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FREDERICK R. ADLER

Curriculum vitae

Professor

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Research interests: Mathematical ecology, mathematical epidemiology, mathematical immunology, mathematical oncology, virus dynamics, biodiversity, optimal foraging theory, evolutionary ecology, ant behavioral ecology, urban ecology, cystic fibrosis

EDUCATION

- | | |
|--------------|---|
| Ph.D. | Cornell University, Applied Mathematics, August 1991
Thesis title: <i>Models of Structured Populations</i>
Thesis advisor: Simon A. Levin |
| M.S. | Cornell University, Applied Mathematics, July 1989 |
| B.A. | Harvard-Radcliffe College, Mathematics, June 1984 |

HONORS AND AWARDS

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| 2024 | John Jungck Prize for Excellence in Education,
Society for Mathematical Biology |
| 2022- | SIAM, Life Sciences Section Chair |
| 2021 | 2020 cohort of The Banner Project |
| 2018 | Fellow of the Ecological Society of America |
| 2017 | Fellow of the Society for Mathematical Biology |
| 2016 | Faculty Recognition Program Award, Career Services |
| 2013-2015 | President, Society for Mathematical Biology |
| 2012-2013 | University of Utah College of Science Professorship |
| 2009- | Faculty of 1000 Biology |
| 2009 | University of Utah Distinguished Mentor Award |
| 1989-1990 | Mathematical Sciences Institute Graduate Fellow |
| 1985-1987 | A.D. White Fellowship, Cornell University |
| 1984 | Phi Beta Kappa, Harvard University |

PROFESSIONAL EXPERIENCE

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| 2022- | Director, School of Biological Sciences |
| 2021- | Affiliate, Huntsman Cancer Institute |
| 2004- | Professor, Department of Mathematics and |

Department of Biology, University of Utah
2000 Visiting Faculty Fellow, Department of Ecology and
 Evolutionary Biology, Princeton University
1998-2004 Associate Professor, Department of Mathematics and
 Department of Biology, University of Utah
1993-1998 Assistant Professor, Department of Mathematics and
 Department of Biology, University of Utah
1991-1992 Visiting Postdoctoral Researcher, Center for Population Biology
 University of California at Davis
 Marc Mangel, Mentor
1987-1990 Teaching Assistant, Cornell University
1984-1985 Research Assistant, National Water Alliance, Washington, D.C.

GRANTS

2021-2026 Mechanism of estrogen independent proliferation in
 ER+ breast cancer cells
 (A. Bild, PI, F.R. Adler co-PI)
 NIH/NCI: 1U01CA264620: \$2,070,532 (total)
2020-2023 Do tolerant hosts amplify the threat of invasive parasites?
 Darwin's finches, mockingbirds, and nest flies
 (D. Clayton, PI, F.R. Adler co-PI)
 NSF-DEB: 2025085: \$774,474
2020 Emerging COVID-19/SARS-CoV-2 Research Seed Grant
 (F.R. Adler, PI)
 University of Utah 3i Initiative: \$25,000
2019-2023 Salivary Protein Influence on Taste and Feeding
 (A-M. Torregrossa, PI, F.R. Adler co-PI on Utah subaward)
 NIH: 1R01DC016869-01A1: \$76,415
2017-2021 Combating subclonal evolution of resistant cancer phenotypes
 (A. Bild, PI, F.R. Adler co-PI on Project 1 and Computational Core)
 NIH U54 \$6,000,000
2015-2020 Explanatory models of CF survival, infection and
 intermediate clinical outcomes, NIH R01
 (T. G. Liou, PI) \$1,750,000
2012-2017 Research Training Group in Mathematical and
 Computational Biology, NSF-DMS (J. P. Keener, PI) \$2,579,183
2017 Army Research Office, \$25,260
2016 Army Research Office, meeting grant \$30,000
2013-2016 Cystic Fibrosis Foundation Clinical Research Award
 (T. G. Liou, PI) \$250,000
2011-2015 Genetic analysis of health related, polygenic

