Murat Acar

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EDUCATION

- Postdoc **California Institute of Technology, Pasadena, CA**
  Center for Biological Circuit Design & Division of Biology (Nov. 2007 – Nov. 2011)
  CBCD Fellow in Prof. Frances Arnold's Laboratory
- Ph.D. **Massachusetts Institute of Technology, Cambridge, MA**
  Physics (June 2002 – June 2007)
  Thesis Advisor: Prof. Alexander van Oudenaarden
- B.S. **Bogazici University, Istanbul, Turkey**
  Physics (June 2000)

APPOINTMENTS

- July 2017 – present **Associate Professor of MCDB and Physics, Yale University**
  Department of Molecular Cellular and Developmental Biology,
  Department of Physics, Yale Systems Biology Institute
- Jan. 2015 – June 2017 **Assistant Professor of Physics, Yale University**
  Department of Physics
- Jan. 2012 – June 2017 **Assistant Professor of MCDB, Yale University**
  Department of Molecular Cellular and Developmental Biology,
  Yale Systems Biology Institute
- Nov. 2011 – Dec. 2011 **Research Scientist and Lecturer, Yale University**
  Department of Molecular Cellular and Developmental Biology
- Nov. 2007 – Nov. 2011 **Postdoctoral Scholar, California Institute of Technology**
  Division of Biology and Center for Biological Circuit Design
- June 2007 – Oct. 2007 **Research Assistant, Massachusetts Institute of Technology**
  Physics Department
- June 2002 – June 2007 **Graduate Student, Massachusetts Institute of Technology**
  Physics Department
- Aug. 2000 – May 2002 **Graduate Student, University of Iowa**
  Department of Physics and Astronomy

FELLOWSHIPS, DISTINCTIONS, and AWARDS

- 2014 NIH Director's New Innovator Award
- Yale Junior Faculty Fellowship (2014-2015 Academic Year)
- 2013 New Scholar in Aging Award, by the Ellison Medical Foundation
- CBCD Fellow, Center for Biological Circuit Design, Caltech (Nov. 2007 – Nov. 2011)
- BioX Senior Fellow, BioX Fellow Program, Stanford University (May 2007, declined)
- "Synthetic Biology 2.0" Conference Travel Grant (May 2006)
- MIT Presidential Fellowship, Praecis Pharmaceuticals Fellow (June 2002 – June 2003)

PEER-REVIEWED PUBLICATIONS

1. G.L. Elison, Y. Xue, R. Song, and M. Acar*. "Insights into bidirectional gene expression control using the canonical *GAL1/GAL10* promoter". ***Cell Reports*** 25, 1-12 (**2018**)

2. R. Song, E.A. Sarnoski, and M. Acar*. "The systems biology of single-cell aging". ***iScience*** 7, 154-169 (**2018**)

3. E.A. Sarnoski, R. Song, E. Ertekin, N. Kooence, and M. Acar*. "Fundamental characteristics of single-cell aging in diploid yeast". ***iScience*** 7, 96-109 (**2018**)

4. X. Luo, R. Song, and M. Acar*. "Multi-component gene network design as a survival strategy in diverse environments". ***BMC Systems Biology*** 12:85 (**2018**)

5. Y. Xue and M. Acar*. "Live-cell imaging of chromatin condensation dynamics by CRISPR". ***iScience*** 4, 216-235 (**2018**)

6. G.L. Elison and M. Acar*. "Scarless genome editing: progress towards understanding genotype-phenotype relationships". ***Current Genetics*** doi.org/10.1007/s00294-018-0850-8 (**2018**)

7. Y. Xue and M. Acar*. "Mechanisms for the epigenetic inheritance of stress response in single cells". ***Current Genetics*** doi.org/10.1007/s00294-018-0849-1 (**2018**)

8. M. Chatterjee and M. Acar*. "Heritable stress response dynamics revealed by single-cell genealogy". ***Science Advances*** 4, e1701775 (**2018**)

9. P. Liu and M. Acar*. "The generational scalability of single-cell replicative aging". ***Science Advances*** 4, eaao4666 (**2018**)

10. E.A. Sarnoski, P. Liu, and M. Acar*. "A high-throughput screen for yeast replicative lifespan identifies lifespan-extending compounds". ***Cell Reports*** 21, 2639-2646 (**2017**)

11. P. Liu, R. Song, G.L. Elison, W. Peng, and M. Acar*. "Noise reduction as an emergent property of single-cell aging". ***Nature Communications*** 8:680 (**2017**)

12. G.L. Elison, R. Song, and M. Acar*. "A precise genome editing method reveals insights into the activity of eukaryotic promoters". ***Cell Reports*** 18, 275-286 (**2017**)

13. W. Peng, R. Song, and M. Acar*. "Noise reduction facilitated by dosage compensation in gene networks". ***Nature Communications*** 7:12959 (**2016**)

14. R. Song, W. Peng, P. Liu, and M. Acar*. "A cell size- and cell cycle-aware stochastic model for predicting time-dynamic gene network activity in individual cells". ***BMC Systems Biology*** 9:91 (**2015**)

15. P. Liu, T. Z. Young, and M. Acar*. "Yeast Replicator: a high-throughput multiplexed microfluidics platform for automated measurements of single-cell aging". ***Cell Reports*** 13, 634-644 (**2015**)

16. W. Peng, P. Liu, Y. Xue, and M. Acar*. "Evolution of gene network activity by tuning the strength of negative-feedback regulation". ***Nature Communications*** 6:6226 (**2015**)

17. R. Song, P. Liu, and M. Acar*. "Network-dosage compensation topologies as recurrent network motifs in natural gene networks". ***BMC Systems Biology*** 8:69 (**2014**)

18. M. Acar*, B. F. Pando, F. H. Arnold, M. B. Elowitz, and A. van Oudenaarden. "A general mechanism for network-dosage compensation in gene circuits". ***Science*** 329, 1656-1660 (**2010**)

19. M. Acar, J. Mettetal, and A. van Oudenaarden*. "Stochastic switching as a survival strategy in fluctuating environments". ***Nature Genetics*** 40, 471-475 (**2008**)

20. M. Acar, A. Becskei, and A. van Oudenaarden*. "Enhancement of cellular memory by reducing stochastic transitions". ***Nature*** 435, 228-232 (**2005**)

21. W.Y. Lu, M. Acar, and P.D. Kleiber*. "Photodissociation Spectroscopy of Al+-Acetaldehyde". ***Journal of Chemical Physics*** 116, 4847-4852 (**2002**)

TEACHING ACTIVITIES at YALE as a COURSE INSTRUCTOR

- **MCDB 461:** Concepts and Applications in Systems Biology (Spring 2019)
- **MCDB 903:** Advanced Graduate Seminar (Spring 2019)
- **MCDB 902:** Advanced Graduate Seminar (Fall 2018)
- **MCDB 461:** Concepts and Applications in Systems Biology (Spring 2017)
- **MCDB 202:** Genetics (Fall 2016)
- **MCDB 461:** Concepts and Applications in Systems Biology (Spring 2016)
- **MCDB 261:** Systems Modeling in Biology (Spring 2014)
- **MCDB 202:** Genetics (Fall 2013)
- **MCDB 361:** Systems Modeling in Biology (Spring 2013)
- **MCDB 202:** Genetics (Fall 2012)