

Anuj Kumar
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Education:

Wright State University	B.S., Biology	1987-1991
Wright State University	Ph.D., Biomedical Sciences	1992-1997
Yale University	Postdoctoral, Functional Genomics	1998-2003

Research and Professional Experience:

1998-2003	Postdoctoral Fellow, Yale University, New Haven, CT Advisor: Michael Snyder, Ph.D., Dept. of Molecular, Cellular, and Developmental Biology
2003-2009	Assistant Professor, Dept. of Molecular, Cellular, and Developmental Biology (MCDB), University of Michigan
2009-2016	Associate Professor, Dept. of MCDB, University of Michigan
2011-2014	Associate Chair, Dept. of MCDB, University of Michigan
2011-2014	Chair of Graduate Studies, Dept. of MCDB, University of Michigan
2016-present	Professor, Dept. of MCDB, University of Michigan
2017-2020	Officer for Diversity, Equity, and Inclusion, Dept. of MCDB, University of Michigan
2021-present	Chair, Undergraduate Curriculum Committee, Dept. of MCDB, University of Michigan
2021-present	Associate Chair, Dept. of MCDB, University of Michigan

Honors and Awards:

1996	Gordon Research Conferences Special Fund for Young Investigators
1999-2002	American Cancer Society Postdoctoral Fellowship
2002-2003	Leslie H. Warner Postdoctoral Fellowship in Cancer Research
2003-present	University of Michigan Biological Sciences Scholar
2006-2008	Basil O'Connor Scholar, March of Dimes
2006-2010	Research Scholar, American Cancer Society
2008	Rising Young Investigator, Genome Technology
2010-present	Faculty of 1000/Faculty Opinions, Faculty Member, Genomics Section
2014	Golden Apple Award, Nomination, BIO 305/Genetics
2016	Imes and Moore Mentorship Faculty Award, College of LS&A, Univ. of Michigan
2018	Golden Apple Award, Nomination, MCDB 427/Molecular Biology
2021	Expertscape Expert in Mycelia, top 1% in field over last 10 years

Peer-Reviewed Publications (chronological)

1. **Kumar, A.** and Paietta, J.V. (1995). The sulfur controller-2 negative regulatory gene of *Neurospora crassa* encodes a protein with β -transducin repeats. *Proc. Natl. Acad. Sci. USA* 92: 3343-3347.
2. **Kumar, A.** and Paietta, J.V. (1998). A new role for the F-Box motif: gene regulation within the *Neurospora crassa* sulfur control network. *Proc. Natl. Acad. Sci. USA* 95: 2417-2422.

3. Ross-Macdonald, P., Coelho, P., Roemer, T., Agarwal, S., **Kumar, A.**, Cheung, K.-H., Jansen, R., Symoniatis, D., Umansky, L., Nelson, K., Iwasaki, H., Hager, K., Gerstein, M., Miller, P., Roeder, G.S., and Snyder, M. (1999). Large-scale analysis of the yeast genome by transposon tagging and gene disruption. *Nature* 402: 413-418.
4. **Kumar, A.**, des Etages, S.A., Coelho, P.S.R., Roeder, G.S. and Snyder, M. (2000). High-throughput methods for the large-scale analysis of gene function by transposon tagging. *Methods Enzymol.* 328: 550-574.
5. **Kumar, A.**, Cheung, K.-H., Ross-Macdonald, P., Coelho, P.S.R., Miller, P., and Snyder, M. (2000). TRIPLES: a database of gene function in *Saccharomyces cerevisiae*. *Nucleic Acids Res.* 28: 81-84.
6. **Kumar, A.**, and Snyder, M. (2000). Genome-wide transposon mutagenesis in yeast. In *Current Protocols in Molecular Biology* (ed, Ausubel, F.M., Brent, R., Kingston, R.E., Moore, D., Seidman, J.G., Smith, J.A., and Struhl, K.), Unit 13.3, John Wiley and Sons, New York, NY.
7. Coelho, P.S., **Kumar, A.**, and Snyder, M. (2000). Genome-wide mutant collections: toolboxes for functional genomics. *Curr. Opin. Microbiol.* 3: 309-315.
8. Cheung, K.-H., **Kumar, A.**, Snyder, M., and Miller, P. (2000). An integrated web interface for large-scale characterization of sequence data. *Funct. Integr. Genomics* 1: 70-75.
9. Cheung, K.-H., Miller, P. Sherman, A., Weston, S., Stratmann, E., Schultz, M., Snyder, M., and **Kumar, A.** (2001). Graphically enabled integration of bioinformatics tools allowing parallel execution. *Proc. AMIA Symp.* 2001: 141-145.
10. Cheung, K.-H., Deshpande, A.M., Tosches, N., Nath, S., Agrawal, A., Miller, P., **Kumar, A.** and Snyder, M. (2001) A Metadata framework for interoperating heterogeneous genome data using XML. *Proc. AMIA Symp.* 2001: 110-114.
11. Des Etages, S.A., **Kumar, A.** and Snyder, M. (2001). Transposons as tools. in *Encyclopedia of Genetics* (ed, Brenner, S. and Miller, J.H.), pp. 2034-2040. Academic Press, San Diego, CA.
12. **Kumar, A.** and Snyder, M. (2001). Emerging technologies in yeast genomics. *Nature Rev. Genet.* 2: 302-312.
13. **Kumar, A.**, Vidan, S., and Snyder, M. (2002). Insertional mutagenesis: transposon-insertion libraries as mutagens in yeast. *Methods Enzymol.* 350: 219-229.
14. Harrison, P.M., **Kumar, A.**, Lan, N., Echols, N., Snyder, M., and Gerstein, M.B. (2002). A small reservoir of disabled ORFs in the *Saccharomyces cerevisiae* genome and its implications for the dynamics of proteome evolution. *J. Mol. Biol.* 316: 409-419.
15. **Kumar, A.** and Snyder, M. (2002). Protein complexes take the bait. *Nature* 415: 123-124.
16. Harrison, P.M., **Kumar, A.**, Lan, N., Snyder, M., and Gerstein, M.B. (2002). A question of size: the eukaryotic proteome and the problems in defining it. *Nucleic Acids Res.* 30: 1083-1090.
17. Coelho, P.S.R., Bryan, A.C., **Kumar, A.**, Shadel, G.S., and Snyder, M. (2002). A novel mitochondrial protein, Tar1p, is encoded on the antisense strand of the nuclear 25S rDNA. *Genes & Dev.* 16: 2755-2760 (featured on the cover).
18. **Kumar, A.**, Cheung, K.-H., Tosches, N., Masiar, P., Liu, Y., Miller, P., and Snyder, M. (2002). The TRIPLES database: a community resource for yeast molecular biology. *Nucleic Acids Res.* 30: 73-75.
19. **Kumar, A.**, Harrison, P.M., Cheung, K.-H., Lan, N., Echols, N., Bertone, P., Miller, P., Gerstein, M.B., and Snyder, M. (2002). An integrated approach for finding overlooked genes in yeast. *Nature Biotech.* 20: 58-63.
20. **Kumar, A.**, Agarwal, S., Heyman, J.A., Matson, S., Heidtman, M., Piccirillo, S., Umansky, L., Drawid, A., Jansen, R., Liu, Y., Cheung, K.-H., Miller, P., Gerstein, M., Roeder, G.S., and Snyder, M. (2002). Subcellular localization of the yeast proteome. *Genes & Dev.* 16: 707-719 (featured on the cover).

