**Benjamin D. Cosgrove, Ph.D.**
Assistant Professor, Meinig School of Biomedical Engineering
Cornell University
159 Weill Hall, Ithaca, NY 14853-7202
*t*: 607-255-7271 | *e*: bdc68@cornell.edu | *tw:* @bdcosgrove | *w*: http://cosgrovelab.bme.cornell.edu/

## EDUCATION

Doctor of Philosophy (Ph.D.) in Bioengineering 2003-09
Massachusetts Institute of Technology, Cambridge, MA
Thesis advisors: Douglas A. Lauffenburger, Ph.D. & Linda G. Griffith, Ph.D.

Bachelor of Biomedical Engineering (B.Bm.E.), *Summa cum laude* honors 1999-2003
University of Minnesota, Minneapolis, MN

## PROFESSIONAL POSITIONS & AFFILIATIONS

*Independent Faculty Member at Cornell University:*
Faculty Member, Biochemistry, Cell, and Molecular Biology Graduate Field 2015-
Faculty Member, Biomedical Engineering Graduate Field 2014-
Assistant Professor, Meinig School of Biomedical Engineering 2014-

*Pre-Cornell:*
Postdoctoral Fellow, Baxter Laboratory for Stem Cell Biology 2009-14
Stanford University School of Medicine, Stanford, CA (Advisor: Helen M. Blau, Ph.D.)

## HONORS, AWARDS & SCHOLARSHIPS

Swanson Teaching Excellence Award, Cornell College of Engineering 2019
Junior Faculty Travel Award, BMES Advanced Biomanufacturing Meeting 2018
Short Talk Award, FASEB Conference on Skeletal Muscle Satellite Cells and Regeneration 2018
Young Innovator Award, *Cellular and Molecular Bioengineering* 2017
Rising Star Award, Biomedical Engineering Society, Cellular and Molecular Bioengineering Special Interest Group 2015
Best Talk, Baxter Laboratory for Stem Cell Biology Retreat, Stanford University 2011
Stanford Molecular Imaging Scholar 2009-12
Graduate Research Award, Biomedical Engineering Society 2008
Benjamin Trump Award and Fellowship, Aspen Cancer Conference 2008
Whitaker Foundation Graduate Research Fellowship in Biomedical Engineering 2003-06
Biomedical Engineering Department Scholarship, University of Minnesota 2002
Dean's List, Institute of Technology, University of Minnesota 1999-2003
U2000 Scholarship, University of Minnesota 1999-2003
National Merit Scholarship 1999-2003
Richard C. Byrd Scholarship, State of Minnesota 1999-2003

## PEER-REVIEWED JOURNAL ARTICLES

(key: **Cosgrove Lab authors**, BDC as corresponding author, * = equal contributrions)

*Independent Faculty Member at Cornell:*

*Pre-prints & Accepted Manuscripts:*

22. **De Micheli AJ**, Spector JA, Elemento O, **Cosgrove BD**. (2020) "A reference single-cell transcriptomic atlas of human skeletal muscle tissue reveals bifurcated muscle stem cell populations." *bioRxiv* 914713. Link

21. Fu DJ, **De Micheli AJ**, Bidarimath M, Ellenson LH, **Cosgrove BD**, Flesken-Nikitin A, Nikitin A. (2019) "PAX8 expressing epithelial cells are a cancer-prone source of clonal cyclical regeneration of endometrial epithelium." *bioRxiv* 853994. Link
20. Gheller BJ, Blum JE, Bender EL, Gheller ME, Lim EW, Handzlik MK, Stover PJ, Field MS, **Cosgrove BD**, Metallo CM, Thalacker-Mercer AE. (2019) "Serine and glycine are essential for human muscle progenitor cell population expansion." *bioRxiv* 833798. Link
19. Swanson JB, **De Micheli AJ**, Disser NP, Martinez LM, Walker NR, **Cosgrove BD**, Mendias CL. (2019) "A single-cell transcriptional atlas identifies extensive heterogeneity in the cellular composition of tendons." *bioRxiv* 801266. Link

