

**Eric A. Klein**  
Associate Professor of Biology  
Center for Computational and Integrative Biology  
Rutgers University-Camden

**CONTACT INFORMATION**

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**PROFESSIONAL EXPERIENCE**

**Rutgers University-Camden, Camden, NJ**

Department of Biology and Center for Computational and Integrative Biology  
Member of the Rutgers Microbial Biology Graduate Group

*Associate Professor* ..... 2020-Present  
*Assistant Professor* ..... 2013-2020

**Princeton University, Princeton, NJ** ..... 2009- 2013

*Post-doctoral fellow*, Department of Molecular Biology; PI: Zemer Gitai

**University of Pennsylvania, Philadelphia, PA**..... 2008-2009

*Post-doctoral researcher*, Department of Pharmacology; PI: Richard Assoian

**EDUCATION**

PhD in Pharmacology, University of Pennsylvania, Philadelphia, PA..... December 2007  
Thesis: Regulation of *cyclin D1* expression by Rac, the actin cytoskeleton, and extracellular matrix compliance  
Advisor: Professor Richard K. Assoian

BS in Chemical Engineering, University of Pennsylvania, Philadelphia, PA.....May 2000

BA in Biochemistry, University of Pennsylvania, Philadelphia, PA.....May 2000

**HONORS AND AWARDS**

Theobald Smith Society Young Investigator Award ..... 2019

Ruth L. Kirschstein National Research Service Award (NIH F32GM090684) ..... 2010-2013

Pharmacology Department John O'Brien Award ..... 2006

Appointment to Cell and Molecular Biology Training Grant, U. of Pennsylvania..... 2000-2002

Class of 1939 Graduate Fellowship, University of Pennsylvania..... 2000

**PROFESSIONAL AFFILIATIONS**

American Society for Microbiology  
American Society for Biochemistry and Molecular Biology  
Rutgers Center for Lipid Research  
Cancer Institute of New Jersey  
Penn Center for Musculoskeletal Disorders

**PEER-REVIEWED PUBLICATIONS (\*= co-first author, #=undergraduate, ^=graduate student, \$=high school student, &=corresponding author)**

