

2019 Biochemistry and Biophysics publications

From the *Barbar* group

Forsythe HM, Vetter CJ, Jara KA, Reardon PN, David LL, **Barbar EJ**, Lampi KJ. [Altered Protein Dynamics and Increased Aggregation of Human \$\gamma\$ S-Crystallin Due to Cataract-Associated Deamidations](#). *Biochemistry*. 2019 Oct 8;58(40):4112-4124. doi: 10.1021/acs.biochem.9b00593. Epub 2019 Sep 26. PMID: 31490062.

Jespersen NE, Leyrat C, Gérard FC, Bourhis JM, Blondel D, Jamin M, **Barbar E**. [The LC8-RavP ensemble Structure Evinces A Role for LC8 in Regulating Lyssavirus Polymerase Functionality](#). *J Mol Biol*. 2019 Dec 6;431(24):4959-4977. doi: 10.1016/j.jmb.2019.10.011. Epub 2019 Oct 18. PMID: 31634467; PMCID: PMC7060403.

From the *Barbar* and *Hendrix* group

Jespersen N, Estelle A, Waugh N, Davey NE, Blikstad C, Ammon YC, Akhmanova A, Ivarsson Y, **Hendrix DA**, **Barbar E**. [Systematic identification of recognition motifs for the hub protein LC8](#). *Life Sci Alliance*. 2019 Jul 2;2(4):e201900366. doi: 10.26508/lsa.201900366. PMID: 31266884; PMCID: PMC6607443.

From the *Beckman* group

Trias E, Kovacs M, King PH, Si Y, Kwon Y, Varela V, Ibarburu S, Moura IC, Hermine O, **Beckman JS**, Barbeito L. [Schwann cells orchestrate peripheral nerve inflammation through the expression of CSF1, IL-34, and SCF in amyotrophic lateral sclerosis](#). *Glia*. 2020 Jun;68(6):1165-1181. doi: 10.1002/glia.23768. Epub 2019 Dec 20. PMID: 31859421; PMCID: PMC7269115.

Shaw JB, Liu W, Vasil Ev YV, Bracken CC, Malhan N, Guthals A, **Beckman JS**, Voinov VG. [Direct Determination of Antibody Chain Pairing by Top-down and Middle-down Mass Spectrometry Using Electron Capture Dissociation and Ultraviolet Photodissociation](#). *Anal Chem*. 2020 Jan 7;92(1):766-773. doi: 10.1021/acs.analchem.9b03129. Epub 2019 Dec 12. PMID: 31769659; PMCID: PMC7819135.

Kovacs M, Trias E, Varela V, Ibarburu S, **Beckman JS**, Moura IC, Hermine O, King PH, Si Y, Kwon Y, Barbeito L. [CD34 Identifies a Subset of Proliferating Microglial Cells Associated with Degenerating Motor Neurons in ALS](#). *Int J Mol Sci*. 2019 Aug 9;20(16):3880. doi: 10.3390/ijms20163880. PMID: 31395804; PMCID: PMC6720880.

From the *Estevez*, *Franco*, and *Beckman* group

Strayer AL, Dennys-Rivers CN, Ricart KC, Bae N, **Beckman JS**, **Franco MC**, **Estevez AG**. [Ligand-independent activation of the P2X7 receptor by Hsp90 inhibition stimulates motor neuron apoptosis](#). *Exp Biol Med (Maywood)*. 2019 Aug;244(11):901-914. doi: 10.1177/1535370219853798. Epub 2019 May 29. PMID: 31142143; PMCID: PMC6690143.

From the *Cooley* group

Tugaeva KV, Kalacheva DI, **Cooley RB**, Strelkov SV, Sluchanko NN. [Concatenation of 14-3-3 with partner phosphoproteins as a tool to study their interaction](#). *Sci Rep*. 2019 Oct 18;9(1):15007. doi: 10.1038/s41598-019-50941-3. PMID: 31628352; PMCID: PMC6802120.