	traits using the pure-bred canine model (K. G. Lark, PI) \$1,119,220
2011-2013	Mitochondrial fitness variation in a naturally replicated evolutionary experiment, NSF-DEB (J. Seger, PI) \$495,000
2009-2014	Pathogen adaptation to specific host genotypes (W. Potts, PI), NSF-DEB \$985,000
2007-2013	The Ecology and Evolution of the Common Cold, James S McDonnell Foundation (F. Adler, PI) \$346,000
2006-2008	Polymicrobial disease and inflammation in cystic fibrosis, NIH (T. G. Liou, PI) \$411,000
2004-2008	The Effect of Anthropogenic Disturbance on the Dynamics of Sin Nombre, NSF (D. Dearing, PI) \$1,824,000
2004-2007	How Competition and Parasitism Control Diversity in Ant Communities, NSF (D. H. Feener, PI) \$420,000.00
2002-2005	Genetic Architecture of the Mammalian (Canid) Skeleton NIH (K. G. Lark, PI)
2004-2009	RTG, NSF (J. P. Keener, PI) \$2,579,183
2002-2007	IGERT, NSF (J. P. Keener, PI) \$2,909,952
2001-2003	Genetic architecture of soybean, USDA (K. G. Lark, PI)
1999-2000	Cystic Fibrosis Program, Margolis Foundation
1997-1999	Measuring Forager Responses to Inducible Defenses: University of Utah Research Committee
1995-1996	Special Year in Mathematical Biology (with H. Othmer and M. Lewis)
1995-1997	Brooks/Cole Publishing Company

POST-DOCTORAL SCHOLARS

2022-	Jiyeon Park
2022-2023	Linh Huynh
2020-2021	Mark Smithson
2020-2021	Elizabeth Fedak
2019-2022	Jody Reimer (with Ken Golden)
2017-2020	Jason Griffiths
2017-2020	Thuy Le
2011-2012	Suma Ghosh
2010-2012	Samit Bhattacharyya
2010-2012	Nicole Lewis-Rogers
2009-2011	Subhra Bhattacharya
2008-2011	Peter Kim
2007-2010	Damon Toth
2005-2007	Jonathan Forde

GRADUATE STUDENTS: PhD

2024-	Zoe Plzak, Department of Mathematics
2021-	Montana Ferita, Department of Mathematics
2021-	Patrick Talley, Department of Mathematics
2021-	Hyrum Diesen, School of Biological Sciences
2019-	Eric Sodja, School of Biological Sciences
2018-2024	Kanyarat Jitmana, Department of Mathematics
2018-2023	Alex Beams, Department of Mathematics
2018-2023	Theresa Sheets, Department of Mathematics
2016-2022	Emerson Arehart, Department of Biology
2015-2020	Elizabeth Fedak, Department of Mathematics
2015-2020	Samantha Hill, Department of Mathematics
2014-2020	Rebecca Terry, Department of Mathematics
2009-2018	Laura Strube, Department of Mathematics
2011-2018	Katrina Johnson, Department of Mathematics
2012-2017	Leif Zinn-Bjorkman, Department of Mathematics
2010-2017	Benjamin Hardisty, Department of Biology
2009-2017	Joe Eason, Department of Mathematics
2009-2017	Anna Miller, Department of Mathematics
2009-2016	Andrew Basinski, Department of Mathematics
2007-2014	Mia Moore, Department of Mathematics
2007-2012	Chris Remien, Department of Mathematics
2007-2012	Erica Graham, Department of Mathematics
2006-2011	Sean Laverty, Department of Mathematics
2005-2010	Giao Huynh, Department of Mathematics
2004-2008	Brendan O'Fallon, Department of Biology
2002-2008	Luciano Valenzuela, Department of Biology
2003-2009	Amber Smith, Department of Mathematics
2003-2010	Courtney Davis, Department of Mathematics
2002-2007	Meagan McNulty, Department of Mathematics
2002-2007	John Zobitz, Department of Mathematics
2002-2008	Colby Tanner, Department of Biology
1999-2006	Tim Brown, Department of Biology
1996-2002	Thomas Hills, Department of Biology
1993-2000	Stephen Proulx, Department of Biology
1996-2000	Adam Kay, Department of Biology

