

Member Publications 2019-2020

1. Borden A, Kurian J, Nickoloff E, Yang Y, Troupes CD, Ibetti J, Lucchese AM, Gao E, Mohsin S, Koch WJ, Houser SR, Kishore R, **Khan M**. Transient Introduction of miR-294 in the Heart Promotes Cardiomyocyte Cell Cycle Reentry After Injury. *Circ Res*. 2019 Jun 21;125(1):14-25. doi: 10.1161/CIRCRESAHA.118.314223. Epub 2019 Apr 9. PubMed PMID: 30964391; PubMed Central PMCID: PMC6586499.
2. Conley KM, Nayyar N, Rossi TP, Kuisma M, Turkowski V, Puska MJ, **Rahman TS**. Plasmon Excitations in Mixed Metallic Nanoarrays. *ACS Nano*. 2019 May 28;13(5):5344-5355. doi: 10.1021/acsnano.8b09826. Epub 2019 Apr 17. PMID: 30973699.
3. Conley KM, Nayyar N, Rossi TP, Kuisma M, Turkowski V, Puska MJ, **Rahman TS**. Plasmon Excitations in Mixed Metallic Nanoarrays. *ACS Nano*. 2019 May 28;13(5):5344-5355. doi: 10.1021/acsnano.8b09826. Epub 2019 Apr 17. PMID: 30973699.
4. **Ebrahim S**, Chen D, Weiss M, Malec L, Ng Y, Rebustini I, Krystofiak E, Hu L, Liu J, Masedunskas A, Hardeman E, Gunning P, Kachar B, Weigert R. Dynamic polyhedral actomyosin lattices remodel micron-scale curved membranes during exocytosis in live mice. *Nat Cell Biol*. 2019 Aug;21(8):933-939. doi: 10.1038/s41556-019-0365-7. Epub 2019 Jul 29. PMID: 31358965.
5. **Ebrahim S**, Weigert R. Intravital microscopy in mammalian multicellular organisms. *Curr Opin Cell Biol*. 2019 Aug;59:97-103. doi: 10.1016/j.ceb.2019.03.015. Epub 2019 May 21. PMID: 31125832; PMCID: PMC6726551.
6. **Farooq U**, Dragoi G. Emergence of preconfigured and plastic time-compressed sequences in early postnatal development. *Science*. 2019 Jan 11;363(6423):168-173. doi: 10.1126/science.aav0502. PMID: 30630930; PMCID: PMC6794005.
7. **Farooq U**, Sibille J, Liu K, Dragoi G. Strengthened Temporal Coordination within Pre-existing Sequential Cell Assemblies Supports Trajectory Replay. *Neuron*. 2019 Aug 21;103(4):719-733.e7. doi: 10.1016/j.neuron.2019.05.040. Epub 2019 Jun 25. PMID: 31253469; PMCID: PMC7197404.
8. **Iftikhar H**, Johnson NL, Marlatt ML, Carney GE. The Role of miRNAs in *Drosophila melanogaster* Male Courtship Behavior. *Genetics*. 2019 Mar;211(3):925-942. doi: 10.1534/genetics.118.301901. Epub 2019 Jan 25. PMID: 30683757; PMCID: PMC6404249.
9. Jansen N A, Perez C, Schenke N, Van Beurden A W, Dehghani A, Voskuyl R A, Thijs R D, **Ullah G**, Van Den Maagdenberg A M J M, Tolner E A. Impaired theta-gamma coupling indicates inhibitory dysfunction and seizure risk in a Dravet syndrome mouse model, *Journal of Neuroscience* (2020) <https://doi.org/10.1523/JNEUROSCI.2132-20.2020>.
10. Johnson CR, Steingesser MG, Weems AD, **Khan A**, Gladfelter A, Bertin A, McMurray MA. Guanidine hydrochloride reactivates an ancient septin hetero-oligomer assembly pathway in budding yeast. *Elife*. 2020 Jan 28;9:e54355. doi: 10.7554/eLife.54355. PMID: 31990274; PMCID: PMC7056273.