Kitts G, Giglio KM, Zamorano-Sánchez D, Park JH, Townsley L, **Cooley RB**, Wucher BR, Klose KE, Nadell CD, Yildiz FH, Sondermann H. A Conserved Regulatory Circuit Controls Large Adhesins in *Vibrio cholerae*. *mBio*. 2019 Dec 3;10(6):e02822-19. doi: 10.1128/mBio.02822-19. PMID: 31796544

From the *Franco* group

Robinson MM, Sather BK, Burney ER, Ehrlicher SE, Stierwalt HD, **Franco MC**, Newsom SA. [Robust intrinsic differences in mitochondrial respiration and H₂O₂ emission between L6 and C2C12 cells](#). *Am J Physiol Cell Physiol*. 2019 Aug 1;317(2):C339-C347. doi: 10.1152/ajpcell.00343.2018. Epub 2019 May 15. PMID: 31091142; PMCID: PMC6732423.

Pestoni JC, Klingeman Plati S, Valdivia Camacho OD, Fuse MA, Onatunde M, Sparrow NA, Karajannis MA, Fernández-Valle C, **Franco MC**. [Peroxynitrite supports a metabolic reprogramming in merlin-deficient Schwann cells and promotes cell survival](#). *J Biol Chem*. 2019 Jul 26;294(30):11354-11368. doi: 10.1074/jbc.RA118.007152. Epub 2019 Jun 6. PMID: 31171721; PMCID: PMC6663865.

Tsakadze N, Catania J, Hoffmann M, Benes-Lima L, Estevez AG, **Franco MC**, Rossi F. “Case Report: Length-dependent Small Fiber Polyneuropathy Caused by Coxsackie and Influenza Virus Co-Infection”. 2019. *J Neurol Exp Neurosci*5(2): 103-105.

Fuse MA, Dinh CT, Vitte J, Kirkpatrick J, Mindos T, Klingeman Plati S, Young JI, Huang J, Carlstedt A, **Franco MC**, Brnjos K, Nagamoto J, Petrilli A, Copik AJ, Soulakova JN, Bracho O, Yan D, Mittal R, Shen R, Telischi FF, Morrison H, Giovannini M, Liu XZ, Chang LS, Fernandez-Valle C. “Preclinical Assessment of MEK1/2 Inhibitors for Neurofibromatosis Type 2-Associated Schwannomas Reveal Differences in Efficacy and Drug Resistance Development.” *Neuro-Oncology*. 2019. 18;21(4):486-497.

From the *Freitag* group

Adpressa DA, Connolly LR, Konkel ZM, Neuhaus GF, Chang XL, Pierce BR, Smith KM, **Freitag M**, Loesgen S. [A metabolomics-guided approach to discover Fusarium graminearum metabolites after removal of a repressive histone modification](#). *Fungal Genet Biol*. 2019 Nov;132:103256. doi: 10.1016/j.fgb.2019.103256. Epub 2019 Jul 22. PMID: 31344458.

Bosnjak N, Smith KM, Asaria I, Lahola-Chomiak A, Kishore N, Todd AT, Freitag M,

Nargang FE (2019) Involvement of a G Protein Regulatory Circuit in Alternative Oxidase Production in *Neurospora crassa*. *G3* (Bethesda) 9: 3453-3465. pii: g3.400522.2019. doi: 10.1534/g3.119.400522. PMID: 31444295

Adpressa DA, Connolly LR, Konkel ZM, Chang XL, Pierce BR, Smith KM, Freitag M, Loesgen S. (2019) Overexpression and discovery of new secondary metabolites *Fusarium graminearum* strains lacking the histone H3 lysine27 methyltransferase, KMT6. *Fungal Genetics and Biology* 132:103256. doi: 10.1016/j.fgb.2019.103256. PMID: 31344458

