

## **CAPS 421 ASSIGNED PAPERS FOR 2022 – NABI/WEIDBERG/KOPP**

### **Part 1. Trafficking in the secretory pathway (Nabi)**

#### **a. Endoplasmic reticulum organization and function (Sept 7-12)**

Shibata et al., 2010

Shibata, Y., T. Shemesh, W.A. Prinz, A.F. Palazzo, M.M. Kozlov, and T.A. Rapoport. 2010. *Mechanisms determining the morphology of the peripheral ER. Cell.* 143:774-788.  
<https://www.ncbi.nlm.nih.gov/pubmed/21111237>

Gao et al., 2019

Gao, G., C. Zhu, E. Liu, and I.R. Nabi. 2019. *Reticulon and CLIMP-63 control nanodomain organization of peripheral ER tubules. PLOS Biol.* 17(8):e3000355.  
<https://pubmed.ncbi.nlm.nih.gov/31469817>

#### **b. Endoplasmic reticulum quality control and CFTR in cystic fibrosis (Sept 12-14)**

Hebert et al., 1995

Hebert, D.N., B. Foellmer, and A. Helenius. 1995. *Glucose trimming and reglucosylation determine glycoprotein association with calnexin in the endoplasmic reticulum. Cell.* 81:425-433.  
<https://www.ncbi.nlm.nih.gov/pubmed/7736594>

September 14 2:45-3:15 - Van Goor et al., 2011 Hayden Rogers and James Forward

Van Goor, F., S. Hadida, P.D.J. Grootenhuis, B. Burton, J.H. Stack, K.S. Straley, C.J. Decker, M. Miller, J. McCartney, E.R. Olson, J.J. Wine, R.A. Frizzell, M. Ashlock, and P.A. Negulescu. 2011. *Correction of the F508del-CFTR protein processing defect in vitro by the investigational drug VX-809. Proc. Natl. Acad. Sci. USA.* 108:18843-18848.  
<https://www.ncbi.nlm.nih.gov/pubmed/21976485>

#### **c. The Golgi and protein glycosylation in cancer (Sept 14-19)**

September 21 2:15-2:45 - Losev et al., 2006

Losev, E., C.A. Reinke, J. Jellen, D.E. Strongin, B.J. Bevis, and B.S. Glick. 2006. *Golgi maturation visualized in living yeast. Nature (Lond.).* 441:1002-1006.  
<https://www.ncbi.nlm.nih.gov/pubmed/16699524>

September 21 2:45-3:15 - Granovsky et al., 2000 Andrew Feng and Christina Cervantes

Granovsky, M., J. Fata, J. Pawling, W.J. Muller, R. Khokha, and J.W. Dennis. 2000. *Suppression of tumor growth and metastasis in Mgat5-deficient mice. Nat. Med.* 6:306-312.  
<https://www.ncbi.nlm.nih.gov/pubmed/10700233>

## **Part 2. Plasma membrane and organelles (Nabi/Weidberg)**

### **a. Plasma membrane organization and receptor signaling (Sept 19-26)**

September 26 2:15-2:45 - Morone et al., 2006 Sophia Provenzano and Abby Edison

Morone, N., T. Fujiwara, K. Murase, R.S. Kasai, H. Ike, S. Yuasa, J. Usukura, and A. Kusumi. 2006. Three-dimensional reconstruction of the membrane skeleton at the plasma membrane interface by electron tomography. *J. Cell Biol.* 174:851-862.

<https://www.ncbi.nlm.nih.gov/pubmed/16954349>

September 26 2:45-3:15 - Suzuki et al., 2007

Suzuki, K.G., T.K. Fujiwara, F. Sanematsu, R. Iino, M. Edidin, and A. Kusumi. 2007. GPI-anchored receptor clusters transiently recruit Lyn and G alpha for temporary cluster immobilization and Lyn activation: single-molecule tracking study 1. *J. Cell Biol.* 177:717-730.

