

OptiPrep™ Mini-Review MS09

Resolution of soluble cytosolic proteins from membrane vesicles and organelles: a bibliography

There are three Application Sheets listed in the Application Sheet Index under “Protein localization (membrane *versus* cytosol)” which describe different gradient strategies; they can be found on the OptiPrep™ Applications flash drive or accessed via the following website www.axis-shield-density-gradient-media.com (click on “Methodology”, then “Organelles and subcellular membranes” and follow the links from the Index):

- ◆ Discontinuous gradient: Application Sheet S35
- ◆ Self-generated gradient: Application Sheet S36
- ◆ A special strategy for rapid resolution of protein complexes and cytosol: Application Sheet S37
- ◆ Note that the resolution of mammalian cell exosomes and other microvesicles from soluble proteins is covered in Mini-Review MS17 and the similar resolution of bacterial and fungal microvesicles in Mini-Review MS16.

The reference list, which follows, includes principally papers describing the separation of membranes and soluble (cytosolic) proteins (**Section 1**); it is divided alphabetically into source material (**cell or tissue type**). It includes both mammalian and non-mammalian sources and in each of the 25 sections, references are listed alphabetically according to first author.

Some papers report the study of previously prepared subcellular membranes to determine the distribution of a particular protein between the soluble fraction and the organelle(s). Others papers describe the separation of vesicles either budded from the cells or obtained from permeabilized cells. These are listed in **Section 2**. In some cases gradients also resolve lipid droplets.

Because a significant number of papers use the methodology for the study of virus processing, these may be listed both in the main cell/tissue references (**Section 1**) and in **Section 3**, which is devoted solely to virus processing.

- ◆ To facilitate identification of references of scientific interest **key words in titles are highlighted in light blue**.

1. Cells or tissues

1.1. Algae

Wood, C.R. and Rosenbaum, J.L. (2014) *Proteins of the ciliary axoneme are found on cytoplasmic membrane vesicles during growth of cilia* Curr. Biol., **24**, 1114-1120

1.2. Bacteria

De Leeuw, E., Poland, D., Mol, O., Sinning, I., et al (1997) *Membrane association of FtsY, the E. coli SRP receptor* FEBS Lett., **416**, 225-229

Herskovits, A.A., Seluanov, A., Rajsbaum, R., ten Hagen-Jongman, C.M., et al (2001) *Evidence for coupling of membrane targeting and function of the signal recognition particle (SRP) receptor FtsY* EMBO Rep., **2**, 1040-1046

Valent, Q.A., Scotti, P.A., High, S., de Gier, J-W.L., et al (1998) *The Escherichia coli SRP and SecB targeting pathways converge at the translocon* EMBO J., **17**, 2504-2512

1.3. Brain

Ding, T.T., Lee, S-J., Rochet, J-C. and Lansbury, Jr., P.T. (2002) *Annular α -synuclein protofibrils are produced when spherical protofibrils are incubated in solution or bound to brain-derived membranes* Biochemistry, **41**, 10209-10217

Wang, X., Bowers, S.L., Wang, F., Pu, X-a., et al (2009) *Cytoplasmic prion protein induces forebrain neurotoxicity* Biochim. Biophys. Acta **1792**, 555–563

1.4. Carcinoma cells/tissues

Collins, L.L., Simon, G., Matheson, J., Wu, C., et al (2012) *Rab11-FIP3 is a cell cycle-regulated phosphoprotein* BMC Cell Biol., **13**: 4

Guan, J-J., Zhang, X-D., Sun, W., Qi, L., Wu, J-C. and Qin, Z-H. (2015) *DRAM1 regulates apoptosis through increasing protein levels and lysosomal localization of BAX* Cell Death Dis., **6**: e1624

Hasegawa, H., Thomas, H.J., Schooley, K. and Born, T.L. (2011) *Native IL-32 is released from intestinal epithelial cells via a non-classical secretory pathway as a membrane-associated protein* Cytokine, **53**, 74–83

Jorgensen, I., Bednar, M.M., Amin, V., Davis, B.K., et al (2011) *The Chlamydia protease CPAF regulates host and bacterial proteins to maintain pathogen vacuole integrity and promote virulence* Cell Host Microbe, **10**, 21–32