Möller M, Schotanus K, Soyer JL, Haueisen J, Happ K, Stralucke M, Happel P, Smith KM, Connolly LR, Freitag M, Stukenbrock EH (2019) Destabilization of chromosome structure by histone H3 lysine 27 methylation. *PLoS Genet.* 15(4):e1008093. doi: 10.1371/journal.pgen.1008093. eCollection 2019 Apr. [PMC6510446](#)

From the *Gombart* group

Chen S, Ge L, Wang H, Cheng Y, Gorantla S, Poluektova LY, **Gombart AF**, Xie J. [Eluted 25-hydroxyvitamin D₃ from radially aligned nanofiber scaffolds enhances cathelicidin production while reducing inflammatory response in human immune system-engrafted mice](#). *Acta Biomater.* 2019 Oct 1;97:187-199. doi: 10.1016/j.actbio.2019.08.005. Epub 2019 Aug 3. PMID: 31386930; PMCID: PMC6801031.

Logan IE, Miranda CL, Lowry MB, Maier CS, Stevens JF, **Gombart AF**. [Antiproliferative and Cytotoxic Activity of Xanthohumol and Its Non-Estrogenic Derivatives in Colon and Hepatocellular Carcinoma Cell Lines](#). *Int J Mol Sci.* 2019 Mar 9;20(5):1203. doi: 10.3390/ijms20051203. PMID: 30857300; PMCID: PMC6429097.

Paraiso IL, Plagmann LS, Yang L, Zielke R, **Gombart AF**, Maier CS, Sikora AE, Blakemore PR, Stevens JF. [Reductive Metabolism of Xanthohumol and 8-Prenylnaringenin by the Intestinal Bacterium *Eubacterium ramulus*](#). *Mol Nutr Food Res.* 2019 Jan;63(2):e1800923. doi: 10.1002/mnfr.201800923. Epub 2018 Dec 3. PMID: 30471194; PMCID: PMC6561348.

From the *Hendrix* group

Zhang Z, Garzotto M, Davis EW 2nd, Mori M, Stoller WA, Farris PE, Wong CP, Beaver LM, Thomas GV, Williams DE, Dashwood RH, **Hendrix DA**, Ho E, Shannon J. [Sulforaphane Bioavailability and Chemopreventive Activity in Men Presenting for Biopsy of the Prostate Gland: A Randomized Controlled Trial](#). *Nutr Cancer.* 2020;72(1):74-87. doi: 10.1080/01635581.2019.1619783. Epub 2019 Jun 1. PMID: 31155953; PMCID: PMC8244813.

Bell J, Larson M, Kutzler M, Bionaz M, Löhr CV, **Hendrix D**. [miRWoods: Enhanced precursor detection and stacked random forests for the sensitive detection of microRNAs](#). PLoS Comput Biol. 2019 Oct 9;15(10):e1007309. doi: 10.1371/journal.pcbi.1007309. PMID: 31596843; PMCID: PMC6785219.

Huang L, Zhang H, Deng D, Zhao K, Liu K, **Hendrix DA**, Mathews DH. [LinearFold: linear-time approximate RNA folding by 5'-to-3' dynamic programming and beam search](#). Bioinformatics. 2019 Jul 15;35(14):i295-i304. doi: 10.1093/bioinformatics/btz375. PMID: 31510672; PMCID: PMC6681470.

Ritter N, Ali T, Kopitchinski N, Schuster P, Beisaw A, **Hendrix DA**, Schulz MH, Müller-McNicoll M, Dimmeler S, Grote P. [The lncRNA Locus Handsdown Regulates Cardiac Gene Programs and Is Essential for Early Mouse Development](#). Dev Cell. 2019 Sep 9;50(5):644-657.e8. doi: 10.1016/j.devcel.2019.07.013. Epub 2019 Aug 15. PMID: 31422919.

Sall K, Dekkers BJW, Nonogaki M, Katsuragawa Y, Koyari R, **Hendrix D**, Willems LAJ, Bentsink L, Nonogaki H. [DELAY OF GERMINATION 1-LIKE 4 acts as an inducer of seed reserve accumulation](#). Plant J. 2019 Oct;100(1):7-19. doi: 10.1111/tpj.14485. Epub 2019 Sep 9. PMID: 31359518.