1. Zik, J.J., Yoon, S.S., Guan, Z., Stankeviciute, G.^, Gudoor, R.R., Davies, K.M., Deutschbauer, A.M., Goodlett, D.R., **Klein, E.A.**, Ryan, K.R. *Caulobacter* requires anionic sphingolipids and deactivation of fur to lose lipid A. *Cell Reports*, Accepted.
2. Stankeviciute, G.^, Tang, P., Ashley, B., Chamberlain, J.D.^, Hansen, M.E.B., Coleman, A.\$, D'Emilia, R.#, Fu, L.\$, Mohan, E.C., Nguyen, H.\$, Guan, Z., Campopiano, D.C., **Klein, E.A.**&. Convergent evolution of bacterial ceramide synthesis. *Nature Chemical Biology*, (2022), 18(3): 305.
3. Revaitis, N.T.^, Niepielko, M.G., Marmion, R.A., **Klein, E.A.**, Piccoli, B., Yakoby, N. Quantitative analyses of EGFR localization and trafficking dynamics in the follicular epithelium. *Development* (2020), 147(15): dev183210.
4. Werner, J.N.\*, Shi, H.\*, Hsin, J., Huang, K.C., Gitai, Z., **Klein, E.A.**& AimB is a small protein regulator of cell size and MreB assembly. *Biophysical Journal* (2020), 119(3): 593.
5. Moorthy, S.%, Byfield, F.J., Janmey, P.A., **Klein, E.A.**& Matrix stiffness regulates endosomal escape of uropathogenic *E. coli*. *Cellular Microbiology* (2020), 22(5): e13196.
6. de Young, K.D.^, Stankeviciute, G.^, **Klein, E.A.**& Sugar-phosphate metabolism regulates stalk elongation in *Caulobacter crescentus*. *Journal of Bacteriology* (2020), 202(4): e00468.
7. Stankeviciute, G.^, **Klein, E.A.**& Purification and HPLC analysis of cell wall muropeptides from *Caulobacter crescentus*. *Bio-protocol* (2019), 9(21): e3421.
8. Mandal, K., Pogoda, K., Nandi, S., Mathieu, S., Kasri, A., **Klein, E.A.**, Radvanyi, F., Goud, B., Janmey, P.A., Manneville, J.B. Role of a kinesin motor in cancer cell mechanics. *Nano Letters* (2019), 19(11): 7691.
9. Moffett, S.X.^, **Klein, E.A.**, Brannigan, G., Martin, J.V. L-3,3',5-triiodothyronine and pregnenolone sulfate inhibit Torpedo nicotinic acetylcholine receptors. *PLoS One* (2019), 14(10): e0223272.
10. Stankeviciute, G.^, Guan, Z., Goldfine, H., **Klein, E.A.**& *Caulobacter crescentus* adapts to phosphate-starvation by synthesizing anionic glycosphingolipids and a novel glycosphingolipid. *mBio* (2019), 10(2): e00107.
11. Stankeviciute, G.^, Miguel, A.V., Radkov, A., Chou, S., Huang, K.C., **Klein, E.A.**& Differential modes of crosslinking establish spatially distinct regions of peptidoglycan in *Caulobacter crescentus*. *Molecular Microbiology* (2019), 111(4): 995-1008.
12. Ratti, M.#, Naddeo, J.J.#, Griepenburg, J.C., O'Malley, S.M., Bubb, D.M., **Klein, E.A.**& Production of metal nanoparticles by pulsed laser-ablation in liquids: a tool for studying the antibacterial properties of nanoparticles. *Journal of Visualized Experiments*, (2017), 124: e55416.
13. Ratti, M.#, Naddeo, J.J.#, Tan, Y.#, Griepenburg, J.C., Tomko, J.#, Trout, C.#, O'Malley, S.M., Bubb, D.M., and **Klein, E.A.**& Irradiation With Visible Light Enhances the Antibacterial Toxicity of Silver Nanoparticles Produced by Laser Ablation. *Applied Physics A*, (2016), 122:346.
14. Moorthy, S.%, Keklak, J.^, and **Klein, E.A.**& Perspective: Adhesion mediated signal transduction in bacterial pathogens. *Pathogens* (2016), 5(1):23.
15. Naddeo, J.J.#, Ratti, M.#, O'Malley, S.M., Griepenburg, J.C., Bubb, D.M., **Klein, E.A.**& Antibacterial properties of nanoparticles: a comparative review of chemically synthesized and laser-generated particles. *Advanced Science, Engineering, and Medicine* (2015), 7(12):1044-1057.
16. **Klein, E.A.** and Gitai, Z. Draft genome sequence of uropathogenic *Escherichia coli* strain J96. *Genome Announc.* (2013),1(1):e00245-12.
17. **Klein, E.A.\***, Schlimpert, S.\*, Hughes, V., Brun, Y.V., Thanbichler, M., and Gitai, Z. Physiological role of stalk lengthening in *Caulobacter crescentus*. *Commun Integr Biol* (2013), 6:e24561.
18. Schlimpert, S.\*, **Klein, E.A.\***, Briegel, A., Hughes, V., Kahnt, J., Bolte, K., Maier, U.G., Brun, Y., Jensen, G.J., Gitai, Z., and Thanbichler, M. General Protein Diffusion Barriers Create Compartments within Bacterial Cells. *Cell* (2012), 151(6):1270-82.