21. **Kumar, A.**, Cheung, K.-H., Marenco, L., Tosches, N., Masiar, P., Liu, Y., Miller, P., and Snyder, M. (2002). The TRIPLES database of yeast protein function. In *Analyzing Gene Expression* (ed, Lorkowski, S. and Cullen, P.). Wiley-VCH Verlag GmbH, Weinheim, Federal Republic of Germany.
22. Snyder, M., and **Kumar, A.** (2002). Yeast genomics: past, present, and future promise. *Funct. Integr. Genomics* 2: 135-137.
23. **Kumar, A.**, and Snyder, M. (2003). Large-scale protein localization in yeast. In *Cell Biology: A Laboratory Handbook*, Third Edition, Elsevier Science, London, UK.
24. **Kumar, A.** (2003). Where do all the proteins go? *Drug Discovery Today, TARGETS: Innovations in Genomics and Proteomics* 2: 237-244.
25. **Kumar, A.***, Seringhaus, M., Biery, M.C., Sarnovsky, R.J., Umansky, L., Piccirillo, S., Heidtman, M., Cheung, K.-H., Dobry, C.J., Gerstein, M.B., Craig, N.L., and Snyder, M. (2004). Large-Scale Mutagenesis of the Yeast Genome Using a Tn7-Derived Multipurpose Transposon. *Genome Res.* 14: 1975-1986 (* corresponding author).
26. **Kumar, A.** (2005). Teaching Systems Biology: An Active Learning Approach. *Cell Biology Education* 4: 323-329.
27. Wiwatwattana, N. and **Kumar, A.** (2005). OrganelleDB: a cross-species database of protein localization and function. *Nucleic Acids Res.* 33: D598-604.
28. Seringhaus, M., **Kumar, A.**, Hartigan, J., Snyder, M., and Gerstein, M. (2006). Genomic analysis of insertion behavior and target specificity of mini-Tn7 and Tn3 transposons in *Saccharomyces cerevisiae*. *Nucleic Acids Res.*, 34(8): e57.
29. Klionsky, D.J. and **Kumar, A.** (2006). A Systems Biology Approach to Learning Autophagy. *Autophagy*. 2: 12-23.
30. Wiwatwattana, N., Landau, C.M., Cope, J.G., Harp, G.A., and **Kumar, A.** (2007). Organelle DB: an updated resource of eukaryotic protein localization and function. *Nucleic Acids Res.*, 35: D810-814.
31. Ma, J., Jin, R., Jia, X., Dobry, C.J., Wang, L., Reggiori, F., Zhu, J., and **Kumar, A.** (2007). An Interrelationship Between Autophagy and Filamentous Growth in Budding Yeast. *Genetics*, 177: 205-14.
32. Bharucha, N. and **Kumar, A.** (2007). Yeast genomics and drug target identification. *Comb. Chem. High Throughput Screen.*, 10: 618-634 (featured on the cover).
33. **Kumar, A.** (2007). Chemical genomics. *Comb. Chem. High Throughput Screen.*, 10: 617.
34. Ma, J., Jin, R., Dobry, C.J., Lawson, S.K., and **Kumar, A.** (2007). Overexpression of autophagy-related genes inhibits yeast filamentous growth. *Autophagy*, 3: 604-9.
35. Jin, R., Dobry, C.J., McCown, P.J., and **Kumar, A.** (2008). Large-Scale Analysis of Yeast Filamentous Growth by Systematic Gene Disruption and Overexpression. *Mol. Biol. Cell*, 19: 284-296.
36. Ma, J., Dobry, C.J., Krysan, D.J., and **Kumar, A.** (2008). An unconventional genomic architecture in the budding yeast *Saccharomyces cerevisiae* masks the nested antisense gene NAG1. *Eukaryotic Cell*, 7: 1289-1298 (featured on the cover and in the ASM Newsletter *Microbe*).
37. Bharucha, N., Ma, J., Dobry, C.J., Lawson, S.K., Yang, Z., and **Kumar, A.** (2008). Analysis of the yeast kinome reveals a network of regulated protein localization during filamentous growth. *Mol. Biol. Cell*, 19: 2708-2717.
38. Ma, J., Bharucha, N., Dobry, C.J., Frisch, R.L., Lawson, S., and **Kumar, A.** (2008). Localization of autophagy-related proteins in yeast using a versatile plasmid-based resource of fluorescent protein fusions. *Autophagy*, 4: 792-800.
39. **Kumar, A.** (2008) Multipurpose Transposon-Insertion Libraries for Large-Scale Analysis of Gene Function in Yeast. *Methods Mol. Biol.* 416: 117-129.