11. **Khan S**, Downing KH, Molloy JE. Architectural Dynamics of CaMKII-Actin Networks. *Biophys J*. 2019 Jan 8;116(1):104-119. doi: 10.1016/j.bpj.2018.11.006. Epub 2018 Nov 10. PMID: 30527447; PMCID: PMC6341221.

12. **Khan S.** The Architectural Dynamics of the Bacterial Flagellar Motor Switch. *Biomolecules*. 2020 May 29;10(6):833. doi: 10.3390/biom10060833. PMID: 32486003; PMCID: PMC7355467.
13. Kino T, **Khan M**, Mohsin S. The Regulatory Role of T Cell Responses in Cardiac Remodeling Following Myocardial Infarction. *Int J Mol Sci*. 2020 Jul 16;21(14). doi: 10.3390/ijms21145013. Review. PubMed PMID: 32708585; PubMed Central PMCID: PMC7404395.
14. Kraus L, Ma L, Yang Y, Nguyen F, Hoy RC, Okuno T, **Khan M**, Mohsin S. Cortical Bone Derived Stem Cells Modulate Cardiac Fibroblast Response via miR-18a in the Heart After Injury. *Front Cell Dev Biol*. 2020;8:494. doi: 10.3389/fcell.2020.00494. eCollection 2020. PubMed PMID: 32656212; PubMed Central PMCID: PMC7324629.
15. Kurian J, Yuko AE, Kasatkin N, Rigaud VOC, Busch K, Harlamova D, Wagner M, Recchia FA, Wang H, Mohsin S, Houser SR, **Khan M**. Uncoupling protein 2-mediated metabolic adaptations define cardiac cell function in the heart during transition from young to old age. *Stem Cells Transl Med*. 2020 Sep 10;. doi: 10.1002/sctm.20-0123. [Epub ahead of print] PubMed PMID: 32964621.
16. Magupalli VG, Negro R, Tian Y, Hauenstein AV, Di Caprio G, Skillern W, Deng Q, Orning P, Alam HB, Maliga Z, **Sharif H**, Hu JJ, Evavold CL, Kagan JC, Schmidt FI, Fitzgerald KA, Kirchhausen T, Li Y, Wu H. HDAC6 mediates an aggresome-like mechanism for NLRP3 and pyrin inflammasome activation. *Science*. 2020 Sep 18;369(6510):eaas8995. doi: 10.1126/science.aas8995. PMID: 32943500.
17. Marie KL, Sassano A, Yang HH, Michalowski AM, Michael HT, Guo T, Tsai YC, Weissman AM, Lee MP, Jenkins LM, **Zaidi MR**, Pérez-Guijarro E, Day CP, Ylaya K, Hewitt SM, Patel NL, Arnheiter H, Davis S, Meltzer PS, Merlino G, Mishra PJ. Melanoblast transcriptome analysis reveals pathways promoting melanoma metastasis. *Nat Commun*. 2020 Jan 16;11(1):333. doi: 10.1038/s41467-019-14085-2. PMID: 31949145; PMCID: PMC6965108.

Member Publications 2019-2020

18. Mo X, Preston S, **Zaidi MR**. Macroenvironment-gene-microenvironment interactions in ultraviolet radiation-induced melanomagenesis. *Adv Cancer Res*. 2019;144:1-54. doi: 10.1016/bs.acr.2019.03.008. Epub 2019 Apr 23. PMID: 31349897.
19. Mookerjee-Basu J, Hooper R, Gross S, Schultz B, Go CK, Samakai E, Ladner J, Nicolas E, Tian Y, Zhou B, **Zaidi MR**, Tourtellotte W, He S, Zhang Y, Kappes DJ, Soboloff J. Suppression of Ca²⁺ signals by EGR4 controls Th1 differentiation and anti-cancer immunity in vivo. *EMBO Rep*. 2020 May 6;21(5):e48904. doi: 10.15252/embr.201948904. Epub 2020 Mar 25. PMID: 32212315; PMCID: PMC7202224.