GRADUATE STUDENTS: Masters

2021-2023	Mac LaPrete, Department of Mathematics
2015-2017	Julia Inozemtseva, Department of Mathematics
2009-2011	Charles Cox, Department of Mathematics
2006-2009	Noelle Conforti, Department of Mathematics
2005-2007	Molly Kelton, Department of Mathematics

2002-2004	William Koppelman, Department of Mathematics
2002-2004	Edgar Diaz, Department of Mathematics
2002-2004	Michelle Parslow, (Mathematics Education)
2002-2007	Aaron McDonald, Department of Mathematics
1999-2003	Bradley Demarest, Department of Biology
1992-1994	Deborah Horton, (Biology Education)

UNDERGRADUATE STUDENTS

2023-	Saya Zeleznik (with Patrick Talley): Behavioral Traits of Invasive Ants
2022-	Anna Tang (with Linh Huynh): Mathematical Model of Drug Resistance in Cancer
2020-	Muskan Walia: COVID-19 testing
2021-2022	Mac LaPrete (with Tess Sheets): Disease spread in structured populations
2021	Darshan Shimpi (with Mark Smithson): Models for cancer cell evolution
2021	Jameson McCarty (with Alex Beams): Models of cocirculating viruses
2021	Isaac Griss-Salas (with Jay Love): Mathematical models for imperfect vaccines
2020-2021	Rebecca Bateman: Mask? Or JASC?
2020-2021	Morgan Kelley: Mathematical models of human trafficking
2018-2021	Noelle Atkin: The ecology of the musical canon
2018-2020	Cassie Buhler: Dynamical control of prostate cancer
2019	Preston Stringham: Analysis of ovarian cancer
2017-2019	Katelyn Queen: The phenotypic diversity of cancer
2017-2018	Hannah Waddel: The community ecology of music
2015-2016	Sawson Gholami: The community ecology of music
2014-2015	Alex Beams: Antibiotic resistance Hitesh Tolani: Epidemics on networks Ethan Petersen: Optimal foraging theory
2012-2014	Sean Quinonez: Fighting ants Ethan King: Dynamics of hantavirus Taylor Block: Genetics of Cystic Fibrosis
2012-2013	Kyle Zortman: Dynamics of human papillomavirus Skip Fowler: Stochastic epidemics and the Catalan numbers
1993-2012	Advised approximately 20 undergraduate researchers

HIGH SCHOOL STUDENTS

2019-2021	Anastasia Dunca: Machine Learning and scRNAseq data
2018-2020	Tarun Marthaswaran: Dynamics of dengue virus
2019	Seyi Jung: Mathematical epidemiology

UNIVERSITY SERVICE

2021	Chair Internal Review Committee, Biomedical Engineering
2020-	Graduate Council
2020-	GCSC Executive Committee
2018	Chair Internal Review Committee, Oncological Sciences
2015-2016	University Writing Committee
2013-2014	Search Committee, College of Science Dean
2002-	Utah Symposium on Science and Literature Co-chair
2012-	Director, Center for Quantitative Biology
2011-2013	Undergraduate Council
2011-2012	Humanities Area Committee
2011	Search Committee, Global Change and Ecosystems Center
2008-2012	Acting Director, Center for Quantitative Biology
2005-2007	Interdisciplinary Advisory Committee
2002-2010	Quantitative Intensive Committee
2002-2004	Academic Policy and Advisory Committee
2002-2005	Science Area Committee
2001-2002	Faculty Leadership Seminar
1997-1999	Tanner Lecture Committee