40. Jin, R., and **Kumar, A.** (2008). Might as well jump: Transposons as tools for functional genomics. In *DNA Transposable Elements*, eds. K. Yoshida and M. Aoki. Nova Science Publishers.
41. Gestwicki, J.E., and **Kumar, A.** (2008). Two and three hybrid systems. In *Encyclopedia of Chemical Biology*, ed. T. Begley. Wiley-VCH.
42. Geda, P., Patury, S., Ma, J., Bharucha, N., Dobry, C.J., Lawson, S.K., Gestwicki, J.E., and **Kumar, A.** (2008). A small molecule-directed approach to control protein localization and function in yeast. *Yeast*, 25: 577-594.
43. Patury, S., Geda, P., Dobry, C.J., **Kumar, A.**, and Gestwicki, J.E. (2009). Conditional Nuclear Import and Export of Yeast Proteins Using a Chemical Inducer of Dimerization. *Cell Biochem. Biophys*, 53: 127-134.
44. **Kumar, A.** (2009). An overview of nested genes in eukaryotic genomes. *Eukaryotic Cell*, 8: 1321-1329.
45. Xu, T., Shively, C.A., Jin, R., Eckwahl, M.J., Dobry, C.J., Song, Q., and **Kumar, A.** (2010). A Profile of Differentially Abundant Proteins at the Yeast Cell Periphery During Pseudohyphal Growth. *J. Biol. Chem.*, 285: 15476-15488. PMID: PMC2865295.
46. Xu, T., Johnson, C., Gestwicki, J.E., and **Kumar, A.** (2010). Conditionally Controlling Nuclear Trafficking in Yeast by Chemical-Induced Protein Dimerization. *Nature Protocols*, 5: 1831-1843.
47. Xu, T., Bharucha, N., and **Kumar, A.** (2011). Genome-Wide Transposon Mutagenesis in *Saccharomyces cerevisiae* and *Candida albicans*. *Methods Mol. Biol.*, 765: 207-224. PMID: 21815095.
48. Chabrier-Rosello, Y., **Kumar, A.**, and Krysan, D.J. (2011). Large Scale Genetic Interaction Screening in *C. albicans*. In *Candida and Candidiasis*, 3rd edition, eds. R.C. Calderone and C.J. Clancy, ASM Press, Washington, DC.
49. Walter, G.M., Smith, M.C., Wisen, S., Basrur, V., Elenitoba-Johnson, K.S.J., Duennwald, M.L., **Kumar, A.**, Gestwicki, J.E. (2011). Ordered assembly of heat shock proteins, Hsp26, Hsp70, Hsp90, and Hsp104, on expanded polyglutamine fragments revealed by chemical probes. *J. Biol. Chem.*, 286: 40486-93.
50. Villa, N.Y., Moussatche, P., Chamberlin, S.G., **Kumar, A.**, Lyons, T.J. (2011). Phylogenetic and Preliminary Phenotypic Analysis of Yeast PAQR Receptors: Potential Antifungal Targets. *J. Mol. Evol.*, 73: 134-152.
51. Bharucha, N., Chabrier-Rosello, Y., Xu, T., Johnson, C., Sobczynski, S., Song, Q., Dobry, C.J., Eckwahl, M.J., Anderson, C.P., Benjamin, A.J., **Kumar, A.*** and Krysan, D.J.* (2011). A large-scale complex haploinsufficiency-based genetic interaction screen in *C. albicans*: analysis of the RAM network during morphogenesis. *PLoS Genetics*, 7: e1002058. PMID: PMC3084211. (*Corresponding authors) (Highlighted by Faculty of 1000)
52. Saputo, S., Chabrier-Rosello, Y., Luca, F.C., **Kumar, A.**, and Krysan, D.J. (2012). The RAM Network in Pathogenic Fungi. *Eukaryotic Cell*, 11: 708-717. PMID: PMC3370468.
53. Song, Q. and **Kumar, A.** (2012). An Overview of Autophagy and Yeast Pseudohyphal Growth: Integration of Signaling Pathways During Nitrogen Stress. *Cells*, 1: 263-283. PMID: PMC3901118.
54. Judeh, T., Johnson, C., **Kumar, A.***, and Xu, D.* (2013). TEAK: Topology enrichment analysis framework for detecting activated biological subpathways. *Nucleic Acids Res.*, 41: 1425-37. PMID: PMC3561980. (*Corresponding authors).
55. Shively, C.A., Eckwahl, M.J., Dobry, C.J., Mellacheruvu, D., Nesvizhskii, A., and **Kumar, A.** (2013). Genetic Networks Inducing Invasive Growth in *Saccharomyces cerevisiae* Identified Through Systematic Genome-Wide Overexpression. *Genetics*, 193: 1297-1310. PMID: PMC3606104.
56. Zhang, Y., Kweon, H.K., Shively, C.A., **Kumar, A.**, and Andrews, P.C. (2013). Towards Systematic Discovery of Signaling Networks in Budding Yeast Filamentous Growth Stress