Lee, E-Y., Park, K-S., Yoon, Y.J., Lee, J., et al (2012) *Therapeutic effects of autologous tumor-derived nanovesicles on melanoma growth and metastasis* PLoS One **7**: e33330

Lee, S.M., Olzmann, J.A., Chin, L-S. and Li, L. (2011) *Mutations associated with Charcot–Marie–Tooth disease cause SIMPLE protein mislocalization and degradation by the proteasome and aggresome–autophagy pathways* J. Cell Sci., **124**, 3319–3331

Méndez, E., Aguirre-Crespo, G., Zavala, G. and Arias, C.F. (2007) *Association of the astrovirus structural protein VP90 with membranes plays a role in virus morphogenesis* J. Virol., **81**, 10649-10658

Mira, E., Lacalle, R.A., Buesa, J.M., Gonzalez de Buitrago, G., et al (2004) *Secreted MMP9 promotes angiogenesis more efficiently than constitutive active MMP9 bound to the tumor cell surface* J. Cell Sci., **117**, 1847-1856

Murillo, A., Vera-Estrella, R., Barkla, B.J., Méndez, E. and Arias, C.F. (2015) *Identification of host cell factors associated with astrovirus replication in Caco-2 cells* J. Virol., **89**, 10359–10370

Salman, E.D., He, D., Runge-Morris, M., Kocarek, T.A., et al (2011) *Site-directed mutagenesis of human cytosolic sulfotransferase (SULT) 2B1b to phospho-mimetic Ser348Asp results in an isoform with increased catalytic activity* J. Steroid Biochem. Mol. Biol., **127**, 315– 323

Wang, X., Wang, F., Sy, M-S- and Ma, J. (2005) *Calpain and other cytosolic proteases can contribute to the degradation of retro-translocated prion protein in the cytosol* J. Biol. Chem., **280**, 317-325

Welsch, S., Habermann, A., Jäger, S., Müller, B., et al (2006) *Ultrastructural analysis of ESCRT proteins suggests a role for endosome-associated tubular–vesicular membranes in ESCRT function* Traffic, **7**, 1551-1566

1.5. CHO cells

Lin, C-C., Love, H.D., Gushue, J.N., Bergeron, J.J.M., et al (1999) *ER/Golgi intermediates acquire Golgi enzymes by Bredelfin A – sensitive retrograde transport in vitro* J. Cell. Biol., **147**, 1457-1472

Love, H.D., Lin, C.C., Short, C.S. and Ostermann, J. (1998) *Isolation of functional Golgi-derived vesicles with a possible role in retrograde transport* J. Cell Biol., **140**, 541-551

1.6. COS cells

Dicu, A.O., Topham, M.K., Ottaway, L. Epan, R.M. (2007) *Role of the hydrophobic segment of diacylglycerol kinase ϵ* Biochemistry, **46**, 6109-6117

Kim, Y.S., Laurine, E., Woods, W. and Lee, S-J. (2006) *A novel mechanism of interaction between α -synuclein and biological membranes* J. Mol. Biol., **360**, 386-397

Lee, H-J., Choi, C. and Lee, S-J. (2002) *Membrane-bound α -synuclein has a high aggregation propensity and the ability to seed the aggregation of cytosolic form* J. Biol. Chem., **277**, 671-678

1.7. Glioblastoma cells

Bruntz, R.C., Taylor, H.E., Lindsley, C.W. and Brown, H.A. (2014) *Phospholipase D2 mediates survival signaling through direct regulation of Akt in glioblastoma cells* J. Biol. Chem., **289**, 600-616

1.8. HEK cells

Burnett, A. and Spearman, P. (2007) *APOBEC3G multimers are recruited to the plasma membrane for packaging into human immunodeficiency virus type 1 virus-like particles in an RNA-dependent process requiring the NC basic linker* J. Virol., **81**, 5000-5013

Chatel-Cjaix, L., Abrahamyan, L., Fréchina, C., Moulard, A.J., et al (2007) *The host protein Staufen1 participates in human immunodeficiency virus type 1 assembly in live cells by influencing pr55^{Gag} multimerization* J. Virol., **81**, 6216-6230