COURSES TAUGHT

Advanced Statistics, Biol 6500 (2025)
 Urban Ecology, Biol 5440 (2024)
 Science and Literature (with K. Coles) Math 5910 (2024)
 Science Research Initiative: Cancer Modeling, SCI 2175 (2024)
 Urban Ecology, Biol 5440 (2023)
 Science Research Initiative: Cancer Modeling, SCI 2175 (2023)
 Advanced Statistics in R, Biol 6500 (2022)
 The Mathematics of Biological Regulation, Math 6780 (2022)
 Science Research Initiative: COVID-19, SCI 2175 (2021)
 Advanced Statistics in R, Biol 6500 (2021)
 Mathematical Biology II, Math 5120 (2021)
 Mathematical Modeling: COVID-19, Math 5740 (2020)
 The Mathematics of Cancer, Math 4800 (2020)
 Mathematical Models in Biology, Biol 5910 (2020)
 Mathematics for Life Scientists, Math 1180 (2019)
 Mathematical Models of Cancer, Math 6770 (2018)
 The Role of Mathematics in Medicine, Math 3600/Biol 3400 (2013,2015)
 Urban Ecology, Biol 5440 (5 times)
 Mathematics for Life Scientists, Math 1170-1180 (over 10 times)

Decision-Making: Advanced Mathematical Biology, Math 6780 (2014)
 The Mathematics of Disease, Math 4800 (2012)
 Advanced Statistics in R, Biol 6500 (2010, 2012, 2016, 2018)
 Mathematical Models in Biology, Biol 5910 (8 times, 1997-2017)
 Mathematical Biology I, Math 5110 (7 times)
 Mathematical Biology II, Math 5120 (4 times)
 Summer REU in Mathematical Biology (2010)
 Mathematical Biology II, Math 6780 (4 times)
 Science and Literature (with K. Coles) Math 5750 (2009)
 Science and Literature (with K. Coles), Biol 5960-5 (2007)
 Ecology and Evolution (Biol 3410, with J. Seger) (2005)
 Core Seminar in Ecology and Evolution, Biol 7406 (2002)
 Perspectives in Mathematics, Math 1080 (2001)
 Statistics for Biologists, Biol 687 (1998)
 Core Seminar in Ecology and Evolution, Biol 788 (1997)

EDITORIAL BOARDS

2009-	Ecology Letters
2015-2017	Frontiers in Ecology and Evolution
2008-2014	The American Naturalist
2007-2012	PLoS ONE
1998-2002	Ecology, Ecological Applications, Ecological Monographs

PANELS

2016- Executive Advisory Committee, CMCI, University of Idaho
2015 NSF workshop: G2P
2008 NSF panel: Advancing Theory in Biology

CONFERENCES ORGANIZED

2024 Minisymposium: Cancer Ecology for Society of Mathematical Biology Annual Meeting
2019 Minisymposium: Cancer Ecology for Society of Mathematical Biology Annual Meeting
2017 Society for Mathematical Biology Annual Meeting
2016 Centralized vs Decentralized Control in the Regulation of Populations
 Santa Fe Institute
2015 Data-Driven Discovery: Preparing Researchers for the Quantitative
 Biology of the Future, AAAS
2013 Ignite: Urban Ecology: From Biophysics to Society,
 Ecological Society of America
2013 Ideas of March: Joint CQB/RTG workshop, Salt Lake City
2010 Organized Oral Session on Plant Signaling
 Ecological Society of America
2009 Quantitative Biology Workshop

- Utah Symposium on Science and Literature: Mathematics,
Language and Imagination
- 2008** RTG Workshop: Mathematical Perspective on Cancer Immunology
Utah Symposium on Science and Literature: Measuring Scale
- 2005** Utah Symposium on Science and Literature: Some Re-Assembly Required
- 2003** Session Chair, Gordon Conference on Theoretical Ecology
- 2003** VIGRE Minicourse on Biological Invasions
- 1995** Fall Quarter of Special Year in Mathematical Biology
Organized Mathematics 675 with visiting lecturers
Minisymposium on Territoriality with 6 invited speakers