- Response Using Interventional Phosphorylation Data. *PLoS Comput. Biol.*, 9: e1003077. PMID: PMC3694812.
57. Johnson, C., Kweon, H.K., Sheidy, D., Shively, C.A., Mellacheruvu, D., Nesvizhskii, A.I., Andrews, P.C., and **Kumar, A.** (2014). The Yeast Sks1p Kinase Signaling Network Regulates Pseudohyphal Growth and Glucose Response. *PLoS Genetics*, 10: e1004183. PMID: PMC3945295. (Highlighted in Faculty of 1000)
 58. Saputo, S., **Kumar, A.**, and Krysan, D.J. (2014). Efg1 directly regulates ACE2 expression to mediate cross-talk between the cAMP/PKA and RAM pathways during *Candida albicans* morphogenesis. *Eukaryotic Cell*, 13: 1169-80. PMID: PMC4187626.
 59. Song, Q., Johnson, C., Wilson, T.E., and **Kumar, A.** (2014). Pooled Segregant Sequencing Reveals Genetic Determinants of Yeast Pseudohyphal Growth. *PLoS Genetics*, 10: e1004570. PMID: PMC4140661.
 60. Horton, B.N., and **Kumar, A.** (2015). Genome-Wide Synthetic Genetic Screening by Transposon Mutagenesis in *Candida albicans*. *Methods Mol. Biol.*, 1279: 125-35. PMID:25636616.
 61. Shively, C.A., Kweon, H.K., Norman, K.L., Mellacheruvu, D., Xu, T., Sheidy, D.T., Dobry, C.J., Sabath, I., Cosky, E.E., Tran, E.J., Nesvizhskii, A., Andrews, P.C., and **Kumar, A.** (2015). Large-Scale Analysis of Kinase Signaling in Yeast Pseudohyphal Development Identifies Regulation of Ribonucleoprotein Granules. *PLoS Genetics*, 11: e1005564. PMID: PMC4598065. (Highlighted in Faculty of 1000)
 62. **Kumar, A.** (2016). Applying yeast transposon-insertion libraries for phenotypic screening and large-scale protein localization. In *Cold Spring Harbor Protocols, Budding Yeast: A Laboratory Manual*, ed. Andrews, B., Boone, C., Davis, T.N., Fields, S., p. 165-172.
 63. **Kumar, A.** (2016). Multipurpose Transposon-Insertion Libraries in Yeast. In *Cold Spring Harbor Protocols, Budding Yeast: A Laboratory Manual*, ed. Andrews, B., Boone, C., Davis, T.N., Fields, S., p. 161-164.
 64. Norman, K.L., and **Kumar, A.** (2016). Mutant power: using mutant allele collections for yeast functional genomics. *Brief. Funct. Genomics*, 15: 75-84. PMID: 26453908.
 65. **Kumar, A.** (2016). New Day Rising: State of the Art in Yeast Functional Genomics. *Brief. Funct. Genomics*, 15: 73-74.
 66. Mutlu, N., and **Kumar, A.** (2016). Mapping Paths: New Approaches to Dissect Eukaryotic Signaling Circuitry. *F1000 Research*, 5(F1000 Faculty Rev): 1853.
 67. Saputo, S., Norman, K.L., Murante, T., Horton, B.N., De La Cruz Diaz, J., DiDone, L., Colquhoun, J., Schroeder, J.W., Simmons, L.A., **Kumar, A.**, and Krysan, D.J. (2016). Complex Haploinsufficiency-Based genetic Analysis of the NDR/Lats Kinase Cbk1 Provides Insight into Its Multiple Functions in *Candida albicans*. *Genetics*, 203: 1217-1233. PMID:PMC4937472.
 68. Klionsky, D.J. *et al.* (2016). Guidelines For the Use and Interpretation of Assays For Monitoring Autophagy (3rd Edition). *Autophagy*, 12: 1-222. PMID: 26799652.
 69. Mirel, B., **Kumar, A.**, Nong, P., Su, G., and Meng, F. (2016). Using Interactive Data Visualizations for Exploratory Analysis in Undergraduate Genomics Coursework: Field Study Findings and Guidelines. *J. Sci. Educ. Technol.*, 25: 91-110. PMID:26877625.
 70. Phadke, S.S., Maclean, C.J., Zhao, S.Y., Mueller, E.A., Michelotti, L.A., Norman, K.L., **Kumar, A.**, and James, T.Y. (2018). Genome-Wide Screen for *Saccharomyces cerevisiae* Genes Contributing to Opportunistic Pathogenicity in an Invertebrate Model Host. *G3 (Bethesda)*, 8: 63-78. PMID:PMC5765367.
 71. Glazier, V.E., Murante, T., Koselny, K., Murante, D., Esqueda, M., Wall, G.A., Wellington, M., Hung, C.Y., **Kumar, A.**, and Krysan, D.J. (2018). Systematic Complex Haploinsufficiency-Based Genetic Analysis of *Candida albicans* Transcription Factors: Tools and Applications to Virulence-Associated Phenotypes. *G3 (Bethesda)*, 8: 1299-1314. PMID: PMC5873919.