- Derdowski, A.**, Ding, L. and Spearman, P. (2004) *A novel fluorescence resonance energy transfer assay demonstrates that the human immunodeficiency virus type 1 Pr55^{Gag} I domain mediates Gag-Gag interactions* J. Virol., **78**, 1230-1242
- Dou, J.**, Wang, J.-J., Chen, X., Li, H., et al (2009) *Characterization of a myristoylated, monomeric HIV Gag protein* Virology **387**, 341–352
- Gottwein, E.** and Kräusslich, H.-G. (2005) *Analysis of human immunodeficiency virus type 1 Gag ubiquitination* J. Virol., **79**, 9134-9144
- Halwani, R.**, Cen, S., Javanbakht, H., Saadatmand, J., et al (2004) *Cellular distribution of lysyl-tRNA synthetase and its interaction with Gag during human immunodeficiency virus type 2 assembly* J. Virol., **78**, 7553-7564
- Jäger, S.**, Gottwein, Kräusslich, H.-G. (2007) *Ubiquitination of human immunodeficiency virus type 1 Gag is highly dependent on Gag membrane association* J. Virol., **81**, 9193-9201
- Li, H.**, Dou, J., Ding, L. and Spearman, P. (2007) *Myristoylation is required for human immunodeficiency virus type 1 Gag-Gag multimerization in mammalian cells* J. Virol., **81**, 12899-12910
- Lee, S.M.**, Olzmann, J.A., Chin, L.-S. and Li, L. (2011) *Mutations associated with Charcot–Marie–Tooth disease cause SIMPLE protein mislocalization and degradation by the proteasome and aggresome–autophagy pathways* J. Cell Sci., **124**, 3319–3331
- Runkler, N.**, Pohl, C., Schneider-Schaulles, S., Klenk, H.-D., et al (2007) *Measles virus nucleocapsid transport to the plasma membrane requires stable expression and surface accumulation of the viral matrix protein* Cell. Microbiol., **9**, 1203-1214
- Schlehe, J.S.**, Lutz, A.K., Pilsl, A., Lämmermann, K., et al (2008) *Aberrant folding of pathogenic Parkin mutants: Aggregation versus degradation* J. Biol. Chem., **283**, 13771-13779
- Shtanko, O.**, Imai, M., Goto, H., Lukashevich, I.S., et al (2010) *A role for the C terminus of Mopeia virus nucleoprotein in its incorporation into Z protein-induced virus-like particles* J. Virol., **84**, 5415-5422

1.9. Hepatocytes

- Aligo, J.**, Jia, S., Manna, D. and Konan, K.V. (2009) *Formation and function of hepatitis C virus replication complexes require residues in the carboxy-terminal domain of NS4B protein* Virology **393**, 68–83

1.10. Hepatoma cells

- Cho, N.-J.**, Cheong, K.H., Lee, C.H., Frank, C.W. et al (2007) *Binding dynamics of hepatitis C virus NS5A amphipathic peptide to cell and model membranes* J. Virol., **81**, 6682-6689
- Elazar, M.**, Liu, P., Rice, C.M. and Glenn, J.S. (2004) *An N-terminal amphipathic helix in hepatitis C virus (HCV) NS4B mediates membrane association, correct localization of replication complex proteins, and RNA replication* J. Virol., **78**, 11393-11400
- Han, Q.**, Aligo, J., Manna, D., Belton, K., et al (2011) *Conserved GXXXG- and S/T-like motifs in the transmembrane domains of NS4B protein are required for hepatitis C virus replication* J. Virol., **85**, 6464–6479
- Strecker, T.**, Maisa, A., Daffis, S., Eichler, R., et al (2006) *The role of myristoylation in the membrane association of the Lassa virus matrix protein Z* Virology, **3**, 93
- Vogt, D.A.**, Camus, G., Herker, E., Webster, B.R., Tsou, C.-L., Greene, W.C., Yen, T.-S.B. and Ott, M. (2013) *Lipid droplet-binding protein TIP47 regulates hepatitis C virus RNA replication through interaction with the viral NS5A protein* PLoS Pathog., **9**: e1003302