INVITED TALKS

- 2022** University of Texas Health Houston
- 2019** Ostrom Lecture, Washington State University
Department of Mathematics, Utah State University
Department of Mathematics, Brigham Young University
Department of Integrative Biology, UC Berkeley
- 2018** Quantitative Life Sciences, McGill University
SACNAS Annual Meeting
- 2017** National Socio-Environmental Synthesis Center (SESYNC)
University of Idaho, IBEST
- 2016** Britton Lectures, McMaster University
St. Jude's Childrens Hospital
Department of Mathematics, Utah State University
- 2015** Society for Integrative and Comparative Biology
Department of Microbiology & Molecular Biology,
Brigham Young University
- 2014** Center for Infectious Disease Dynamics, Penn State
Biomathematics and Ecology: Education and Research
University of Rochester
University of Central Oklahoma
Department of Biomedical Informatics, University of Utah
- 2013** University of Nevada at Las Vegas
North American Cystic Fibrosis Conference, Salt Lake City
Mountain West Cystic Fibrosis Consortium, Salt Lake City
- 2012** University of Michigan
EEID, University of Michigan
University of Texas at Arlington
- 2011** University of Tennessee
University of California at Santa Barbara
- 2010** University of California at Santa Cruz, Applied Mathematics

- University of New Mexico, PIBBS
 University of California at Irvine
 University of Wyoming
 SIAM Life Sciences
- 2009** American Institute of Mathematics, Palo Alto
- 2008** Science at Breakfast, College of Science, University of Utah
 Colorado College, Department of Mathematics
- 2007** Colorado State University, Biology
 Colorado State University, PRIMES program
 Smithsonian Tropical Research Institute, Panama
 Mathematical Modeling and Analysis of Populations in Biological Systems
 University of Arizona
- 2006** Princeton University, Ecology and Evolutionary Biology
 University of Alabama Birmingham, Mathematics
- 2005** Undergraduate Lecturer, Park City Math Institute
 SWARMS, Army Research Office, Napa, California
- 2004** Ecology Center, Utah State University
- 2003** Banff Institute, Banff
 University of Idaho, Department of Mathematics
 University of Idaho, Department of Biology
 University of Georgia, Institute of Ecology
 Mountain West Cystic Fibrosis Consortium
- 2002** University of Illinois at Chicago
 Mathematical Association of America, Rocky Mountain Section
- 2000** Winterschool on Population Dynamics, Woudschoten
 Dutch Theoretical Ecology meeting, Texel
 University of Utrecht, Applied Mathematics
 University of Munich, Zoology
 Princeton University, Ecology and Evolutionary Biology
- 1999** Summer School for Mathematical Biology, UBC
 Institute for Theoretical Dynamics, UC Davis
- 1998** Gordon Conference on Theoretical Biology
 Research and Teaching in Mathematics and Biology, UAM-Iztapalapa Mexico
- 1997** Oregon State University, Dept of Biology
 Oregon State University, Dept of Mathematics
- 1996** National Center for Environmental Analysis and Synthesis, Santa Barbara
 Mathematical Association of America, Rocky Mountain Section
 Oberwolfach Mathematisches Forshungsinstitut
 Imperial College at Silwood Park
 University of Edinburgh
 Cambridge University

University of Bristol
 University College London
 University of Amsterdam
1995 Utah State University
1994 Utah State University
 Weber State University
1992 Stanford University
 University of California, Davis
 Ecological Society of America
 Theory/Empirical Workshop, University of Wisconsin

