

# **Rare Sugar Symposium 2014**

## **in Kagawa**

**Kagawa International Convention Hall**

**Takamatsu, Kagawa, Japan**

**March 29<sup>th</sup> – 30<sup>th</sup>, 2014**

### **ORGANIZER**

**International Society of Rare Sugars**

### **COSPONSORS**

**Kagawa Prefecture**

**Kagawa University**

**Kagawa Industrial Support Foundation**

# PROGRAM

**Saturday, March 29<sup>th</sup>**

13:00-13:15      **Opening Ceremony**

<b>Session 1</b>	<b>Production of rare sugars and their derivatives</b> <b>Chairpersons: Dr. Lumyong Saisamorn and Dr. Ken Izumori</b>
------------------	--

13:15-13:45    **S1**    **1. Short and Sweet: D-Glucose to L-Glucose,**  
**2. 16 Stereoisomers of Homonojirimycin.**  
George Fleet, Ken Izumori

13:45-14:05    **S2**    **Rare Sugar Sweet (RSS) Development and Applications.**  
Pushpa Kiran Gullapalli, Shintani Tomoya, Satoshi Takamine, Yuma Tani, Tetsuo Iida, Kazuhiro Okuma, Ken Izumori,

14:05-14:25    **S3**    **Physiological function and marketing of Rare Sugar Sweet (RSS).**  
Yuma Tani, Masako Nakamura, Tomonori Kimura, Takako Yamada, Noriko Hayashi, Kazuhiro Okuma, Masaaki Tokuda

14:25-14:45    **S4**    **Supermolecule Rare Sugar (SRS): A New Category of Rare Sugar.**  
Tomohiko Ishii, Shunsuke Ohga, Kimina Tsuchiya, Tatsuya Senoo, Kazuhiro Fukada, Taro Kozakai, Akihide Yoshihara, Chihiro Fujimoto

14:45-15:00      Coffee Break

<b>Session 2</b>	<b>Production of rare sugars and their derivatives</b> <b>Application of rare sugars for plants</b> <b>Chairpersons: Dr. Eric Vandamme and Dr. Kazuya Akimitsu</b>
------------------	--

- 15:00-15:20 **S5** **Enzymatic Characterization of a Cellobiose 2-epimerase from *Caldicellulosiruptor saccharolyticus* for Bioconversion of Rare Monosaccharides.**  
Chang-Su Park.
- 15:20-15:40 **S6** **Biosynthesis of Rare Sugars through Constructing A Multi-Enzyme Coupling Reaction Pathway in Genetic Engineering Bacteria.**  
Yuanxia Sun, Jiangang Yang, Yueming Zhu, Hongyi Li, Ken Izumori
- 15:40-16:00 **S7** **Hexokinase Is Essential for the Effects of D-Allose in Plant Responses.**  
Kazuya Akimitsu, Takeshi Fukumoto, Akihito Kano, Kouhei Ohtani, Megumi Inoue, Kazushi Matsudaira, Ayaka Aki, Shigeyuki Tajima, Fumito Kasai, Yutaka Ishida, Akihide Yoshihara, Ken Izumori
- 16:00-16:20 **S8** **Itea of Thailand.**  
Verasak Sahachaisaree, Akihide Yoshihara, and Ken Izumori
- 16:20-16:40 **S9** **Development of Research Platform Using the D-Allulose-producing *Itea* Plant.**  
Takeshi Fukumoto, Kazushi Matsudaira, Takuya Shimagami, Akihide Yoshihara, Megumi Inoue, Ayaka Aki, Kouhei Ohtani, Saki Nikaido, Mai Katsumoto, Hana Azumi, Shigeyuki Tajima, Ken Izumori, Kazuya Akimitsu
- 18:00- 20:00 **Banquet**  
Sky Banquet CIERO, JR Hotel Clement Takamatsu

# Sunday, March 30<sup>th</sup>

## Session 3

### Application of rare sugars for health

Chairpersons: Dr. Matti Leisola and Dr. Masaaki Tokuda

- 9:30- 9:50 **S10** **Anti-Inflammatory Effects of D-Allose on Cerebral Ischemia-Reperfusion Injury in Rats.**  
Nobuyuki Kawai, Dakuan Gao, Takehiro Nakamura, Masaaki Tokuda, Takashi Tamiya
- 9:50-10:10 **S11** **Molecular Analysis of D-Allose Anti-Proliferative Effect for Development of A New Cancer Therapy.**  
Kazuyo Kamitori, Fuminori Yamaguchi, Youyi Dong, Akram Hossain, Yuko Hirata, Ayako Katagi, Chisato Noguchi, Hiroshi Hoshikawa, Masaaki Tokuda
- 10:10-10:30 **S12** **Physiological Activities of The Rare Sugar Derivatives.**  
Ikuko Tsukamoto, Maki Takata, Yasuo Kubota, Yasuhiro Kawanami, Norikazu Sakakibara, Tokumi Maruyama, Masaaki Tokuda, Ryoji Konishi
- 10:30-10:50 **S13** **Transepithelial Transports of Rare Sugar D-Psicose in Human Intestine.**  
Masahiro Ogawa and Shigeru Hayakawa
- 10:50-11:10 **S14** **D-psicose, an Epimer of Fructose, Favorably Alters Lipid Metabolism in Sprague-Dawley Rats.**  
Yasuo Nagata, Akane Kanasaki, Shizuka Tamaru, Kazunari Tanaka
- 11:10-11:30 **S15** **Effects of D-Psicose on Pro-inflammatory Cytokines Levels in Type 2 Diabetic Patients.**  
Jingya Lyu, Hitomi Imachi, Satoshi Tada, Takamasa Nisiuchi, Takuo Yoshimoto, Kensaku Fukunaga, Xiaozhou Zhang, Maki Ueda, Koji Kondoh, Masaaki Tokuda, Koji Murao
- 11:30-11:45 Coffee Break

11:45-12:45

**Panel Discussion**

Panelists: Dr. M. Leisola, Dr. E. Vandamme, Dr. G. Fleet,  
Dr. L. Saisamorn, Dr. K. Izumori, Dr. S. Hayakawa,  
Dr. K. Akimitsu, Dr. M. Tokuda

1. Nomenclature of Rare Sugars
2. Future Direction of International Society of Rare Sugars

12:45-13:00

**Closing Ceremony**