COINS Seminar #11

The whats, whys and hows of Extracellular Vesicles

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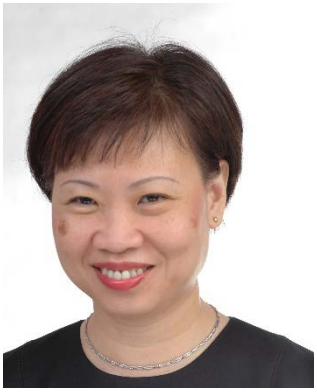
Date: November 27, 2015

Time: 3:15pm ~ 4:00pm

Venue: #3001, Innovation Center of Nanomedicine (iCONM)

Capacity: 40 people
Research Mixer:16:00-18:00(Fee:JPY500)
Registration: By E-mail (jimukyoku-coins@kawasaki-net.ne.jp)
Please send your "name" and "Affiliation"and"
Division"and"Attendance of Research Mixer"and"E-Mail"



—Abstract—

Extracellular vesicles (EVs) are relatively recent discoveries in biology and medicine. They are phospholipid membrane vesicles that are released by many cell types into the extracellular space. Although the biological functions of EVs have not been clarified, it is generally accepted that EVs function primarily as conveyors of intercellular communication with much potential as therapeutic agent to modulate cell activity, sources of biomarkers for diseases or vehicles for drug delivery.

There are many types of EV such as exosomes, microvesicles, ectosomes, membrane particles, exosome-like vesicles or apoptotic bodies. A major hindrance in the field of EV research is the lack of tools to definitively isolate specific types of EVs for characterization. Presently, EVs are isolated using physical methods that merely enrich nanoparticles and macromolecules, and do not differentiate the different EV types or phospholipid membrane vesicles from lipoprotein complexes or large proteins/protein aggregates. Without stratifying and isolating the different EV types, it is difficult to understand what EVs are, why EVs are secreted and how EVs are made. This in turn will hamper the development of EVs as therapeutic agents, EV-associated biomarkers and drug delivery vehicles.

In this presentation, I will describe the use of phospholipid-binding ligands to isolate three different EV types. These three EVs have similar sizes but different cargos. All three carry different protein cargos but one also carries RNA. The rationale for phospholipid-binding ligands is to enrich for phospholipid membrane which is the defining and delimiting feature of EVs and to circumvent nanosize particles. Based on the distribution of the binding affinities of ligands in cells, we could also postulate the biogenesis of these different EV types.

＊Organizer: Center of Innovation (COI program) by JST
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<Venue access>

Name: Innovation Center of Nanomedicine (iCONM)

Address: 3-25-14, Tonomachi, Kawasaki-ku, Kawasaki 210-0821, JAPAN

Access by train:

Keikyu-Kawasaki Sta. to Kojima-Shinden Sta. by Keikyu-Daishi Line (ride time about 10 minutes) and Walk about 15 minutes to iCONM (See below access map)

Access by bus

"Bus stop on East Terminal at JR Kawasaki Sta."

1) No. 20 bus stop (KAWASAKI TSURUMI RINKO BUS Co.,LTD)

川 (kawa) 02 line; Tonomachi terminal, to "Tonomachi" bus stop (ride time about 30 minutes), walk about 3 minutes to iCONM from the bus stop

2) No. 20 bus stop (KAWASAKI TSURUMI RINKO BUS Co.,LTD)

川 (kawa) 02 line; Ukishima-Bashi terminal, to "King Sky Front Irigchi" (ride time about 20 minutes), walk about 5 minutes to iCONM from the bus stop

3) No. 16 bus stop (KAWASAKI TSURUMI RINKO BUS Co.,LTD)

川 (kawa) 03 line; Ukishima-bus terminal, to "King Sky Front Irigchi" (ride time about 30 minutes), walk about 5 minutes to iCONM from the bus stop

Access Map