References

- [1] F. R. Adler, H. A. Levine and A. Brock. Cancer cell populations. *Seminars in Cancer Biology*, 109:8-9, 2024.
- [2] A. Bukkuri and F. R. Adler. Of criminals and cancer: The importance of social bonds and innate morality on cellular societies. *Cells & Development*, 180:203964, 2024.
- [3] F. R. Adler. A modeling framework for cancer ecology and evolution. *Journal of the Royal Society interface*, 21:20250099, 2024.
- [4] K. Jitmana, J. I. Griffiths, S. Fereday, A. DeFazio, D. Bowtell, A. O. C. Study, and F. R. Adler. Mathematical modeling of the evolution of resistance and aggressiveness of high-grade serous ovarian cancer from patient ca-125 time series. *PLOS Computational Biology*, 20:e1012073, 2024.
- [5] R. Laubenbacher, F. Adler, G. An, F. Castiglione, S. Eubank, L. L. Fonseca, J. Glazier, T. Helikar, M. Jett-Tilton, D. Kirschner, et al. Forum on immune digital twins: a meeting report. *npj Systems Biology and Applications*, 10:19, 2024.
- [6] R. Laubenbacher, F. Adler, G. An, F. Castiglione, S. Eubank, L. L. Fonseca, J. Glazier, T. Helikar, M. Jett-Tilton, D. Kirschner, et al. Toward mechanistic medical digital twins: some use cases in immunology. *Frontiers in Digital Health*, 6:1349595, 2024.
- [7] T. G. Liou, N. Argel, F. Asfour, P. S. Brown, and others, F. R. Adler, Airway inflammation accelerates pulmonary exacerbation in Cystic Fibrosis. *IScience*, 27, 2024.

- [8] F. R. Adler, A. R. Anderson, A. Bhushan, P. Bogdan, J. J. Bravo-Cordero, A. Brock, Y. Chen, E. Cukierman, K. E. DelGiorno, G. V. Denis, et al. Modeling collective cell behavior in cancer: Perspectives from an interdisciplinary conversation. *Cell Systems*, 14:252–257, 2023.
- [9] E. Arehart and F. R. Adler. A minimal model of learning: quantifying the cost and benefit of learning in changing environments. *Proceedings of the Royal Society B*, 290:20231084, 2023.
- [10] E. Arehart, J. R. Reimer, and F. R. Adler. Strategy maps: Generalised giving-up densities for optimal foraging. *Ecology Letters*, 26:398–410, 2023.
- [11] A. Beams, L. T. Keegan, F. R. Adler, M. H. Samore, K. Khader, and D. J. Toth. Are *Staphylococcus aureus* carrier types evidence of population heterogeneity? *American Journal of Epidemiology*, 192:455–466, 2023.
- [12] A. Bukkuri and F. R. Adler. Biomarkers or biotargets? using competition to lure cancer cells into evolutionary traps. *Evolution, Medicine, and Public Health*, 11:264–276, 2023.
- [13] K. Cuddington, K. C. Abbott, F. R. Adler, M. Aydeniz, R. Dale, L. J. Gross, A. Hastings, E. A. Hobson, V. A. Karatayev, A. Killion, et al. Challenges and opportunities to build quantitative self-confidence in biologists. *BioScience*, 73:364–375, 2023.
- [14] R. Emond, J. I. Griffiths, V. K. Grolmusz, A. Nath, J. Chen, E. F. Medina, R. S. Sousa, F. R. Synold, T. Adler, and A. H. Bild. Cell facilitation promotes growth and survival under drug pressure in breast cancer. *Nat. Comm.*, 14:3851, 2023.
- [15] J. I. Griffiths, P. A. Cosgrove, E. M. Castaneda, A. Nath, J. Chen, F. R. Adler, J. T. Chang, Q. J. Khan, and A. H. Bild. Cancer cell communication with macrophages prevents T cell activation during emergence of cell cycle therapy resistance. *Cancer Research*, 83:4318–4318, 2023.
- [16] J. I. Griffiths, P. A. Cosgrove, E. M. Castaneda, A. Nath, J. Chen, F. R. Adler, J. T. Chang, Q. J. Khan, and A. H. Bild. Cancer cells subvert fibroblast function to promote a growth factor enriched tumor microenvironment in endocrine therapy resistant ER+ breast cancer. *Cancer Research*, 83:5693–5693, 2023.
- [17] J. West, F. Adler, J. Gallaher, M. Strobl, R. Brady-Nicholls, J. Brown, M. Roberson-Tessi, E. Kim, R. Noble, Y. Viosat, et al. A survey of open questions in adaptive therapy: Bridging mathematics and clinical translation. *Elife*, 12:e84263, 2023.