19. Levental, I., Levental, K.R., **Klein, E.A.**, Assoian, R.K., Miller, R.T., Wells, R.G., and Janmey, P.A. A simple indentation device for measuring micrometer-scale tissue stiffness. *J. Physics: Condensed Matter* (2010), 22(19): 194120.
20. Cerezo, A., Guadamillas, M.C., Goetz, J.G., Sanchez-Perales, S., **Klein, E.A.**, Assoian, R.K., and del Pozo, M.A. Absence of caveolin-1 increases proliferation and anchorage independent growth by a Rac-dependent, Erk-independent mechanism. *Molecular and Cellular Biology* (2009), 29(18):5046-59.
21. **Klein, E.A.**, Castagnino P., Yin, L., Byfield, F.J., Kothapalli, D., Xu, T., Levental, I., Hawthorne, E., Janmey, P.A., and Assoian, R.K. Cell cycle control by physiological matrix elasticity and *in vivo* tissue stiffening. *Current Biology* (2009), 19(18):1511-8.
22. Assoian, R.K. and **Klein E.A.** Growth control by intracellular tension and extracellular stiffness. *Trends Cell Biol* (2008), 18(7):347-52.
23. **Klein, E.A.** and Assoian, R.K. Transcriptional regulation of the cyclin D1 gene at a glance. *J Cell Sci.* (2008), 121(23):3853-7.
24. Yang, C., **Klein, E.A.**, Assoian, R.K., Kazanietz, M.G. Heregulin beta1 Promotes Breast Cancer Cell Proliferation through Rac/Erk-dependent Induction of Cyclin D1 and p21 Cip1. *Biochem J* (2008), 410(1):167-75.
25. **Klein, E.A.**, Campbell, L.E., Kothapalli, D., Fournier, A.K., Assoian, R.K. Joint requirement for Rac and ERK activities underlies the mid-G1 phase induction of cyclin D1 and S phase entry in both epithelial and mesenchymal cells. *J Biol Chem* (2008), 83(45):30911-8.
26. **Klein, E.A.**, Yung, Y., Castagnino, P., Kothapalli, D., Assoian, R.K. Cell adhesion, cellular tension, and cell cycle control. *Methods Enzymol* (2007), 426:155-75.
27. **Klein, E.A.**, Yang, C., Kazanietz, M.G., Assoian, R.K. NFkappaB-independent signaling to the cyclin D1 gene by Rac. *Cell Cycle* (2007), 6(9):1115-21.
28. Zhao, L., Cuff, C.A., Moss, E., Wille, U., Cyrus, T., **Klein, E.A.**, Praticò, D., Rader, D.J., Hunter, C.A., Puré, E., Funk, C.D. Selective interleukin-12 synthesis defect in 12/15-lipoxygenase deficient macrophages associated with reduced atherosclerosis in a mouse model of familial hypercholesterolemia. *J Biol Chem* (2002), 277(38):35350-6.

## CURRENT FUNDING

NSF MCB-2031948 (7/20-6/23) Role: PI  
 SynBioSphinx: building designer lipid membranes for adaptive resilience to environmental challenges

NSF MCB-1553004 (1/16-12/21, NCE) Role: PI  
 CAREER: Composition, mechanical properties, and synthesis of the *Caulobacter crescentus* stalk

## COMPLETED FUNDING

Provost's Research Grant (1/18-12/19) Role: PI  
 Bacterial adhesion: A novel regulator of prokaryotic signal-transduction

NSF CMMI-1531783 (8/15-8/17) Role: Co-PI  
 MRI: Acquisition of a femtosecond laser system to enable multiphoton polymerization, photoporation, and laser ablation in liquids research

Busch Biomedical Research Grant (8/15-7/17) Role: PI  
 Laser ablation synthesis of nanoparticles: innovations for antibiotic development

## INVITED RESEARCH TALKS

Biology Department, University of Mississippi ..... 2022

Sphingolipid Biology Webinar Microbiology Graduate Program, University of Delaware .....	2021
CauloCon 3.0 Biology Department, Rutgers University-Camden Microbiology Symposium, University of Delaware .....	2019
Rutgers Center for Lipid Research, New Brunswick, NJ Biology Department, University of the Sciences, Philadelphia, PA Biophysics Department, University of Chicago Microbiology Department, Johns Hopkins University Molecular Genetics and Microbiology, SUNY Stony Brook ASM Microbe 2019, Symposium Moderator Bacteria Club, Stanford University Physics Department, University of California- Irvine Gordon Conference on Molecular and Cellular Biology of Lipids, Waterville Valley, NH Molecular, Cellular, and Biomedical Sciences Department, University of New Hampshire Rutgers Microbiology Symposium.....	2018
Microbiology Department, University of Pennsylvania Microbiology and Biochemistry Department, Rutgers University Biology Department, Villanova University .....	2017
CCIB Retreat, Rutgers University-Camden .....	2016
Biology Department, Hofstra University Session chair, Gordon Conference on Bacterial Cell Surfaces, Mt. Snow, VT Molecular Biology Department, Rowan SOM Microbiology Department, Pearson Lab Meeting, New York University Gordon Conference on Microbial Adhesion and Signal Transduction, Newport, RI .....	2015
Bacteria Club Seminar, Stanford University Microbiology Department Seminar, University of Pennsylvania SEBS/CCIB Retreat, Rutgers University-Camden Rutgers Microbiology Symposium, New Brunswick, NJ Molecular UTI Conference, Malmo, Sweden .....	2014
Biology Department Seminar, Rutgers University-Camden Glenn Minisymposium on Aging, Princeton University.....	2013
Biology Department Seminar, Rutgers University-Camden Center for Computational and Integrative Biology, Rutgers University-Camden Biology Department Seminar, Georgetown University American Society for Cell Biology, Philadelphia, PA.....	2010
Zing Bacterial Cell Biology Conference, Playa del Carmen, Mexico EMBO Workshop on Sys. Dynamics of Intracellular Comm., Maale Hachamisha, Israel.....	2007