1.11 Insect cells

- Hatanaka, R.**, Hagiwara-Komoda, Y., Furuki, T., Kanamori, Y., et al (2013) *An abundant LEA protein in the anhydrobiotic midge, PvLEA4, acts as a molecular shield by limiting growth of aggregating protein particles* Insect Biochem. Mol. Biol., **43**, 1055-1067
- Kruppa, A.J.**, Ott, S., Chandraratna, D.S., Irving, J.A., et al (2013) *Suppression of Aβ toxicity by puromycin-sensitive aminopeptidase is independent of its proteolytic activity* Biochim. Biophys. Acta, **1832**, 2115–2126

1.12. Jurkat cells

- Frankel, A.D.**, Alber, T., Zhou, Q. and Krogan, N.J. (2011) *Purification and characterization of HIV–human protein complexes* Methods, **53**, 13–19
- Geist, M.M.**, Pan, X., Bender, S., Bartenschlager, R., et al (2014) *Heterologous Src homology 4 domains support membrane anchoring and biological activity of HIV-1 Nef* J. Biol. Chem., **289**, 14030–14044

1.13. Kidney proximal tubule cells (incl. LLC-PK1)

- Fölsch, H.**, Pypaert, M., Maday, S., Pelletier, L., et al (2003) *The AP-1A and AP1B clathrin adaptor complexes define biochemically and functionally distinct membrane domains* J. Cell Biol., **163**, 351-362

Nürnberg, J., Bacallao, R.L. and Phillips, C.P. (2002) *Inversin forms a complex with catenins and N-cadherin in polarized epithelial cells* Mol. Biol. Cell, **13**, 3096-3106

1.14. Liver

Nakatsuka, A., Wada, J., Iseda, I., Teshigawara, S., et al (2012) *Vaspin is an adipokine ameliorating ER stress in obesity as a ligand for cell-surface GRP78/MTJ-1 complex* Diabetes, **61**, 2823–2832

1.15. MDCK cells

Grindstaff, K.K., Yeaman, C., Anandasabapathy, N., Hsu, S.C., et al (1998) *Sec6/8 complex is recruited to cell-cell contacts and specifies transport vesicle delivery to the basal-lateral membrane in epithelial cells* Cell, **93**, 731-740

Gromley, A., Yeaman, C., Rosa, J., Redick, S., et al (2005) *Centriolin anchoring of exocyst and SNARE complexes at the midbody is required for secretory-vesicle-mediated abscission* Cell, **123**, 75-87

Hansen, M.D.H. and Nelson, W.J. (2001) *Serum-activated assembly and membrane translocation of an endogenous Rac1: effector complex* Curr. Biol., **11**, 356-360

Hansen, M.D., Ehrlich, J.S. and Nelson, W.J. (2002) *Molecular mechanism for orienting membrane and actin dynamics to nascent cell-cell contacts in epithelial cells* J. Biol. Chem., **277**, 45371-45376

Imai, M., Kawasaki, K. and Odagiri, T. (2008) *Cytoplasmic domain of influenza virus BM2 protein plays critical roles in production of infectious virus* J. Virol., **82**, 728-739

Matern, H.T., Yeaman, C., Nelson, W.J. and Scheller, R.H. (2001) *The Sec6/8 complex in mammalian cells: characterization of mammalian Sec3, subunit interactions, and expression of subunits in polarized cells* Proc. Natl. Acad. Sci. USA, **98**, 9648-9653

Scheiffele, P., Verkade, P., Fra, A.M., Simons, K., et al (1998) *Caveolin-1 and -2 in the exocytic pathway of MDCK cells* J. Cell Biol., **140**, 795-806

Weiskircher, E., Aligo, J., Ning, G. and Konan, K.V. (2009) *Bovine viral diarrhea virus NS4B protein is an integral membrane protein associated with Golgi markers and rearranged host membranes* Virol. J. **6**: 185

1.16. Monkey kidney cells

McKenzie, J., Johannes, L., Taguchi, T. and Sheff, D. (2009) *Passage through the Golgi is necessary for Shiga toxin B subunit to reach the endoplasmic reticulum* FEBS J., **276**, 1581–1595

1.17. Mouse embryo fibroblasts

Lee, H-J., Cho, E-D., Lee, K.W., Kim, J-H., et al (2013) *Autophagic failure promotes the exocytosis and intercellular transfer of α -synuclein* Exp. Mol. Med., **45**, e22