From the *Johnson* group

Golbek TW, Padmanarayana M, Roeters SJ, Weidner T, **Johnson CP**, Baio JE. [Otoferlin C2F Domain-Induced Changes in Membrane Structure Observed by Sum Frequency Generation](#). Biophys J. 2019 Nov 19;117(10):1820-1830. doi: 10.1016/j.bpj.2019.09.010. Epub 2019 Sep 17. PMID: 31587832; PMCID: PMC7019022.

Manchanda A, Chatterjee P, Bonventre JA, Haggard DE, Kindt KS, Tanguay RL, **Johnson CP**. [Otoferlin Depletion Results in Abnormal Synaptic Ribbons and Altered Intracellular Calcium Levels in Zebrafish](#). Sci Rep. 2019 Oct 3;9(1):14273. doi: 10.1038/s41598-019-50710-2. PMID: 31582816; PMCID: PMC6776657.

Bonventre JA, Holman C, Manchanda A, Coddling SJ, Chau T, Huegel J, Barton C, Tanguay R, **Johnson CP**. [Fer116 is essential for the development of vertebrate muscle tissue in zebrafish](#). Mol Biol Cell. 2019 Feb 1;30(3):293-301. doi: 10.1091/mbc.E18-06-0401. Epub 2018 Dec 5. PMID: 30516436; PMCID: PMC6589578.

From the *Mathews* group

Mathews CK. [Deoxyribonucleotide salvage falls short in whole animals](#). J Biol Chem. 2019 Nov 1;294(44):15898-15899. doi: 10.1074/jbc.H119.011335. PMID: 31676554; PMCID: PMC6827281.

From the *Mehl* group

Porter JJ, Jang HS, Haque MM, Stuehr DJ, **Mehl RA**. [Tyrosine nitration on calmodulin enhances calcium-dependent association and activation of nitric-oxide synthase](#). J Biol Chem. 2020 Feb 21;295(8):2203-2211. doi: 10.1074/jbc.RA119.010999. Epub 2019 Dec 30. PMID: 31914408; PMCID: PMC7039552.

Tugaeva KV, Kalacheva DI, Cooley RB, Strelkov SV, Sluchanko NN. [Concatenation of 14-3-3 with partner phosphoproteins as a tool to study their interaction](#). Sci Rep. 2019 Oct 18;9(1):15007. doi: 10.1038/s41598-019-50941-3. PMID: 31628352; PMCID: PMC6802120.

Bednar RM, Golbek TW, Kean KM, Brown WJ, Jana S, Baio JE, Karplus PA, **Mehl RA**. [Immobilization of Proteins with Controlled Load and Orientation](#). ACS Appl Mater Interfaces. 2019 Oct 9;11(40):36391-36398. doi: 10.1021/acsami.9b12746. Epub 2019 Sep 26. PMID: 31525993.

Van Fossen EM, Bednar RM, **Mehl RA**. [Engineering Spatial Orthogonality into Protein Translation](#). Biochemistry. 2019 Aug 6;58(31):3325-3327. doi: 10.1021/acs.biochem.9b00569. Epub 2019 Jul 25. PMID: 31343161.

Randall LM, Dalla Rizza J, Parsonage D, Santos J, **Mehl RA**, Lowther WT, Poole LB, Denicola A. [Unraveling the effects of peroxiredoxin 2 nitration; role of C-terminal tyrosine 193](#). Free Radic Biol Med. 2019 Sep;141:492-501. doi: 10.1016/j.freeradbiomed.2019.07.016. Epub 2019 Jul 16. PMID: 31323313; PMCID: PMC6749834.

From the *Mehl* and *Cooley*

Zhu P, Gafken PR, **Mehl RA**, **Cooley RB**. [A Highly Versatile Expression System for the Production of Multiply Phosphorylated Proteins](#). ACS Chem Biol. 2019 Jul 19;14(7):1564-1572. doi: 10.1021/acscchembio.9b00307. Epub 2019 Jun 17. PMID: 31243963; PMCID: PMC7737670.