<https://www.ncbi.nlm.nih.gov/pubmed/17517964>

### **b. Endocytosis and the CLIC pathway (Sept 26-28)**

September 28 2:15-2:45 - Dunn and Maxfield, 1992 Bill Wang

Dunn, K.W., and F.R. Maxfield. 1992. Delivery of ligands from sorting endosomes to late endosomes occurs by maturation of sorting endosomes. *J. Cell Biol.* 117:301-310.

<https://www.ncbi.nlm.nih.gov/pubmed/1560027>

September 28 2:45-3:15 - Lakshminarayan et al., 2014 Tyrone Ly and Jerry Zheng

Lakshminarayan, R., C. Wunder, U. Becken, M.T. Howes, C. Benzing, S. Arumugam, S. Sales, N. Ariotti, V. Chambon, C. Lamaze, D. Loew, A. Shevchenko, K. Gaus, R.G. Parton, and L. Johannes. 2014. Galectin-3 drives glycosphingolipid-dependent biogenesis of clathrin-independent carriers. *Nat. Cell Biol.* 16:595-606.

<https://www.ncbi.nlm.nih.gov/pubmed/24837829>

### **c. Lysosomes and autophagy: ESCRT and Parkinson's disease (Sept 28-Oct 3)**

October 3 2:15-2:45 - Narendra et al., 2008 Alex Barber-Cross and Celine Yeung

Narendra, D., A. Tanaka, D.F. Suen, and R.J. Youle. 2008. Parkin is recruited selectively to impaired mitochondria and promotes their autophagy. *J. Cell Biol.* 183:795-803.

<https://www.ncbi.nlm.nih.gov/pubmed/19029340>

October 3 2:45-3:15 - Skowyra et al., 2018 Ziheng Zhao and Natalia Gosnell

Skowyra, M.L., P.H. Schlesinger, T.V. Naismith, and P.I. Hanson. 2018. Triggered recruitment of ESCRT machinery promotes endolysosomal repair. *Science.* 360.

<https://www.ncbi.nlm.nih.gov/pubmed/29622626>

### **d. Mechanism of autophagy: Fighting pathogens through xenophagy (Weidberg; Oct 3-5)**

October 5 2:15-2:45 - Ichimura et al., 2000 Roda Kidane

Yoshinobu Ichimura, Takayoshi Kirisako, ... Takeshi Noda & Yoshinori Ohsumi. 2000. A ubiquitin-like system mediates protein lipitation. *Nature* 408, 488–492.

<https://pubmed.ncbi.nlm.nih.gov/11100732/>

October 5 2:45-3:15 -Thurston et al., 2012. Michelle Fan and Lyanne Zhang

Thurston TL, Wandel MP, von Muhlinen N, Foeglein A, Randow F. 2012. Galectin 8 targets damaged vesicles for autophagy to defend cells against bacterial invasion. *Nature* 482(7385):414–18

<https://pubmed.ncbi.nlm.nih.gov/22246324/>

### **Part 3. Targeting and quality control of organelles' proteins (Weidberg)**

#### **a. The endoplasmic reticulum unfolded protein response – recovering an overloaded endoplasmic reticulum (Oct 19-24)**

October 24 2:15-2:45 - Cox et al., 1996. Rannon Cho and Darian Cheng

Cox, JS. and Walter, P. A. 1996. Novel Mechanism for Regulating Activity of a Transcription Factor That Controls the Unfolded Protein Response. *Cell*, Vol. 87, 391–404.

<https://pubmed.ncbi.nlm.nih.gov/8898193/>

October 24 2:45-3:15 - Sidrauski et al., 2013. Annie Zhou and Nathan Cheung

Carmela Sidrauski, Diego Acosta-Alvear, Arkady Khoutorsky, Punitha Vedantham, Brian R Hearn, Han Li, Karine Gamache, ... Nahum Sonenberg, Peter Walter. 2013. Pharmacological brake-release of mRNA translation enhances cognitive memory. *eLIFE*, 28;2:e00498.