1.18. Neuroblastoma cells

Bae, E-J., Ho, D-H., Park, E., Jung, J.W., et al (2013) *Lipid peroxidation product 4-hydroxy-2-nonenal promotes seeding-capable oligomer formation and cell-to-cell transfer of α -synuclein* Antioxid. Redox Signal., **18**, 770–783

Kim, Y.S., Laurine, E., Woods, W. and Lee, S-J. (2006) *A novel mechanism of interaction between α -synuclein and biological membranes* J. Mol. Biol., **360**, 386-397

Jang, A., Lee, H-J., Suk, J-E., Jung, J-W., et al (2010) *Non-classical exocytosis of α -synuclein is sensitive to folding states and promoted under stress conditions* J. Neurochem., **113**, 1263–1274

Lee, H.J., Patel, S. and Lee, S-J. (2005) *Intravesicular localization and exocytosis of α -synuclein and its aggregates* J. Neurosci., **25**, 6016-6024

Lee, H-J., Cho, E-D., Lee, K.W., Kim, J-H., et al (2013) *Autophagic failure promotes the exocytosis and intercellular transfer of α -synuclein* Exp. Mol. Med., **45**, e22

Lee, S.M., Olzmann, J.A., Chin, L-S. and Li, L. (2011) *Mutations associated with Charcot–Marie–Tooth disease cause SIMPLE protein mislocalization and degradation by the proteasome and aggresome–autophagy pathways* J. Cell Sci., **124**, 3319–3331

Schlehe, J.S., Lutz, A.K., Pils, A., Lämmermann, K., et al (2008) *Aberrant folding of pathogenic Parkin mutants: Aggregation versus degradation* J. Biol. Chem., **283**, 13771-13779

Wang, X., Wang, F., Arterburn, L., Wollmann, R., et al (2006) *The interaction between cytoplasmic prion protein and the hydrophobic lipid core of membrane correlates with neurotoxicity* J. Biol. Chem., **281**, 13559-13565

Yu, C., Kim, S-H., Ikeuchi, T., Xu, H., et al (2001) *Characterization of a presenilin-mediated APP carboxyl terminal fragment γ : Evidence for distinct mechanisms involved in gamma-secretase processing of the APP and notch 1 transmembrane domains* J. Biol. Chem., **276**, 43756-43760

1.19. NRK cells

Joglekar, A.P., Xu, D., Rigotti, D.J., Fairman, R., et al (2003) *The SNARE motif contributes to [rbet1 intracellular targeting](#) and dynamics independently of SNARE interactions* J. Biol. Chem., **278**, 14121-14133

Yeaman, C., Grindstaff, K.K., Wright, J.R. and Nelson, W.J. (2001) *Sec6/8 complexes on trans-Golgi network and plasma membrane regulate [stages of exocytosis](#) in mammalian cells* J. Cell Biol., **155**, 593-604

1.20 Pheochromocytoma (PC12) cells

Thayanidhi, N., Liang, Y., Hasegawa, H., Nycz, D.C., et al (2012) *R-SNARE [ykt6](#) resides in membrane-associated protease-resistant protein particles and modulates [cell cycle progression](#) when over-expressed* Biol. Cell, **104**, 397-417

1.21 Plant cells

Liu, Z., Zhu, Y., Gao, J., Yu, F., et al (2009) *Molecular and reverse genetic characterization of [nucleosome assembly protein1 \(NAP1\) genes](#) unravels their function in transcription and nucleotide excision repair in *Arabidopsis thaliana** Plant J., **59**, 27-38

Mahon, P. and Dupree, P. (2001) *Quantitative and reproducible [two-dimensional gel analysis](#) using Phoretix 2D Full Electrophoresis*, **22**, 2075-2085

1.22 Squid axons

LaPointe, N.E., Morfini, G., Pigino, G., Gaisina, I.N., et al (2009) *The [amino terminus of tau](#) inhibits [kinesin-dependent axonal transport](#): Implications for filament toxicity* J. Neurosci. Res., **87**, 440-451