- [18] E. Arehart and F. R. Adler. Strategy maps: Generalized giving-up densities for optimal foraging. *Ecol. Lett.*, 2023.
- [19] A. B. Beams, L. T. Keegan, F. R. Adler, M. H. Samore, K. Khader, and D. J. A. Toth. *Staphylococcus aureus* carrier types are not evidence of population heterogeneity. *Am. J. Epidemiol.*, 2022.
- [20] F. R. Adler, S. R. Amend, C. J. Whelan, and E. Baratchart. From ecology to cancer biology and back again. *Frontiers in Ecology and Evolution*, 9, 2022.
- [21] T. G. Liou, N. Argel, F. Asfour, P. S. Brown, B. A. Chatfield, D. R. Cox, C. L. Daines, D. Durham, J. B. Francis, B. Glover, et al. Associations of sputum biomarkers with clinical outcomes in people with cystic fibrosis. *medRxiv*, 2022.
- [22] J. R. Reimer, F. R. Adler, K. M. Golden, and A. Narayan. Uncertainty quantification for ecological models with random parameters. *Ecology Letters*, 10:2232-2244, 2022.
- [23] C. K. Buhler, R. S. Terry, K. G. Link, and F. R. Adler. Do mechanisms matter? comparing cancer treatment strategies across mathematical models and outcome objectives. *Mathematical Biosciences and Engineering*, 18:6305–6327, 2021.
- [24] A. Bukkuri and F. R. Adler. Viewing cancer through the lens of corruption: Using behavioral ecology to understand cancer. *Frontiers in Ecology and Evolution*, 9:442, 2021.
- [25] A. Dunca and F. R. Adler. Predicting molecular phenotypes with single cell RNA sequencing data: an assessment of unsupervised machine learning models. *arXiv preprint arXiv:2108.05039*, 2021.
- [26] J. I. Griffiths, J. Chen, P. A. Cosgrove, A. O’Dea, P. Sharma, C. Ma, M. Trivedi, K. Kalinsky, K. B. Wisinski, R. O’Regan, et al. Serial single-cell genomics reveals convergent subclonal evolution of resistance as patients with early-stage breast cancer progress on endocrine plus CDK4/6 therapy. *Nature Cancer*, 2021.
- [27] T. G. Liou, F. R. Adler, B. C. Cahill, D. R. Cox, J. E. Cox, G. J. Grant, K. E. Hanson, S. C. Hartsell, N. D. Hatton, M. N. Helms, et al. SARS-CoV-2 innate effector associations and viral load in early nasopharyngeal infection. *Physiological Reports*, 9:e14761, 2021.