72. **Kumar, A.** (2018). A fungus among us: The emerging opportunistic pathogen *Candida tropicalis* and PKA signaling. *Virulence*, 9: 659-661. PMID: PMC5955444.
73. Koselny, K., Mutlu, N., Minard, A.Y., **Kumar, A.**, Krysan, D.J., and Wellington, M. (2018). A Genome-Wide Screen of Deletion Mutants in the Filamentous *Saccharomyces cerevisiae* Background Identifies Ergosterol as a Direct Trigger of Macrophage Pyroptosis. *mBio*, 9: e01204-18. PMID: 30065091.
74. Mutlu, N., and **Kumar, A.** (2018). Messengers for morphogenesis: inositol polyphosphate signaling and yeast pseudohyphal growth. *Curr. Genet.* 65: 119-125. <https://doi.org/10.1007/s00294-018-0874-0> PMID: 30101372
75. Norman, K.L., Shively, C.A., De La Rocha, A.J., Mutlu, N., Basu, S., Cullen, P.J., and **Kumar, A.** (2018). Inositol Polyphosphates Regulate and Predict Yeast Pseudohyphal Growth Phenotypes. *PLoS Genetics*, 14: e1007493. PMID: PMC6034902.
76. Chow, J., Starr, I., Jamalzadeh, S., Muniz, O., **Kumar, A.**, Gokcumen, O., Ferkey, D., and Cullen, P.J. (2019). Filamentation Regulatory Pathways Control Adhesion-Dependent Surface Responses in Yeast. *Genetics*, 212: 667-690. PMID: PMC6614897.
77. Mutlu, N., Sheidy, D.T., Hsu, A., Jeong, H.S., Wozniak, K.J., and **Kumar, A.** (2019). A Stress-Responsive Signaling Network Regulating Pseudohyphal Growth and Ribonucleoprotein Granule Abundance in *Saccharomyces cerevisiae*. *Genetics*, 213: 705-720. PMID: PMC6781900.
78. **Kumar, A.** (2020). Jump around: transposons in and out of the laboratory. *F1000Res*, 9:F1000 Faculty Rev-135. PMID: PMC7043111.
79. Wakade, R.S., Ristow, L.C., Starnes, M.A., **Kumar, A.**, and Krysan, D.J. (2020). The Ndr/LATS kinase Cbk1 regulates a specific subset of Ace2 functions and suppresses the hyphae-to-yeast transition in *Candida albicans*. *mBio*, 11: e01900-20. PMID: PMC7439482.
80. Klionsky, D.J. *et al.* (2021). Guidelines For the Use and Interpretation of Assays For Monitoring Autophagy (4th Edition). *Autophagy*, 17: 1-382. PMID: 33634751.
81. **Kumar, A.** (2021). The Complex Genetic Basis and Multilayered Regulatory Control of Yeast Pseudohyphal Growth. *Ann. Rev. Genetics*, 55: 1-21. PMID: 34280314.
82. Beckwith, J.K., Ganesan, M., VanEpps, J.S., **Kumar, A.**, and Solomon, M.J. (2022). Rheology of *Candida albicans* fungal biofilms. *J. Rheology*, 66: 683-697. DOI: 10.1122/8.0000427.
83. Banerjee, A., Kang, C.-Y., An, M., Koff, B., Sunder, S., **Kumar, A.**, Tenuta, L., and Stockbridge, R. (2024). Fluoride export is required for competitive fitness of pathogenic microorganisms in dental biofilm models. *mBio*, In revision.
84. Sunder, S., Bauman, J.S., Decker, S.J., Lifton, A.R., and **Kumar, A.** (2024). The yeast AMP-activated protein kinase Snf1 phosphorylates the inositol polyphosphate kinase Kcs1. *J. Biol. Chem*, 300(2): 105657. PMID: PMC10851228.