1.23 Vero cells

Eichler, R., Strecker, T., Kolesnikova, L., ter Meulen, J., et al (2004) *Characterization of the [Lassa virus matrix protein Z](#): electron microscopic study of virus-like particles and interaction with the [nucleoprotein \(NP\)](#)* Virus Res., **100**, 249-255

Kim, M., Mackenzie, J.M. and Westaway, E.G. (2004) *Comparisons of physical separation methods of [Kunjin virus-induced membranes](#)* J. Virol. Methods, **120**, 179-187

Kraus, I., Eickmann, M., Kiermeyer, S., Scheffczik, H., et al (2001) *Open reading frame III of [Borna disease virus](#) encodes a [nonglycosylated matrix protein](#)* J. Virol., **75**, 12098-12104

1.24 Xenopus

Hülsmann, B.B., Labokha, A.A. and Görlich, D. (2012) *The [permeability](#) of reconstituted [nuclear pores](#) provides direct evidence for the selective phase model* Cell, **150**, 738-751

1.25 Yeast

Chen, S.H., Chen, S., Tokarev, A.A., Liu, F., et al (2005) *[Ypt3132 GTPases](#) and their novel [F-Box effector protein Rcy1](#) regulate protein recycling* Mol. Biol. Cell, **16**, 178-192

Cox, R., Chen, S.H., Yoo, E. and Segev, N. (2007) *Conservation of the [TRAPP-II-specific subunits](#) of a [Ypt/Rab exchanger complex](#)* BMC Evol. Biol., **7**:12

Diaz, A., Zhang, J., Ollwerther, A., Wang, X. and Ahlquist, P. (2015) *[Host ESCRT proteins](#) are required for [bromovirus RNA replication compartment assembly and function](#)* PLoS Pathog., **11**: e1004742

Du, L-L. and Novick, P. (2001) *Yeast [Rab GTPase-activating protein Gyp1p](#) localizes to the [Golgi apparatus](#) and is a negative regulator of [Ypt1p](#)* Mol. Biol. Cell, **12**, 1215-1226

Elkind, N.B., Walch-Solimena, C. and Novick, P.J. (2002) *The role of the [COOH terminus of Sec2p](#) in the transport of post-Golgi vesicles* J. Cell Biol., **149**, 95-110

Ge, W., Chew, T.G., Wachtler, V., Naqvi, S.N., et al (2005) *The novel [fission yeast protein Pal1p](#) interacts with [Hip1-related Sla2p/End4p](#) and is involved in cellular morphogenesis* Mol. Biol. Cell, **16**, 4124-4138

Huch, S., Gommlich, J., Muppavarapu, M., Beckham, C. and Nissan, T. (2016) *[Membrane-association of mRNA decapping factors](#) is independent of stress in budding yeast* Sci. Rep., **6**: 25477

Liu, L., Westler, W.M., den Boon, J.A., Wang, X., et al (2009) *An [amphipathic \$\alpha\$ -helix](#) controls multiple roles of [Brome mosaic virus protein 1a](#) in RNA replication complex assembly and function* PLoS Pathog., **5**:e1000351

Medkova, M., France, Y.E., Coleman, J. and Novick, P. (2006) *The [rab exchange factor Sec2p](#) reversibly associates with the [exocyst](#)* Mol. Biol. Cell, **17**, 2757-2769

Pawelec, A., Arsić, J. and Kölling, R. (2010) *Mapping of [Vps21 and HOPS binding sites](#) in [Vps8](#) and effect of binding site mutants on [endocytic trafficking](#)* Eukaryot. Cell, **9**, 602-610

Roberts-Galbraith, R.H., Oh, M.D., Ballif, B.A., Chen, J-S., et al (2010) *Dephosphorylation of [F-BAR protein Cdc15](#) modulates its conformation and stimulates its [scaffolding activity](#) at the cell division site* Mol. Cell, **39**, 86-99

