Precise and timely delivery of proteins within cells continues to be an exciting area of cell biology

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To deliver the right amount of the right protein to the right place at the right time is a fundamental cell biology event underlying diverse cellular, physiological, and pathological processes. As co-chairs of the Minisymposium on Intracellular Sorting and Trafficking we reviewed a large number of deserving abstracts, but we could choose only six speakers, ranging from junior to senior investigators. The talks covered major cellular organelles involved in sorting and trafficking, including the endoplasmic reticulum (ER), Golgi, endocytic compartments, the plasma membrane, and the primary cilia. We were thrilled to have **Gia Voeltz** from the University of Colorado at Boulder in our session, and we congratulated her on her Early Career Life Scientist Award. She described her original work in defining the molecular basis governing the organization and dynamics of the different subdomains and connectivity of the ER using in vitro systems, biochemical approaches, and in vivo cell biological validation. The small GTPase Rab10 was identified as a major player. A part of the story was just published (English and Voeltz, 2012).

Moving to the Golgi apparatus, **Wanjin Hong** from the Institute of Molecular and Cell Biology in Singapore talked about an approach of data-browsing the Human Protein Atlas (www.proteinatlas.org) to identify several new potential Golgi membrane proteins and focused on the novel Golgi protein TMEM115. TMEM115 is an evolutionarily conserved protein with four predicted transmembrane domains and a C-terminus facing the cytoplasm. Functionally, TMEM115 may regulate retrograde trafficking from the Golgi back to the ER through interaction with the conserved oligomeric Golgi complex.

DOI: 10.1091/mbc.E12-12-0871
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MBoC is pleased to publish this summary of the Minisymposium "Intracellular Sorting and Trafficking" held at the American Society for Cell Biology 2012 Annual Meeting, San Francisco, CA, December 17, 2012.

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Moving from the Golgi to the cell's surface, **Thierry Galli** from the Institut Jacques Monod in France focused on Ti-VAMP/VAMP7 and its interacting network in regulating the migration of vesicles from the cell center to the cell periphery via the microtubules to mediate exocytosis. A multiprotein interacting network for Ti-VAMP was described, including the Rab21 guanine nucleotide exchange factor Varp, MACF1, GolginA4, and the kinesin 1 Kif5A. Part of the work has appeared recently (Burgo *et al.*, 2012). Also at the cell surface, **Ludger Johannes** from the Institut Curie in France talked about his exciting discovery underlying the molecular aspects of clathrin-independent endocytosis. His group has identified an endogenous protein that drives the biogenesis of clathrin-independent carriers for the uptake of transmembrane cargo proteins, such as CD44. In experiments on cell and model membranes, they found that glycosphingolipids were key to the formation of endocytic membrane invaginations. These finding were condensed into the first mechanistic model based on specific protein machinery to describe how the uptake of certain endogenous cargoes is initiated without the help of the cytosolic clathrin machinery.

Moving to later stages in endocytosis, **Anne Spang** from the University of Basel in Switzerland described a systematic study to address coordination of various processes, such as membrane fusion, acidification, and intralumenal vesicle formation underlying the transition from the early to the late endosome, which occurs during endosome maturation (Poteryaev *et al.*, 2010). Novel roles and the action of the HOPS (homotypic fusion and vacuole protein sorting) and the CORVET (class C core vacuole/endosome tethering) tethering complexes in conjunction with SAND-1/Mon1 and RABX-5 on endosome maturation in the model organism *Caenorhabditis elegans* were presented.

Projecting from the cell surface are primary cilia, which are receiving increased attention due to the growing number of human diseases found to be related to the biogenesis, trafficking, and maintenance of the cilia. Importantly, primary cilia appear to be key signaling platforms. **Peter Jackson** from Genentech in San Francisco discussed many molecules and interacting networks important for cilia biogenesis and trafficking. A key aspect is the role of the small GTPase Arl3 in targeting myristoylated and prenylated proteins, such as NPHP3, to the primary cilium via UNC119 and PDE6D effectors. Some of this work has already been published (Wright *et al.*, 2011).

We thank all the speakers for their participation and contributions and the discussion participants for making this Minisymposium such a great event.

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