<https://pubmed.ncbi.nlm.nih.gov/23741617/>

#### **b. When mitochondrial proteins targeting goes awry (Oct 24-26)**

October 26 2:15-2:45 - Kang et al., 2017. Ali Hussein and Niyooosha Yoosefi

Yilin Kang, David A Stroud, Michael J Baker David P De Souza, Ann E Frazier, Michael Liem, Dedreia Tull, ... Michael T Ryan, Diana Stojanovski. 2017. Sengers Syndrome-Associated Mitochondrial Acylglycerol Kinase Is a Subunit of the Human TIM22 Protein Import Complex. *Mol Cell* 3;67(3):457-470.

<https://pubmed.ncbi.nlm.nih.gov/28712726/>

October 26 2:45-3:15 - Nargund et at. 2012. Vanessa Mora and Jaya Kailley

Nargund, A. M., Pellegrino, M. W., Fiorese, C. J., Baker, B. M. & Haynes, C. M. 2012. Mitochondrial import efficiency of ATFS-1 regulates mitochondrial UPR activation. *Science* 337, 587–590.

<https://pubmed.ncbi.nlm.nih.gov/22700657/>

#### **c. Targeting of peroxisomal proteins- a “love-hate” relationship between peroxisomes and mitochondria (Oct 26-31)**

**October 31 2:15-2:45 - Sugiura et al., 2017. Puneet Sidhu and Nima Nasibi**

*Ayumu Sugiura, Sevan Mattie, Julien Prudent & Heidi M. McBride. 2017. Newly born peroxisomes are a hybrid of mitochondrial and ER-derived pre-peroxisomes. Nature volume 542, 251-254.*

<https://pubmed.ncbi.nlm.nih.gov/28146471/>

**October 31 2:45-3:15 - Nuebel et al., 2021. Tiffany Chang and Yu Chi Lin**

*Esther Nuebel, Jeffrey T Morgan, Sarah Fogarty, Jacob M Winter, Sandra Lettlova, Jordan A Berg, Yu-Chan Chen, ... Joshua Bonkowsky, Steven P Gygi, Jared Rutter. 2021. The biochemical basis of mitochondrial dysfunction in Zellweger Spectrum Disorder. EMBO reports, 5;22(10):e51991.*

<https://pubmed.ncbi.nlm.nih.gov/34351705/>

## **Part 4 – Stem Cells (Kopp)**

### **a. Stem cells and their potential uses (Oct 31-Nov 2)**

**November 2 2:15-2:45 - Rezania et al., 2014 Aaron Jiashuo Zhang and Grace Wen Qing Sun**

*Alireza Rezania, Jennifer E Bruin, Payal Arora, Allison Rubin, Irina Batushansky, Ali Asadi, Shannon O'Dwyer, Nina Quiskamp, Majid Mojibian, Tobias Albrecht, Yu Hsuan Carol Yang, James D Johnson, Timothy J Kieffer. 2014 Reversal of diabetes with insulin-producing cells derived in vitro from human pluripotent stem cells. Nature Biotechnology, Nov;32(11):1121-33.*

<https://pubmed.ncbi.nlm.nih.gov/25211370/>

**November 2 2:45-3:15 - Takahashi et al., 2006 Cole Needham**

*Kazutoshi Takahashi, Shinya Yamanaka. 2006. Induction of pluripotent stem cells from mouse embryonic and adult fibroblast cultures by defined factors. Cell, Aug 25;126(4):663-76.*

<https://pubmed.ncbi.nlm.nih.gov/16904174/>

### **b. Stem cells in homeostasis and cancer (Nov 2-7)**

**November 7 2:15-2:45 - Barker et al., 2007 Serin Choi and Sharon Gao**

*Nick Barker, Johan H van Es, Jeroen Kuipers, Pekka Kujala, Maaïke van den Born, Miranda Cozijnsen, Andrea Haegerbarth, Jeroen Korving, Harry Begthel, Peter J Peters, Hans Clevers. 2007. Identification of stem cells in small intestine and colon by marker gene Lgr5. Nature, Oct 25;449(7165):1003-7.*