Seminar/Symposium Presentations: (chronological order)

- Gordon Research Conference on Cellular & Molecular Mycology. Invited lecture. June 16-21, 1996 Plymouth, NH
- Mid-Atlantic Transposition Meeting. Invited lecture. June 21, 1999 NCI-Frederick Cancer Research & Development Center, Frederick, MD.
- Exploiting Yeast Molecular Biology for Therapeutics (Cambridge Healthtech Institute). Invited lecture. Jan. 20-21, 2000 Miami, FL.
- Beyond the Identification of Transcribed Sequences: Functional Expression and Evolutionary Analysis (11th International Workshop). Invited lecture. Nov. 9-12, 2001 Reston, VA.
- Mid-Atlantic Transposition Meeting. Invited lecture. March 23, 2001 Johns Hopkins University, Baltimore, MD

Cryptococcus neoformans Genomics Meeting (2nd). Invited lecture. June 22-23, 2001 St. Louis, MO.

Bioinformatics program seminar, University of Michigan, Winter semester 2004, Invited Seminar

Yeast Genetics & Molecular Biology Meeting. July 27-August 1, 2004. Poster presentation. University of Washington, Seattle, WA.

CSHL Meeting on Yeast Cell Biology. August 16-21, 2005. Poster presentation. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Biological Sciences Scholars Symposium, University of Michigan, Winter 2005, Invited Talk.

Microbiology and Immunology, University of Michigan, Winter semester 2005, Invited Seminar.

FASEB Conference (Transposable Elements). Invited Platform Presentation. June 4-9, 2005 Tucson, AZ.

Joint Bioinformatics Symposium (6th annual). Invited Platform Presentation. July 14-15, 2006. Iowa State University, Ames, IA.

Society for Developmental Biology Meeting (65th annual). June 17-21, 2006. Poster presentation. University of Michigan, Ann Arbor, MI

University of Toronto, Terrence Donnelly Centre for Cellular and Biomolecular Research, Invited Seminar June 21, 2006 Toronto, Ontario, Canada.

National Cancer Institute, Dept. of Genetics, Invited Seminar November 9, 2006, Bethesda, MD.

Yeast Genetics & Molecular Biology Meeting July 25-30, 2006. Invited Platform Presentation. Princeton University, Princeton, NJ.

CSHL Meeting on Yeast Cell Biology. August 15-19, 2007. Invited platform presentation. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Midwest Yeast Biology Meeting. Invited platform presentation. Sept. 14-15, 2007. Northwestern University, Evanston, IL.

Karmanos Cancer Institute Molecular Biology and Genetics Program Retreat. Invited platform presentation. October 10, 2007. Wayne State Univ., Detroit, MI.

Syracuse University, Dept. of Biology. Invited seminar. October 19, 2007. Syracuse, NY.

UNC-Chapel Hill Curriculum in Genetics and Molecular Biology. Invited seminar. Nov. 2, 2007. Chapel Hill, NC.

SUNY-Buffalo. Dept. of Biological Sciences. Invited seminar. October 30, 2008. Buffalo, NY.

University of Rochester, Division of Pediatric Infectious Diseases, Dept. of Pediatrics. Invited seminar. October 31, 2008. Rochester, NY.

Wright State University, Dept. of Biochemistry and Molecular Biology. Invited seminar. May 15, 2009. Dayton, OH.

Oklahoma State University, Dept. of Biochemistry and Molecular Biology. Invited seminar. January 22, 2010. Stillwater, OK.

10th ASM Meeting on Candida and Candidiasis. Invited platform presentation. March 22-26, 2010. Miami, FL.

Northeast Regional Yeast Meeting. Invited platform presentation. May 11, 2010. State University of New York at Buffalo, NY.

Midwest Yeast Biology Meeting. Invited platform presentation. September 25-26, 2010. Northwestern University, Evanston, IL.

Duke University, Program in Genetics and Genomics. Invited seminar. April 26, 2011. Durham, NC.

Johns Hopkins University, Dept. of Pharmacology and Molecular Sciences. Invited seminar. March 7, 2012. Baltimore, MD.

Oxford University, Workshop on de novo Protein Biology. Invited seminar. April 26, 2012. Oxford, UK.

Yeast Genetics and Molecular Biology Meeting. Invited platform presentation. July 31-Aug 5, 2012. Princeton, NJ.

