Membrane Lipid Transporter Symposium 2018 —Flippases, Floppases and Scramblases

September 27–28 at Kyoto University iCeMS

Asymmetric distribution of phospholipids across the plasma membrane and its local changes are important for cell functions. Molecular identities of lipid flippases, floppases and scramblases have been identified and their physiological roles are being revealed. Furthermore, cholesterol, another main component of the plasma membrane, is also distributed asymmetrically and its temporal regulation is important for the modulation of various cellular functions. This symposium is aiming a paradigm shift of the concept of the plasma membrane by achieving a comprehensive understanding of membrane lipid transporters, flippases, floppases and scramblases.

September 27

9:20– Opening remarks: Susumu Kitagawa (Director of iCeMS, Kyoto Univ)

Session 1 Chair: Kazumitsu Ueda

9:30–10:00 **Wonhwa Cho** (Univ of Illinois at Chicago)
Discovery of new cholesterol transporter activities by quantitative cholesterol imaging

10:00–10:30 **Toshihide Kobayashi** (Univ of Strasburg)
Transbilayer lipid co-localization in the plasma membrane

10:30–11:00 **Masato Umeda** (Kyoto Univ)
Phospholipid flippase acts as a molecular switch for ion channel activation

11:00–11:15 *Coffee break (15 min)*

Session 2 Chair: Hye-Won Shin

11:15–11:45 **Patrick Williamson** (Amherst College)
Molecular interactions with the P4-ATPases

11:45–12:15 **Jun Suzuki** (Kyoto Univ)
Phospholipid scrambling on the plasma membranes

12:15–13:15 *Lunch (60 min)*

Session 3 Chair: Masato Umed**a**

13:15–13:45 **Todd Graham** (Vanderbilt Univ)
Factors enforcing the division of labor among Golgi flippases

13:45–14:15 **Hye-Won Shin** (Kyoto Univ)
Membrane dynamics and phospholipid flippase activity"

14:15–14:45 **Kazuma Tanaka** (Hokkaido Univ)
Cellular functions of phospholipid flippases

14:45–15:15 *Coffee break (30 min)*

Session 4 Chair: Wonhwa Cho

15:15–15:45 **Alan Tall** (Columbia Univ)
ABC transporter mediated cholesterol efflux suppresses macrophage inflammasome activation, NETosis and atherosclerosis"

15:45–16:15 **Sanja Jelic** (Columbia Univ)
Internalization of complement inhibitor CD59 increases endothelial inflammation in sleep apnea"

16:15–16:30 *Coffee break (15 min)*

Session 5 Chair: Toshi Kobayashi

16:30–17:00 **Toyoshi Fujimoto** (Nagoya Univ)
A new look at subcellular distribution of phosphatidylserine

17:00–17:30 **Katsumori Segawa** (Osaka Univ)
Phospholipid asymmetry and plasma membrane phospholipid flippases

17:30–17:45 *Coffee break (15 min)*

Session 6 Chair: Jun Suzuki

17:45–18:15 **Rikiya Watanabe** (Univ of Tokyo)
Single molecule analysis of phospholipid scrambling by TMEM 16F

18:15–18:45 **Kazumitsu Ueda** (Kyoto Univ)
Mechanism of action of ABC proteins

18:45 Closing remarks: **Kazumitsu Ueda**

19:00–21:00 *Banquet*

September 28

10:00–12:00 **Round Table Discussion**