohmori[4]
[1] Grad.Sch.Hort, Chiba Univ., [2] OISCA institute of Alaxa Ecology, [3] JIRCUS. [4] Dept. Biol. Sci., Chuo Univ.

P-18 Isolation and Molecular Characterization of a Multicellular Cyanobacterium for Biotech Industry
Tomoyasu Nishizawa, Tomoyo Hanami, Eriko Hirano, Akira Takanezawa, Yuko Watanabe, Takamasa Miura, Hiroyuki Ohta, Makoto Shirai, and Munehiko Asayama
School of Agriculture, Ibaraki Univ., Japan

P-19 Crystal structure of wild type carbonic anhydrase α CA1 from *Chlamydomonas reinhardtii* 緑藻クラミドモナス由来野生型炭酸脱水酵素 α CA1 の結晶構造
Kaoru Suzuki[1], Akio Takenaka[2] and Shi-Yuan Yang[1] 鈴木　薫[1]，竹中　章郎[2]，楊 仕元[1]
[1] College of Science and Engineering,, and [2] Faculty of Pharmacy, Iwaki-Meisei Univ.
[1]いわき明星大学科学技術学部，[2]いわき明星大学薬学部

P-20 Influence of the ocean acidification on *Emiliania huxleyi*
Shin-ya Fukuda, Iwane Suzuki, Yoshihiro Shiraiwa
Graduate School of Life and Environmental Sciences, Univ. of Tsukuba

P-21 Characterization of triterpene synthases from the green microalga *Botryococcus braunii*, race B.
Shigeru Okada[1], Tom Niehaus[2], Timothy Devarenne[3], and Joe Chappell[2]
[1]Dept. of Aquatic Bioscience, Univ. of Tokyo, [2]Plant Biology Program, Univ. of Kentucky, [3]Dept. of Biochemistry, Texas A & M Univ.

P-22 緑藻 *Botryococcus braunii* におけるテルペノイド系炭化水素の生合成に関与する遺伝子群の解析

新津 里佳[1], 池上 有希子[1], 金指 真菜[2], 加藤 毅[3]、田野井 孝子[4], 河地 正伸[4], 加藤 美砂子[1,2]

[1]お茶の水大・院・ライフサイエンス, [2]お茶の水大・理・生物, [3]お茶の水大・生命情報, [4]国環研・生物圏環境

P-23 DYNAMICS OF AUTOPHAGY DURING PATHOGENIC SIGNAL-TRIGGERED IMMUNE RESPONSES IN TOBACCO BY-2 CELLS 膜動態を介した植物免疫の新規制御機構の解析～タバコ BY-2 培養細胞の感染防御応答におけるオートファジー動態～

Takamitsu Kurusu, Shigeru Hanamata, Koki Kawamura, Katsunori Saito, and Kazuyuki Kuchitsu 来須孝光、花俣繁、河村康希、齊藤克典、朽津和幸

Dept. of Applied Biological Science, Tokyo Univ. of Science 東京理科大・理工・応用生物科学

P-24 Enhanced resistance against both pathogens and insects by overexpression of a tobacco MAP kinase, WIPK.

Yuta Amano[1,2], Shigemi Seo[1], Kei Kawazu[3], Yukie Sato[3,4], Wataru Sugeno[3], Atsushi Mochizuki[3], Kazuyuki Kuchitsu[2], Yuko Ohashi[1], and Ichiro Mitsuhara[1]

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P-25 トレボキシア藻網に属する *Parachlorella* sp. binos（パラクロレラ バイノス）のアルギン酸様オリゴマー産生条件

白川百合恵[1], 佐藤剛毅[2], 稲森隆平[1], 稲森悠平[1]

[1]福島大学, [2]株式会社　日本バイオマス研究所

P-26 Regulatory network of cyanobacterial cellular differentiation

Shigeki Ehira and Masayuki Ohmori

Dept. of Biological Sciences, Faculty of Science and Engineering, Chuo Univ.

P-27 Analysis of cell-surface structure in the cyanobacterium *Anabaena* sp. PCC 7120

Hidehisa Yoshimura[1,2], Masahiko Ikeuchi[1], and Masayuki Ohmori[2]

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P-28 Genomic analysis of an economically important *Arthrospira (Spirulina) platensis* NIES-39

Rei Narikawa[1], Takatomo Fujisawa[2], Shinobu Okamoto[3], Shigeki Ehira[4], Hidehisa

Yoshimura[1], Iwane Suzuki[5], Tatsuru Masuda[1], Mari Mochimaru[6], Shinichi Takaichi[7], Koichiro Awai[8], Mitsuo Sekine[2], Hiroshi Horikawa[2], Isao Yashiro[2], Seiha Omata[2], Hiromi Takarada[2], Yoko Katano[2], Hiroki Kosugi[2], Satoshi Tanikawa[2], Kazuko Ohmori[9], Naoki Sato[1], Masahiko Ikeuchi[1], Nobuyuki Fujita[2] and Masayuki Ohmori[4]

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P-29 キメラを用いたラン藻のヒスチジンキナーゼ Hik33 のシグナルインプットドメインの解析
志村遥平、木村聡、白岩善博、鈴木石根
筑波大学大学院生命環境科学研究科

P-30 Thermal Pre-treatment of Wet Microalgae Harvest for Efficient Hydrocarbon Recovery
A. Magota[1], K. Kita[1], S. Okada[1], H. Sekinou[1], K. Imou[1], S. Yokoyama[1], and T. AMANO[2]
[1]Univ. of Tokyo, [2]Tokyo Gas Co. Ltd