20. Pandini A, Schulman H, **Khan S**. Conformational coupling by trans-phosphorylation in calcium calmodulin dependent kinase II. *PLoS Comput Biol*. 2019 May 31;15(5):e1006796. doi: 10.1371/journal.pcbi.1006796. PMID: 31150387; PMCID: PMC6576796.
21. Park E, Rawson S, Li K, Kim BW, Ficarro SB, Pino GG, **Sharif H**, Marto JA, Jeon H, Eck MJ. Architecture of autoinhibited and active BRAF-MEK1-14-3-3 complexes. *Nature*. 2019 Nov;575(7783):545-550. doi: 10.1038/s41586-019-1660-y. Epub 2019 Oct 3. PMID: 31581174; PMCID: PMC7014971.
22. Perez C, Felix L, Rose C R, and **Ullah G**. On the Origin of Ultraslow Spontaneous Na⁺ Fluctuations in Neurons of the Neonatal Forebrain, *Journal of Neurophysiology* (2020) <https://doi.org/10.1152/jn.00373.2020>.

23. Perez C, Miti T, Hasecke F, Meisl G, Hoyer W, Muschol M, and **Ullah G**. Mechanism of fibril and soluble oligomer formation in amyloid beta and hen egg white lysozyme proteins, *Journal of Physical Chemistry B* (2019) 123(27) 5678-5689.
24. Powers JC, Sabri A, Al-Bataineh D, Chotalia D, Guo X, Tsipenyuk F, Berretta R, Kavitha P, Gopi H, Houser SR, **Khan M**, Tsai EJ, Recchia FA. Differential microRNA-21 and microRNA-221 Upregulation in the Biventricular Failing Heart Reveals Distinct Stress Responses of Right Versus Left Ventricular Fibroblasts. *Circ Heart Fail*. 2020 Jan;13(1):e006426. doi: 10.1161/CIRCHEARTFAILURE.119.006426. Epub 2020 Jan 9. PubMed PMID: 31916447; PubMed Central PMCID: PMC7006717.
Publication List:
25. **Rahil Z**, Leylek R, Schürch CM, Chen H, Bjornson-Hooper Z, Christensen SR, Gherardini PF, Bhate SS, Spitzer MH, Fragiadakis GK, Mukherjee N, Kim N, Jiang S, Yo J, Gaudilliere B, Affrime M, Bock B, Hensley SE, Idoyaga J, Aghaeepour N, Kim K, Nolan GP, McIlwain DR. Landscape of coordinated immune responses to H1N1 challenge in humans. *J Clin Invest*. 2020 Nov 2;130(11):5800-5816. doi: 10.1172/JCI137265. PMID: 33044226; PMCID: PMC7598057.
26. **Raza A**, Xie Z, Chan EC, Chen WS, Scott LM, Eisch AR, Kremontsov DN, Rosenberg HF, Parikh SM, Blankenhorn EP, Teuscher C, Druey KM. Erratum: Author Correction: A natural mouse model reveals genetic determinants of systemic capillary leak syndrome (Clarkson disease). *Commun Biol*. 2019 Nov 25;2:439. doi: 10.1038/s42003-019-0691-0. Erratum for: *Commun Biol*. 2019 Oct 31;2:398. PMID: 31799440; PMCID: PMC6877516.
27. **Raza A**, Xie Z, Chan EC, Chen WS, Scott LM, Robin Eisch A, Kremontsov DN, Rosenberg HF, Parikh SM, Blankenhorn EP, Teuscher C, Druey KM. A natural mouse model reveals genetic determinants of systemic capillary leak syndrome (Clarkson disease). *Commun Biol*. 2019 Oct 31;2:398. doi: 10.1038/s42003-019-0647-4. Erratum in: *Commun Biol*. 2019 Nov 25;2:439. Erratum in: *Commun Biol*. 2019 Nov 25;2(1):439. PMID: 31701027; PMCID: PMC6823437.