## **SERVICE**

Biology Graduate Program Director .....	2018-present
PennPORT Advisory Committee.....	2016-present
Rutgers-Camden Title IX Team.....	2015-present
Rutgers-Camden Faculty Senate.....	2014-2016
Executive Committee, Center for Computational and Integrative Biology.....	2014-present
Rutgers University Institutional Biosafety Committee.....	2014-present
Health Sciences Major Advisory Committee.....	2013-present
Biology Undergraduate Committee.....	2013-2021
Biology Graduate Committee.....	2013-2021

## TEACHING AND ADVISING

BIO596 How to Win a Nobel Prize?.....	2021
BIO103 Biology of Cancer .....	2018
CIB565 Essentials of Biophysics.....	2017-present
BIO495/499 Biology Honors Thesis.....	2016-present
BIO399 Current Topics in Biology .....	2014, 2021
BIO341 General Physiology.....	2014-present
BIO342 General Physiology Laboratory .....	2014-present
BIO530 Molecular Carcinogenesis.....	2013-Present
Summer Academy in Applied Science and Technology, U. of Pennsylvania .....	2006
BIO045 Critical Reading of Scientific Literature, U. of Pennsylvania.....	2002-2003
BIO202 Cell Biology and Biochemistry, Teaching Assistant, U. of Pennsylvania .....	2001
MEAM333 Heat and Mass Transport, Teaching Asst, Mech. Engineering, U. of Pennsylvania .....	2000
CHE353 Advanced Chemical Engineering Science, Teaching Assistant, U. of Pennsylvania .....	1999

## STUDENT MENTORSHIP

### Undergraduate (14 total):

1. 2021: Kabiru Babalola
2. 2019: Visiting UG: Rachel D'Emilia
3. 2018-2019: UG: William Myers
4. 2018-2019: UG: Veronica Rosselli (Honors thesis)
5. 2016-2017: UG: Ali Siddiqui
6. 2016-2017: UG: Ariel Hartman
7. 2016: UG: Preet Raval- REU summer research program
8. 2015-2017: UG: Kevin de Young (Honors thesis)
9. 2015-2016: UG: Ryan Snow
10. 2014-2016: UG: Michael Bamimore
11. 2014: UG: Christopher Cherfane
12. 2014: UG: Abdullah Abdelaziz
13. 2013-2016: UG: Joseph Naddeo
14. 2013-2017: UG: Matthew Ratti

### Graduate: (7) Master's and (4) Ph.D. students

1. 2022-PRESENT: (Computational and Integrative Biology PhD) Chioma Uchendu
2. 2021-PRESENT: (Biology MS) Kabiru Babalola
3. 2021-PRESENT: (Computational and Integrative Biology PhD) Joshua Chamberlain
4. 2021-PRESENT: (Computational and Integrative Biology PhD) Truman Dunkley
5. 2022: (Biology MS) Sarah Mulla
6. 2021: (Computational and Integrative Biology MS) Anushriya Subedy
7. 2021: (Biology MS) Antonella Abou Samra
8. 2020: (Computational and Integrative Biology PhD) Gabriele Stankeviciute
9. 2019: (Biology MS) Kevin de Young
10. 2017: (Computational and Integrative Biology MS) Sreelekha Revur
11. 2016: (Biology MS) Julia Keklak

### Postdoctoral Scientists

1. Lauren Hinkel (2021-present)
2. Sudha Moorthy (2015-2020)