P-31 ラン藻 *Synechocystis* sp. PCC 6803 のヒスチジンキナーゼ Hik2 の機能解析
古田島知則、白岩善博、鈴木石根
筑波大学大学院生命環境科学研究科

P-32 Selenite Uptake Mechanism in a Unicellular Marine Coccolithophorid, *Emiliania huxleyi* (Haptophyta)
Hiroya Araie, Kou Sakamoto, and Yoshihiro Shiraiwa
Graduate School of Life and Environmental Sciences, Univ. of Tsukuba

P-33 光化学系 II 複合体と相互作用する機能未知タンパク質 Sll1252 の機能解析
伊藤史紘，J.S.S. Prakash，白岩善博，鈴木石根
筑波大学大学院生命環境科学研究科

P-34 円石藻 *Emiliania huxleyi* の葉緑体における C_4 化合物の生成経路
辻敬典、鈴木石根、白岩善博
筑波大学大学院生命環境科学研究科

P-35 Development and Experimental Verification of a Genome-Scale Metabolic Model

for *Synechocystis* sp. PCC6803

Chikara Furusawa[1,2], Yuta Kojima[1],Takashi Hirasawa[1,2], Naoki Ono[1], Tsubasa Nakajima[1], and Hiroshi Shimizu[1,2]

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P-36 Induction of cellulose biosynthesis at low temperature under light condition in thermophilic cyanobacterium

Yusuke Kawano, Toshiyuki Saotome, and Masahiko Ikeuchi

Dept. of Life Sciences, Graduate School of Arts and Sciences, Univ. of Tokyo

P-37 Molecular cloning of mannitol synthesizing enzymes from the red alga *Caloglossa continua*

Koji Iwamoto[1], Mitsunobu Kamiya[2], Hiroya Araie[1], Yoshihiro Shiraiwa[1]

[1]Graduate School of Life and Environmental Sciences, Univsersity of Tsukuba, [2]Faculty of Marine Biotechnology, Fukui Prefectural Univ.

P-38 Cyanobacterial photosynthesis in space

Takashi Yamazaki[1], Noriaki Ishioka [1], Yuichi Suwa[2], and Masayuki Ohmori [2]

[1]Japan Aerospase Exploration Agency, [2]Dept. of Biological Sciences, Faculty of Science and Engineering, Chuo Univ.

P-39 Biotransformation of arsenate to arsenosugars by *Chlamydomonas reinhardtii*

Shinichi Miyashita, Chisato Murota, Yosuke Hiruta, Isao Kobayashi, Shoko Fujiwara, and Mikio Tsuzuki

School of Life Sciences, Tokyo Univ. of Pharmacy and Life Sciences

P-40 Expression of phosphate transporter genes in *Chlamydomonas reinhardtii*

Chisato Murota, Shinichi Miyashita, Yosuke Hiruta, Isao Kobayashi, Shoko Fujiwara, and Mikio Tsuzuki

School of Life Sciences, Tokyo Univ. of Pharmacy and Life Sciences

P-41 R2R3-type MYB transcription factor, CmMYB1, is a central nitrogen assimilation regulator in *Cyanidioschyzon merolae*

Sousuke Imamura[1,2], Yu Kanesaki1, Mio Ohnuma[3], Takayuki Inouye[3], Yasuhiko Sekine[3], Takayuki Fujiwara[3], Tsuneyoshi Kuroiwa[3], Kan Tanaka[1,4]

[1] Institute of Molecular and Cellular Biosciences, The Univ. of Tokyo, [2] Faculty of Science and Engineering, Chuo Univ., [3] College of Science, Rikkyo (St. Paul's) Univ., [4] Graduate

School of Horticulture, Chiba Univ.

P-42 Establishment of gene transfer method for marine pennate diatom strain JPCC DA0580
海洋羽状目珪藻 JPCC DA0580 株への遺伝子導入法の確立
Masaki Muto[1,3], Tsuyoshi Tanaka[1,3], Hiroshi Sugiyama[1,3], Yorikane Fukuda[1], Masayoshi Maeda[1,3], Mitsufumi Matsumoto[2,3], Tadashi Matsunaga[1] 武藤正記[1,3]、田中　剛[1,3]、杉山寛[1,3]、福田頼謙[1]、前田義昌[1,3]、松本光文[2,3]、松永　是[1]
[1]Tokyo Univ. of Agriculture and Technology, [2] Electric Power Development Co., Ltd, [3] JST CREST　[1] 東京農工大学大学院、[2] 電源開発株式会社、[3]JST CREST

P-43 Extraction of neutral lipids from wet biomass of marine pennate diatom strain JPCC DA0580 海洋羽状目珪藻 JPCC DA0580 株の湿藻体からの中性脂質抽出
Hiroshi Sugiyama[1,3], Tsuyoshi Tanaka[1,3], Yorikane Fukuda[1], Mitsufumi Matsumoto[2,3], Tadashi Matsunaga[1] 杉山　寛[1,3]、田中　剛[1,3]、福田頼謙[1]、松本光文[2,3]、松永 是[1]
[1] Tokyo Univ. of Agriculture and Technology, [2] Electric Power Development Co., Ltd, [3] JST CREST　[1] 東京農工大学大学院、[2] 電源開発株式会社、[3]JST CREST

〈ご注意〉　講演のスライドとポスターに関して、写真撮影はご遠慮願います。