<https://pubmed.ncbi.nlm.nih.gov/17934449/>

**November 7 2:45-3:15 - Barker et al., 2009 Ali Hosseinzadeh and Iliya Mazani**

*Nick Barker, Rachel A Ridgway, Johan H van Es, Marc van de Wetering, Harry Begthel, Maaïke van den Born, Esther Danenberg, Alan R Clarke, Owen J Sansom, Hans Clevers. 2009. Nature, Jan 29;457(7229):608-11.*

<https://pubmed.ncbi.nlm.nih.gov/19092804/>

### **c. Cellular plasticity in injury (Nov 7-14)**

November 14 2:15-2:45 - Sun et al., 2020—Bobby Cho and Anderson Kuo

Tianliang Sun, Monika Pikiólek, Vanessa Orsini, Sebastian Bergling, Sjoerd Holwerda, Lapo Morelli, Philipp S Hoppe, Lara Planas-Paz, Yi Yang, Heinz Ruffner, Tewis Bouwmeester, Felix Lohmann, Luigi M Terracciano, Guglielmo Roma, Feng Cong, Jan S Tchorz. 2020. *AXIN2 + Pericentral Hepatocytes Have Limited Contributions to Liver Homeostasis and Regeneration. Cell Stem Cell. Jan 2;26(1):97-107.*

<https://pubmed.ncbi.nlm.nih.gov/31866224/>

November 14 2:45-3:15 - Wang et al., 2015—Kayla Reynolds and Astrid Bradshaw

Bruce Wang, Ludan Zhao, Matt Fish, Catriona Y Logan, Roel Nusse. 2015. *Self-renewing diploid Axin2(+) cells fuel homeostatic renewal of the liver. Aug 13;524(7564):180-5.*

<https://pubmed.ncbi.nlm.nih.gov/26245375/>

## Part 5 - Single molecule localization microscopy (Nabi; Nov 14-16)

November 16 2:15-2:45 - Khater et al., 2019

Khater, I.M., Q. Liu, K.C. Chou, G. Hamarneh, and I.R. Nabi. 2019. *Super-resolution modularity analysis shows polyhedral caveolin-1 oligomers combine to form scaffolds and caveolae. Sci Rep. 9:9888.*

<https://www.nature.com/articles/s41598-019-46174-z>

November 16 2:45-3:15 - Kanchanawong et al., 2010

Kanchanawong, P., G. Shtengel, A.M. Pasapera, E.B. Ramko, M.W. Davidson, H.F. Hess, and C.M. Waterman. 2010. *Nanoscale architecture of integrin-based cell adhesions. Nature (Lond.). 468:580-584.*

