S37-1 **Diversity and functions of sPLA2 enzymes**

◯Makoto MURAKAMI[1,2]

[1]Biomembrane Signaling Project, The Tokyo Metropolitan Institute of Medical Science, [2]PRESTO, JST

Phospholipase A_2 (PLA_2) represents a group of enzymes that catalyze the hydrolysis of glycerophospholipids to yield fatty acids and lysophospholipids. To date, there are more than 20 enzymes, including intracellular cPLA$_2$s and iPLA$_2$s and secreted PLA_2 (sPLA$_2$s), in mammals. Although the functions of intracellular PLA$_2$s in regulating diverse cellular responses have been well documented, the roles of individual sPLA$_2$ enzymes and their relevant substrates *in vivo* still remain largely obscure. Considering that sPLA$_2$s are secreted, require mM order of Ca^{2+} for catalysis, do not show arachidonate selectivity, and display isozyme-specific cellular distributions, it is likely that their main target substrates exist in extracellular microenvironments. Our recent studies using transgenic and knockout mice for several sPLA$_2$ enzymes, in combination with lipidomics approaches, reveal their distinct contributions to various biological events such as reproduction, innate immunity, allergy, skin homeostasis, and metabolic syndrome. Some examples for the unique roles of particular sPLA$_2$ enzymes and their relevant substrates *in vivo* will be presented.