28. Shafiq-ul-Hassan M, Zhang G G, Latifi K, **Ullah G**, Gillies R J, and Moros E G. Computed Tomography Texture Phantom Dataset for evaluating the impact of CT imaging parameters on Radiomics Features, *The Cancer Imaging Archive* (2019) (DOI: <http://doi.org/10.7937/TCIA.2019.4l24tz5g>).
29. Shah S I and **Ullah G**. The Function of Mitochondrial Calcium Uniporter at the Whole-Cell and Single Mitochondrion Levels in WT, MICU1 KO, and MICU2 KO Cells, *Cells* (2020) 9, 1520.
30. Shah S I, Ong H L, Demuro A, and **Ullah G**. PunctaSpecks: A Tool for Automated Detection, Tracking, and Analysis of Multiple Types of Fluorescently Labeled Biomolecules, *Cell Calcium* (2020) 102224.
31. Shah S I, Paine J, Perez C, and **Ullah G**. Mitochondrial fragmentation and network architecture in degenerative diseases, *PLoS One* (2019) 14(9) e0223014.
32. **Sharif H**, Wang L, Wang WL, Magupalli VG, Andreeva L, Qiao Q, Hauenstein AV, Wu Z, Núñez G, Mao Y, Wu H. Structural mechanism for NEK7-licensed activation of NLRP3 inflammasome.

- Nature. 2019 Jun;570(7761):338-343. doi: 10.1038/s41586-019-1295-z. Epub 2019 Jun 12. PMID: 31189953; PMCID: PMC6774351.
33. Shen C, **Sharif H**, Xia S, Wu H. Structural and mechanistic elucidation of inflammasome signaling by cryo-EM. *Curr Opin Struct Biol*. 2019 Oct;58:18-25. doi: 10.1016/j.sbi.2019.03.033. Epub 2019 May 22. PMID: 31128494; PMCID: PMC6778493.
 34. Shitara A, Malec L, **Ebrahim S**, Chen D, Bleck C, Hoffman MP, Weigert R. Cdc42 negatively regulates endocytosis during apical membrane maintenance in live animals. *Mol Biol Cell*. 2019 Feb 1;30(3):324-332. doi: 10.1091/mbc.E18-10-0615. Epub 2018 Dec 12. PMID: 30540520; PMCID: PMC6589572.
 35. Singh S, Kumar S, Srivastava RK, Nandi A, Thacker G, Murali H, Kim S, Baldeon M, Tobias J, Blanco MA, Saffie R, **Zaidi MR**, Sinha S, Busino L, Fuchs SY, Chakrabarti R. Loss of ELF5-FBXW7 stabilizes IFNGR1 to promote the growth and metastasis of triple-negative breast cancer through interferon- γ signalling. *Nat Cell Biol*. 2020 May;22(5):591-602. doi: 10.1038/s41556-020-0495-y. Epub 2020 Apr 13. PMID: 32284542.
 36. Sun WW, Krystofiak ES, Leo-Macias A, Cui R, Sesso A, Weigert R, **Ebrahim S**, Kachar B. Nanoarchitecture and dynamics of the mouse enteric glycocalyx examined by freeze-etching electron tomography and intravital microscopy. *Commun Biol*. 2020 Jan 7;3(1):5. doi: 10.1038/s42003-019-0735-5. PMID: 31925335; PMCID: PMC6946683.
 37. Toglia P and **Ullah G**. Mitochondrial dysfunction and role in spreading depolarization and seizure, *Journal of Computational Neuroscience* (2019) 47(2-3) 91-108.
 38. Tyler AL, **Raza A**, Kremontsov DN, Case LK, Huang R, Ma RZ, Blankenhorn EP, Teuscher C, Mahoney JM. Network-Based Functional Prediction Augments Genetic Association To Predict Candidate Genes for Histamine Hypersensitivity in Mice. *G3 (Bethesda)*. 2019 Dec 3;9(12):4223-4233. doi: 10.1534/g3.119.400740. PMID: 31645420; PMCID: PMC6893195.
 39. Ud Din N, Turkowski V, **Rahman TS**. Excited states in hydrogenated single-layer MoS₂. *J Phys Condens Matter*. 2020 Nov 11. doi: 10.1088/1361-648X/abc971. Epub ahead of print. PMID: 33176289.