International Conference on Systems Biology. Invited platform presentation. August 19-23, 2012. Toronto, Ontario, Canada.
Midwest Yeast Biology Meeting. Session chair. Sept. 28-29, 2013. Northwestern University, Evanston, IL.
Yeast Genetics and Molecular Biology Meeting. July 29-Aug 3, 2014. University of Washington, Seattle, WA.
Midwest Yeast Biology Meeting. Invited platform presentation. Sept. 27-28, 2014. Northwestern University, Evanston, IL.
Northeast Regional Yeast Meeting. Invited platform presentation. June 16-17, 2016. State University of New York at Buffalo, Buffalo, NY.
Allied Genetics Conference 2016, Genetics Society of America. July 13-17, 2016. Orlando, FL USA.
Yeast Genetics and Molecular Biology Meeting. Invited laboratory presentation. August 22-26, 2018. Stanford, CA, USA.

Service:

Professional Activities:

Study Section, Ad hoc member, NIH: Eukaryotic Parasites and Vectors – Summer 2016, Fall, 2016, Fall 2017, Summer 2018
Study Panel, NSF: Cellular Dynamics and Function (CDF), Fall 2019
Study Section, NSF: Cyberinfrastructure for Sustained Scientific Innovation (CSSI), Spring 2019
Guest Editor, Special Issue on Yeast Genomics, *Briefings in Functional Genomics*, Oxford Univ. Press, 2015
Guest Associate Editor, *PLoS Genetics*, June 2012
Editorial Board, *F1000 Research*, May 2012 – present
Editorial Board, *Eukaryotic Cell*, January 2009 – 2016.
Faculty of 1000, Faculty Member, Genomics Section, 2010 – present
Ad hoc reviews, Burroughs Wellcome Fund, 2012
Study Panel, NSF CISE Emerging Models and Technologies Program, May 29-30, 2008
Editorial Board, *Journal of Systems Biology and Biomedical Technologies*, January 2011 – 2014.
Organizer and Session Chair, Ohio Conference on Computational Biology (OCCB), 2008
Editorial Board, *Open Proteomics Journal*, 2007 - 2009
Executive Guest Editor, Special Journal Issue on Chemical Biology and Genomics, *Combinatorial Chemistry and High Throughput Screening*, Vol. 10 (July 2007 issue)
Organizer, Michigan Symposium on Genomic Biology, April 16, 2007
Ad hoc reviews, National Science Foundation (NSF)
Ad hoc reviews, Austrian Genome Research Programme, 2007
Ad hoc reviews, journals (selected): *Nature*, *Science*, *Nature Genetics*, *Proc. Natl. Acad. Sci. USA*, *Cell*, *Cell Host and Microbe*, *Mol. Biol. Cell*, *Mol. Cell. Biol.*, *Genome Research*, *PLoS Genetics*, *Genetics*, *Eukaryotic Cell*, *Molecular and Cellular Proteomics*, *Yeast*, *Comb. Chem. High Throughput Screening*, *Autophagy*, *Cell Biology Education*, *BMC Genomics*, *BMC Bioinformatics*, *Open Proteomics Journal*
Genetics Society of America, member 2004 – present

Departmental:

Chair of Undergraduate Studies, MCDB
AY 2021 – present
Associate Chair, MCDB

AY 2021 – present
Officer for Diversity, Equity, and Inclusion, MCDB
AY 2017-2020
Graduate Studies Committee, MCDB, member
AY 2015 – 2017, 2020 – 2021
Pathways Master's Program (Bridge Program for underrepresented groups), MCDB, Director
AY 2012 – 2017
Chair of Graduate Studies, MCDB
AY 2011 – 2014
Associate Chair, MCDB
AY 2011 – 2014
Executive Committee, MCDB, member
Fall 2007 – Winter 2009, Summer 2011-Summer 2014, Fall 2019 – 2020, 2021 – present
Faculty Search Committee, member
AY 2003-2004, AY 2009-2010, AY 2013-2014, AY 2018-2019 (Chair)
Website Design Committee, MCDB, member
Winter 2004 – Winter 2005
Undergraduate Concentration Advising (Cellular & Molecular Biology):
Fall 2009, Winter 2010, Winter 2012, Fall 2021 – present

University:

Rackham Executive Board, Member
AY2019 – 2022, 2023 – present
Research Misconduct Investigation Committee, University of Michigan, Member (JW-2020)
2021
Launch Committee (Lia Corrales, Astronomy), Chair
AY2020 – 2021
Rackham Integrity Board, Member
AY2019 – 2022
LSA Collegiate Postdoctoral Fellowship College Evaluation Committee, member
AY2018 – 2022
Rackham Minority Fellowship (RMF) Nomination Review Committee, member
AY2011 – 2012
Advisory Committee for the Michigan Postbaccalaureate Research Education Program (Michigan
PREP), member
Summer 2009 – 2013
Rackham Faculty Ally for Diversity, MCDB departmental representative
September 2014 – 2020
Transfer Evaluation Committee
Fall 2017 – present
CMB Program Faculty Review Committee
Winter 2017 – 2018
Informatics Concentration Steering Committee, College of LSA, member
September 2010 – present
Michigan Synthetic Biology Team, Advisor
Winter 2014 – present
LSA Alternate, University Senate Assembly
2010-2011
Bioinformatics PIBS Admissions Committee, member
AY 2005-2006
AY 2009-2010