- [28] F. R. A. Maron, C. Patterns of blubber fat deposition and evaluation of body condition in growing southern right whale calves (*Eubalaena australis*). *Marine Mammal Science*, 2021.
- [29] A. Beams, R. Bateman, and F. Adler. Will SARS-CoV-2 Become Just Another Seasonal Coronavirus? *Viruses*, 2021.
- [30] E. A. Fedak, F. R. Adler, L. M. Abegglen, and J. D. Schiffman. ATM and ATR activation through crosstalk between DNA damage response pathways. *Bull. Math. Biol.*, 83:1–30, 2021.
- [31] T. G. Liou, F. R. Adler, and N. D. Hatton. The Uncertain Role of Corticosteroids in the Treatment of COVID-19. *JAMA Internal Medicine*, 181:139–140, 2021.
- [32] F. R. ADLER, A. GREEN, AND C. H. SEKERCIOGLU, Citizen science in ecology: A place for humans in nature. *Annals of the New York Academy of Sciences*, 1469:52–64, 2020.
- [33] R. BECKMAN, I. KAREVA, J. PEPPER, AND F. R. ADLER, How should cancer models be constructed? *Cancer Control*, 27:1073274820962008, 2020.
- [34] T. T. LE AND F. R. ADLER, Is mammography screening beneficial: an individual-based stochastic model for breast cancer incidence and mortality. *British Journal of Cancer*, 16:e1008036, 2020.
- [35] T. G. LIU, C. KARTSONAKI, R. H. KEOGH, AND F. R. ADLER, Evaluation of a five-year predicted survival model for cystic fibrosis in later time periods. *Scientific Reports*, (accepted), 2020.
- [36] J. I GRIFFITHS, P. WALLET, L. T PFLIEGER, D. STENEHJEM, X. LIU, P. A COSGROVE, N. A LEGGETT, J. A MCQUERRY, G. SHRESTHA, M. ROSETTI, G. SUNGA, P. J MOOS, F. R. ADLER, J. T CHANG, S. SHARMA, AND A. BILD. Circulating immune cell phenotype dynamics reflect the strength of tumor-immune cell interactions in patients during immunotherapy. *Proc. Nat. Acad. Sci.*, 117:16072–16082, 2020.
- [37] F. R. ADLER AND D. M. GORDON, Cancer ecology and evolution: Positive interactions and system vulnerability. *Current Opinion in Systems Biology*, 17:1-7, 2019.
- [38] THEODORE G LIU, FREDERICK R ADLER, NATALIA ARGEL, FADI ASFOUR, PERRY S BROWN, BARBARA A CHATFIELD, CORI L DAINES, DIXIE DURHAM, JESSICA A FRANCIS, BARBARA GLOVER, ET AL., Prospective

- multicenter randomized patient recruitment and sample collection to enable future measurements of sputum biomarkers of inflammation in an observational study of cystic fibrosis. *BMC medical research methodology*, 19:88, 2019.
- [39] F. R. ADLER, C. STOCKMANN, K. AMPOFO, A. T. PAVIA, AND C. L. BYINGTON, Transmission of rhinovirus in the Utah BIG-LoVE families: Consequences of age and household structure, *PLoS One*, 2018.
- [40] F. R. ADLER, S. QUINONEZ, N. PLOWES, AND E. S. ADAMS, A mechanistic model of ant battles and its consequences for territory scaling, *American Naturalist*, 92, 2018.
- [41] R. S. SORENSON, M. J. DESHOTEL, K. JOHNSON, F. R. ADLER, AND L. E. SIEBURTH, Arabidopsis mRNA decay landscape arises from specialized RNA decay substrates, decapping-mediated feedback, and redundancy, *Proceedings of the National Academy of Sciences*, (2018), p. 201712312.
- [42] A. M. GRANCHELLI, F. R. ADLER, R. H. KEOGH, C. KARTSONAKI, D. R. COX, AND T. G. LIOU, Microbial interactions in the cystic fibrosis airway, *Journal of Clinical Microbiology*, 2018.
- [43] J. J. HORNS, F. R. ADLER, AND C. H. SEKERCIOGLU, Using opportunistic citizen science data to estimate avian population trends, *Biological Conservation* 221:151–159, 2018.
- [44] L. ZINN-BJÖRKMAN AND F. R. ADLER, Modeling factors that regulate cell cooperativity in the zebrafish posterior lateral line primordium, *J. Theor. Biol.* 65:1282–1288, 2018.
- [45] A. K. MILLER, K. MUNGER, AND F. R. ADLER. A Mathematical Model of Cell Cycle Dysregulation Due to Human Papillomavirus Infection, *Bull. Math. Biol.*, 79:1564–1585, 2017.
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