- Ruggiano, A.**, Mora, G., Buxó, L. and Carvalho, P. (2016) *Spatial control of lipid droplet proteins by the ERAD ubiquitin ligase Doa10* EMBO Rep., **17**, 1644-1655
- Satyanarayana, C.**, Schroder-Kohne, S., Craig, E.A., Schu, P.V., et al (2000) *Cytosolic Hsp70s are involved in the transport of aminopeptidase 1 from the cytoplasm into the vacuole* FEBS Lett., **470**, 232-238
- Schmitz, C.**, Kinner, A. and Kölling, R. (2005) *The deubiquitinating enzyme Ubp1 affects sorting of the ATP-binding cassette-transporter Ste6 in the endocytic pathway* Mol. Biol. Cell, **16**, 1319-1329
- Schuldiner, M.**, Metz, J., Schmid, V., Denic, V., Rakwalska, M., et al (2008) *The GET complex mediates insertion of tail-anchored proteins into the ER membrane* Cell, **134**, 634-645
- Sciskala, B.** and Kölling, R. (2013) *Interaction maps of the Saccharomyces cerevisiae ESCRT-III protein Snf7* Eukaryot. Cell, **12**, 1538-1546
- Urbanowski, J.L.** and Piper, R.C. (2001) *Ubiquitin sorts proteins into the intraluminal degradative compartment of the late-endosome/vacuole* Traffic, **2**, 622-630
- Wang, F.**, Whynot, A., Tung, M. and Denic, V. (2011) *The mechanism of tail-anchored protein insertion into the ER membrane* Mol. Cell, **43**, 738-750
- Wang, X.**, Lee, W-M., Watanabe, T., Schwartz, M., et al (2005) *Brome mosaic virus 1a nucleoside triphosphatase/helicase domain plays crucial roles in recruiting RNA replication templates* J. Virol., **79**, 13747-13758
- Wang, F.**, Chan, C., Weir, N.R. and Denic, V. (2014) *The Get1/2 transmembrane complex is an endoplasmic-reticulummembrane protein insertase* Nature, **512**, 441-444
- Weiss, P.**, Huppert, S. and Kölling, R. (2009) *Analysis of the dual function of the ESCRT-III protein Snf7 in endocytic trafficking and in gene expression* Biochem. J., **424**, 89-97
- Zhang, J.**, Diaz, A., Mao, L., Ahlquist, P. et al (2012) *Host acyl coenzyme A binding protein regulates replication complex assembly and activity of a positive-strand RNA virus* J. Virol., **86**, 5110-5121

2. Subcellular membranes

2.1 Golgi membranes

- Fath, K.R.** (2005) *Characterization of myosin-II binding to Golgi stacks in vitro* Cell Motil. Cytoskeleton, **60**, 222-235

2.2 Lysosomes/endosomes

- Morrison, C.**, Sauble, E.N., Nguyen, A., La, A., et al (2009) *Potential abnormalities in iron metabolism in hyperlipidemia patient fibroblasts* FASEB J., **23**, Abstr. 105.4
- Nguyen, A.**, Zhao, N., Morrison, C., Gonzalez, A., et al (2009) *Mechanisms of iron release from lysosomes* FASEB J., **23**, Abstr. 921.11

2.3 Vesicles (budded and from permeabilized cells)

- Joglekar, A.P.**, Xu, D., Rigotti, D.J., Fairman, R., et al (2003) *The SNARE motif contributes to rbel1 intracellular targeting and dynamics independently of SNARE interactions* J. Biol. Chem., **278**, 14121-14133
- Lin, C-C.**, Love, H.D., Gushue, J.N., Bergeron, J.J.M., et al (1999) *ER/Golgi intermediates acquire Golgi enzymes by Bredelfin A – sensitive retrograde transport in vitro* J. Cell. Biol., **147**, 1457-1472
- Love, H.D.**, Lin, C.C., Short, C.S. and Ostermann, J. (1998) *Isolation of functional Golgi-derived vesicles with a possible role in retrograde transport* J. Cell Biol., **140**, 541-551
- Scheiffele, P.**, Verkade, P., Fra, A.M., Simons, K., et al (1998) *Caveolin-1 and -2 in the exocytic pathway of MDCK cells* J. Cell Biol., **140**, 795-806