Porter JJ, Jang HS, Van Fossen EM, Nguyen DP, Willi TS, **Cooley RB**, **Mehl RA**. [Genetically Encoded Protein Tyrosine Nitration in Mammalian Cells](#). ACS Chem Biol. 2019 Jun 21;14(6):1328-1336. doi: 10.1021/acscchembio.9b00371. Epub 2019 Jun 4. PMID: 31117397 \

From the *Merrill* group

Shearn CT, Fennimore B, Orlicky DJ, Gao YR, Saba LM, Battista KD, Aivazidis S, Assiri M, Harris PS, Michel C, **Merrill GF**, Schmidt EE, Colgan SP, Petersen DR. [Cholestatic liver disease results increased production of reactive aldehydes and an atypical periportal hepatic antioxidant response](#). Free Radic Biol Med. 2019 Nov 1;143:101-114. doi: 10.1016/j.freeradbiomed.2019.07.036. Epub 2019 Aug 1. PMID: 31377417; PMCID: PMC6848778.

From the *Nyarko* group

Kwok E, Rodriguez DJ, Kremerskothen J, Nyarko A. [Intrinsic disorder and amino acid specificity modulate binding of the WW2 domain in kidney and brain protein \(KIBRA\) to synaptopodin.](#) J Biol Chem. 2019 Nov 15;294(46):17383-17394. doi: 10.1074/jbc.RA119.009589. Epub 2019 Oct 9. PMID: 31597702; PMCID: PMC6873182.

From the *Reardon* group

[Keller R Moon, Beaver LM, Reardon PN, Prater MC, Truong L, Robinson MM, Tanguay RL, Stevens J Fred, Hord NG. 2021. Nitrate-induced improvements in exercise performance are coincident with exuberant changes in metabolic genes and the metabolome in zebrafish skeletal muscle.](#) J Appl Physiol (1985).

[Long DM, Frame AK, Reardon PN, Cumming RC, Hendrix DA, Kretzschmar D, Giebultowicz JM. 2020. Lactate dehydrogenase expression modulates longevity and neurodegeneration in.](#) Aging (Albany NY). 12

[Schwichtenberg T, Bogdan D, Carignan CC, Reardon P, Rewerts J, Wanzek T, Field JA. 2020. PFAS and Dissolved Organic Carbon Enrichment in Surface Water Foams on a Northern U.S. Freshwater Lake.](#) Environ Sci Technol. 54(22):14455-14464.

[Brinson RG, Marino JP, Delaglio F, Arbogast LW, Evans RM, Kearsley A, Gingras G, Ghasriani H, Aubin Y, Pierens GK et al.. 2019. Enabling adoption of 2D-NMR for the higher order structure assessment of monoclonal antibody therapeutics.](#) MAbs. 11(1):94-105.

[Ceja-Navarro JA, Karaoz U, Bill M, Hao Z, White RA, Arellano A, Ramanculova L, Filley TR, Berry TD, Conrad ME et al.. 2019. Gut anatomical properties and microbial functional assembly promote lignocellulose deconstruction and colony subsistence of a wood-feeding beetle.](#) Nat Microbiol. 4(5):864-875.

[Lande C, Rao S, Morr  JT, Galindo G, Kirby J, Reardon PN, Bobe G, Stevens J Frederik. 2019. Linden \(Tilia cordata\) associated bumble bee mortality: Metabolomic analysis of nectar and bee muscle.](#) PLoS One. 14(7):e0218406.

[Chacon SS, Reardon PN, Burgess CJ, Purvine S, Chu RK, Clauss TR, Walter E, Myrold DD, Washton N, Kleber M. 2019. Mineral Surfaces as Agents of Environmental Proteolysis: Mechanisms and Controls.](#) Environ Sci Technol. 53(6):3018-3026.