<https://www.ncbi.nlm.nih.gov/pubmed/21107430>

- Dunn, K.W., and F.R. Maxfield. 1992. Delivery of ligands from sorting endosomes to late endosomes occurs by maturation of sorting endosomes. *Journal of Cell Biology*. 117:301-310.
- Gao, G., C. Zhu, E. Liu, and I.R. Nabi. 2019. Reticulon and CLIMP-63 control nanodomain organization of peripheral ER tubules. *PLOS Biology*. 17:e3000355.
- Granovsky, M., J. Fata, J. Pawling, W.J. Muller, R. Khokha, and J.W. Dennis. 2000. Suppression of tumor growth and metastasis in Mgat5-deficient mice. *Nat Med*. 6:306-312.
- Hebert, D.N., B. Foellmer, and A. Helenius. 1995. Glucose trimming and reglucosylation determine glycoprotein association with calnexin in the endoplasmic reticulum. *Cell*. 81:425-433.
- Kanchanawong, P., G. Shtengel, A.M. Pasapera, E.B. Ramko, M.W. Davidson, H.F. Hess, and C.M. Waterman. 2010. Nanoscale architecture of integrin-based cell adhesions. *Nature*. 468:580-584.
- Khater, I.M., Q. Liu, K.C. Chou, G. Hamarneh, and I.R. Nabi. 2019. Super-resolution modularity analysis shows polyhedral caveolin-1 oligomers combine to form scaffolds and caveolae. *Sci Rep*. 9:9888.
- Lakshminarayan, R., C. Wunder, U. Becken, M.T. Howes, C. Benzinger, S. Arumugam, S. Sales, N. Ariotti, V. Chambon, C. Lamaze, D. Loew, A. Shevchenko, K. Gaus, R.G. Parton, and L. Johannes. 2014. Galectin-3 drives glycosphingolipid-dependent biogenesis of clathrin-independent carriers. *Nat Cell Biol*. 16:595-606.
- Losev, E., C.A. Reinke, J. Jellen, D.E. Strongin, B.J. Bevis, and B.S. Glick. 2006. Golgi maturation visualized in living yeast. *Nature*. 441:1002-1006.
- Morone, N., T. Fujiwara, K. Murase, R.S. Kasai, H. Ike, S. Yuasa, J. Usukura, and A. Kusumi. 2006. Three-dimensional reconstruction of the membrane skeleton at the plasma membrane interface by electron tomography. *J Cell Biol*. 174:851-862.
- Narendra, D., A. Tanaka, D.F. Suen, and R.J. Youle. 2008. Parkin is recruited selectively to impaired mitochondria and promotes their autophagy. *J Cell Biol*. 183:795-803.
- Radisky, D.C., D.D. Levy, L.E. Littlepage, H. Liu, C.M. Nelson, J.E. Fata, D. Leake, E.L. Godden, D.G. Albertson, M.A. Nieto, Z. Werb, and M.J. Bissell. 2005. Rac1b and reactive oxygen species mediate MMP-3-induced EMT and genomic instability. *Nature*. 436:123-127.
- Shibata, Y., T. Shemesh, W.A. Prinz, A.F. Palazzo, M.M. Kozlov, and T.A. Rapoport. 2010. Mechanisms determining the morphology of the peripheral ER. *Cell*. 143:774-788.
- Skowrya, M.L., P.H. Schlesinger, T.V. Naismith, and P.I. Hanson. 2018. Triggered recruitment of ESCRT machinery promotes endolysosomal repair. *Science*. 360.
- Suzuki, K.G., T.K. Fujiwara, F. Sanematsu, R. Iino, M. Edidin, and A. Kusumi. 2007. GPI-anchored receptor clusters transiently recruit Lyn and G alpha for temporary cluster immobilization and Lyn activation: single-molecule tracking study 1. *J Cell Biol*. 177:717-730.
- Swayampakula, M., P.C. McDonald, M. Vallejo, E. Coyaud, S.C. Chafe, A. Westerback, G. Venkateswaran, J. Shankar, G. Gao, E.M.N. Laurent, Y. Lou, K.L. Bennewith, C.T. Supuran, I.R. Nabi, B. Raught, and S. Dedhar. 2017. The interactome of metabolic enzyme carbonic anhydrase IX reveals novel roles in tumor cell migration and invadopodia/MMP14-mediated invasion. *Oncogene*. 36:6244-6261.
- Van Goor, F., S. Hadida, P.D.J. Grootenhuis, B. Burton, J.H. Stack, K.S. Straley, C.J. Decker, M. Miller, J. McCartney, E.R. Olson, J.J. Wine, R.A. Frizzell, M. Ashlock, and P.A. Negulescu. 2011. Correction of the F508del-CFTR protein processing defect in vitro by the investigational drug VX-809. *Proceedings of the National Academy of Sciences*. 108:18843-18848.