3. Virus processing

- Burnett, A.** and Spearman, P. (2007) *APOBEC3G multimers are recruited to the plasma membrane for packaging into human immunodeficiency virus type 1 virus-like particles in an RNA-dependent process requiring the NC basic linker* J. Virol., **81**, 5000-5013
- Chatel-Cjaix, L.**, Abrahamyan, L., Fréchina, C., Moulard, A.J., et al (2007) *The host protein Staufen1 participates in human immunodeficiency virus type 1 assembly in live cells by influencing pr55^{Gag} multimerization* J. Virol., **81**, 6216-6230
- Cho, N-J.**, Cheong, K.H., Lee, C.H., Frank, C.W. et al (2007) *Binding dynamics of hepatitis C virus NS5A amphipathic peptide to cell and model membranes* J. Virol., **81**, 6682-6689
- Derdowski, A.**, Ding, L. and Spearman, P. (2004) *A novel fluorescence resonance energy transfer assay demonstrates that the human immunodeficiency virus type 1 Pr55^{Gag} I domain mediates Gag-Gag interactions* J. Virol., **78**, 1230-1242
- Dou, J.**, Wang, J-J., Chen, X., Li, H., et al (2009) *Characterization of a myristoylated, monomeric HIV Gag protein* Virology **387**, 341-352

- Eichler, R.**, Strecker, T., Kolesnikova, L., ter Meulen, J., et al (2004) *Characterization of the Lassa virus matrix protein Z: electron microscopic study of virus-like particles and interaction with the nucleoprotein (NP)* Virus Res., **100**, 249-255
- Elazar, M.**, Liu, P., Rice, C.M. and Glenn, J.S. (2004) *An N-terminal amphipathic helix in hepatitis C virus (HCV) NS4B mediates membrane association, correct localization of replication complex proteins, and RNA replication* J. Virol., **78**, 11393-11400
- Gottwein, E.** and Kräusslich, H-G. (2005) *Analysis of human immunodeficiency virus type 1 Gag ubiquitination* J. Virol., **79**, 9134-9144
- Halwani, R.**, Cen, S., Javanbakht, H., Saadatmand, J., et al (2004) *Cellular distribution of lysyl-tRNA synthetase and its interaction with Gag during human immunodeficiency virus type 2 assembly* J. Virol., **78**, 7553-7564
- Imai, M.**, Kawasaki, K. and Odagiri, T. (2008) *Cytoplasmic domain of influenza virus BM2 protein plays critical roles in production of infectious virus* J. Virol., **82**, 728-739
- Jäger, S.**, Gottwein, Kräusslich, H-G. (2007) *Ubiquitination of human immunodeficiency virus type 1 Gag is highly dependent on Gag membrane association* J. Virol., **81**, 9193-9201
- Kim, M.**, Mackenzie, J.M. and Westaway, E.G. (2004) *Comparisons of physical separation methods of Kunjin virus-induced membranes* J. Virol. Methods, **120**, 179-187
- Kraus, I.**, Eickmann, M., Kiermeyer, S., Scheffczik, H., et al (2001) *Open reading frame III of Borna disease virus encodes a nonglycosylated matrix protein* J. Virol., **75**, 12098-12104
- Li, H.**, Dou, J., Ding, L and Spearman, P. (2007) *Myristoylation is required for human immunodeficiency virus type 1 Gag-Gag multimerization in mammalian cells* J. Virol., **81**, 12899-12910
- Méndez, E.**, Aguirre-Crespo, G., Zavala, G. and Arias, C.F. (2007) *Association of the astrovirus structural protein VP90 with membranes plays a role in virus morphogenesis* J. Virol., **81**, 10649-10658
- Runkler, N.**, Pohl, C., Schneider-Schaulles, S., Klenk, H-D., et al (2007) *Measles virus nucleocapsid transport to the plasma membrane requires stable expression and surface accumulation of the viral matrix protein* Cell. Microbiol., **9**, 1203-1214
- Strecker, T.**, Maisa, A., Daffis, S., Eichler, R., et al (2006) *The role of myristoylation in the membrane association of the Lassa virus matrix protein Z* Virology, J., **3**, 93
- Welsch, S.**, Habermann, A., Jäger, S., Müller, B., et al (2006) *Ultrastructural analysis of ESCRT proteins suggests a role for endosome-associated tubular-vesicular membranes in ESCRT function* Traffic, **7**, 1551-1566

Mini-Review MS09; 3rd edition March 2017

Alere Technologies AS

Axis-Shield Density Gradient Media
is a brand of Alere Technologies AS