 40. **Ullah G** and Miti T. The role of transporters and synaptic cleft morphology in glutamate and GABA homeostasis and their effect on neuronal function, (2020) in review.
 41. Walters KA, Zhu R, Welge M, Scherler K, Park JK, **Rahil Z**, Wang H, Auvil L, Bushell C, Lee MY, Baxter D, Bristol T, Rosas LA, Cervantes-Medina A, Czajkowski L, Han A, Memoli MJ, Taubenberger JK, Kash JC. Differential Effects of Influenza Virus NA, HA Head, and HA Stalk Antibodies on Peripheral Blood Leukocyte Gene Expression during Human Infection. *mBio*. 2019 May 14;10(3):e00760-19. doi: 10.1128/mBio.00760-19. PMID: 31088926; PMCID: PMC6520452.
 42. Wang W, Chapman NM, Zhang B, Li M, Fan M, Laribee RN, **Zaidi MR**, Pfeffer LM, Chi H, Wu ZH. Correction: Upregulation of PD-L1 via HMGB1-Activated IRF3 and NF- κ B Contributes to UV Radiation-Induced Immune Suppression. *Cancer Res*. 2019 Nov 1;79(21):5682. doi: 10.1158/0008-5472.CAN-19-2862. Erratum for: *Cancer Res*. 2019 Jun 1;79(11):2909-2922. PMID: 31676679.
 43. Wang W, Chapman NM, Zhang B, Li M, Fan M, Laribee RN, **Zaidi MR**, Pfeffer LM, Chi H, Wu ZH. Upregulation of PD-L1 via HMGB1-Activated IRF3 and NF- κ B Contributes to UV Radiation-Induced Immune Suppression. *Cancer Res*. 2019 Jun 1;79(11):2909-2922. doi: 10.1158/0008-

- 5472.CAN-18-3134. Epub 2019 Feb 8. Erratum in: *Cancer Res.* 2019 Nov 1;79(21):5682. PMID: 30737234; PMCID: PMC6548650.
44. Wheatley P, Gupta S, Pandini A, Chen Y, Petzold CJ, Ralston CY, Blair DF, **Khan S**. Allosteric Priming of *E. coli* CheY by the Flagellar Motor Protein FliM. *Biophys J.* 2020 Sep 15;119(6):1108-1122. doi: 10.1016/j.bpj.2020.08.009. Epub 2020 Aug 15. PMID: 32891187; PMCID: PMC7499101.
45. Wu TD, Madireddi S, de Almeida PE, Banchereau R, Chen YJ, Chitre AS, Chiang EY, **Iftikhar H**, O'Gorman WE, Au-Yeung A, Takahashi C, Goldstein LD, Poon C, Keerthivasan S, de Almeida Nagata DE, Du X, Lee HM, Banta KL, Mariathasan S, Das Thakur M, Huseni MA, Ballinger M, Estay I, Caplazi P, Modrusan Z, Delamarre L, Mellman I, Bourgon R, Grogan JL. Peripheral T cell expansion predicts tumour infiltration and clinical response. *Nature.* 2020 Mar;579(7798):274-278. doi: 10.1038/s41586-020-2056-8. Epub 2020 Feb 26. PMID: 32103181.
46. **Zaidi MR**. The Interferon-Gamma Paradox in Cancer. *J Interferon Cytokine Res.* 2019 Jan;39(1):30-38. doi: 10.1089/jir.2018.0087. Epub 2018 Nov 9. PMID: 30388040; PMCID: PMC6350411.
47. Zhang Y, Gordon SM, Xi H, Choi S, Paz MA, Sun R, Yang W, Saredy J, **Khan M**, Remaley AT, Wang JF, Yang X, Wang H. HDL subclass proteomic analysis and functional implication of protein dynamic change during HDL maturation. *Redox Biol.* 2019 Jun;24:101222. doi: 10.1016/j.redox.2019.101222. Epub 2019 May 17. PubMed PMID: 31153037; PubMed Central PMCID: PMC6541906.