AY 2010-2011
 CMB Admissions Committee, member
 AY 2009-2010
 AY 2010-2011
 Genome Sciences Training Program, training faculty
 Summer 2009 - present
 Graduate Program in Cellular and Molecular Biology, training faculty
 Summer 2008 – present
 Environmental Health Sciences Faculty Search Committee, member
 Winter 2007
 Bridging Funds Review Panel, Medical School
 Fall 2007
 Predoctoral Genetics Training Program, member
 Fall 2006 – present
 Perrigo Summer Undergraduate Fellows Program (LSI), member
 Winter 2004 – Winter 2008
 Bioinformatics Program Seminar Committee, Chair
 Fall 2004 – 2006
 Chemical Genomics Initiative Steering Committee (LSI), member
 Winter 2004 – '05

Teaching:

Courses:

MCDB 615	Winter 2004	17 students	33% responsibility
MCDB 427	Fall 2004	183 students	50% responsibility
BIOINF 526	Fall 2004	16 students	10% responsibility
MCDB 408	Winter 2006	22 students	100% responsibility
MCDB 427	Fall 2006	137 students	50% responsibility
BIOINF 800	Fall 2006	15 students	25% responsibility
BIOINF 527	Winter 2007	28 students	10% responsibility
BIOINF 601	Fall 2007	25 students	100% responsibility
MCDB 408	Winter 2008	27 students	100% responsibility
MCDB 408	Winter 2009	34 students	100% responsibility
MCDB 408	Winter 2011	25 students	100% responsibility
MCDB 614	Fall 2011	15 students	16% responsibility
BIO 305	Fall 2011	283 students	50% responsibility
MCDB 800	Winter 2012	32 students	100% responsibility
BIO 305	Fall 2012	355 students	50% responsibility
MCDB 800	Fall 2012	27 students	100% responsibility
MCDB 800	Winter 2013	18 students	100% responsibility
MCDB 408	Winter 2013	24 students	100% responsibility
BIO 305	Fall 2013	346 students	50% responsibility
MCDB 800	Winter 2014	30 students	100% responsibility
MCDB 800	Winter 2014	22 students	100% responsibility
BIO 305	Fall 2014	364 students	50% responsibility
BIO 305	Fall 2015	382 students	50% responsibility
MCDB 427	Winter 2016	51 students	50% responsibility
MCDB 427	Fall 2016	80 students	50% responsibility
MCDB 800	Winter 2017	7 students	100% responsibility
HG 632	Fall 2017	16 students	12% responsibility
MCDB 427	Fall 2017	77 students	50% responsibility

MCDB 408	Winter 2018	26 students	100% responsibility
MCDB 427	Fall 2018	85 students	50% responsibility
MCDB 600	Winter 2019	11 students	100% responsibility
MCDB 427	Fall 2019	106 students	50% responsibility
MCDB 527	Fall 2019	17 students	25% responsibility
MCDB 408	Winter 2020	29 students	100% responsibility
MCDB 427	Fall 2020	100 students	50% responsibility
MCDB 600	Winter 2021	6 students	100% responsibility
MCDB 427	Fall 2021	73 students	50% responsibility
MCDB 527	Fall 2021	14 students	50% responsibility
MCDB 408	Winter 2022	36 students	100% responsibility
MCDB 427	Fall 2022	77 students	50% responsibility
MCDB 408	Winter 2023	39 students	100% responsibility
MCDB 427	Fall 2023	79 students	50% responsibility
MCDB 441	Fall 2023	27 students	50% responsibility

Individualized Instruction:

Ph.D. /Master's Students:

Jun Ma	Entering class: 2003	Winter 2004 – Summer 2008
Rui Jin	Entering class: 2003	Winter 2004 – Winter 2008
Nike Bharucha	Entering class: 2004	Fall 2004 – Summer 2009
Prasanthi Geda	Entering class: 2005	Fall 2005 – Winter 2007
Xuefeng Zhang	Entering class: 2005	Winter 2006 – Winter 2007
Christian A. Shively	Entering class: 2008	Winter 2009 – Winter 2014
Qingxuan Song	Entering class: 2008	Spring 2009 – Fall 2013
Cole Johnson	Entering class: 2009	Summer 2009 – Fall 2013
Brooke Horton	Entering class: 2010	Summer 2012 – Fall 2014
Daniel Sheidy	Entering class: 2009	Fall 2012 – Winter 2015
Kaitlyn Norman	Entering class: 2012	Summer 2013 – 2018
Nebibe Mutlu	Entering class: 2013	Summer 2014 – 2019
Eric Cosky	Entering class: 2014	Summer 2014 – 2016
Amberlene De La Rocha	Entering class: 2016	Winter 2017 – Winter 2018
Brett Morris	Entering class: 2016	Winter 2017 – Winter 2018
Heather Gregg	Entering class: 2019	Fall 2019 – 2021
Hunter Mueller	Entering class: 2022	Fall 2022 – present