*Published:*

18. **De Micheli AJ, Laurilliard EJ, Heinke CL,** Ravichandran H, **Fraczek P, Soueid-Baumgarten S,** De Vlaminck I, Elemento O, **Cosgrove BD**. (2020) "Single-cell analysis of the muscle stem cell hierarchy identifies heterotypic communication signals involved in skeletal muscle regeneration." *Cell Reports* 30(10): 3583-3596.E5. Link (Pre-print: *bioRxiv* 671032. Link)
    - See news report in Cornell Chronicle
17. Gheller BJ, Blum J, **Soueid-Baumgarten S**, Bender E, **Cosgrove BD**, Thalacker-Mercer A. (2019) "Isolation, culture, characterization, and differentiation human muscle progenitor cells from the skeletal muscle biopsy procedure." *Journal of Visualized Experiments* 150, e59580. Link
16. Apoorva F, **Loiben AM**, Shah AB, Purwada A, Fontan L, Goldstein R, Kirby BJ, Melnick AM, **Cosgrove BD**, Singh A. (2018) "How biophysical forces regulate human B cell lymphomas." *Cell Reports* 23(2): 499-511. Link
    - See news report in Cornell Chronicle
15. **Loiben AM, Soueid-Baumgarten S, Kopyto RF, Bhattacharya D, Kim JC, Cosgrove BD**. (2017) "Data-modeling identifies conflicting signaling axes governing myoblast proliferation and differentiation responses to diverse ligand stimuli." *Cellular and Molecular Bioengineering* 10(5): 433-450. Link
    - 2017 *CMBE* Young Innovator Award Issue
14. Blau HM, **Cosgrove BD***, Ho AT*. (2015) "The central role of muscle stem cells in regenerative failure with aging." *Nature Medicine* 21(8): 854-862. Link

*Pre-Cornell:*

13. Sleep E*, **Cosgrove BD***, McClendon MT, Preslar AT, Chen CH, Sangji MH, Pérez CMR, Haynes RD, Meade TJ, Blau HM, Stupp SI. (2017) "Injectable biomimetic liquid crystalline scaffolds enhance muscle stem cell transplantation." *Proceedings of the National Academy of Science USA* 114(38): E7919-E7928. (*Equal contributions) Link
12. Porpiglia E, Samusik N, Ho ATV, **Cosgrove BD**, Mai T, Davis KL, Jager A, Nolan GP, Bendall SC, Fantl WJ, Blau HM. (2017) "High-resolution myogenic lineage mapping by single-cell mass cytometry." *Nature Cell Biology* 19(5): 558-567. Link
11. **Cosgrove BD**, Gilbert PM, Porpiglia E, Mourkioti F, Lee SP, Corbel SY, Llewellyn ME, Delp SL, Blau HM. (2014) "Rejuvenation of the muscle stem cell population restores strength to injured aged muscles." *Nature Medicine* 20(3): 255-264. Link
    - See news reports in *Nature Medicine* News and Views, *Science* Editor's Choice, *Nature* Research Highlights, *Faculty of 1000* Recommendation, *Regenerative Medicine* Research Highlights, Inside Stanford Medicine, *Men's Journal*
10. Gardner MK, Sprague BL, Pearson CG, **Cosgrove BD**, Bicek AD, Bloom K, Salmon ED, Odde DJ. (2010) "Model convolution: a computational approach to digital image interpretation." *Cellular*

*and Molecular Bioengineering* 3(2):163-170. Link

9. Alexopoulos LG, Saez-Rodriguez J, **Cosgrove BD**, Lauffenburger DA, Sorger PK. (2010) "Networks inferred from biochemical data reveal profound differences in toll-like receptor and inflammatory signaling between normal and transformed hepatocytes." *Molecular & Cellular Proteomics* 9(9):1849-65. Link
8. **Cosgrove BD**, Alexopoulos LG, Hang T, Hendriks BS, Sorger PK, Griffith LG, Lauffenburger DA. (2010) "Cytokine-associated drug toxicity in human hepatocytes is associated with signaling network dysregulation." *Molecular BioSystems* 6(7):1195-206. Link
7. **Cosgrove BD**, Sacco A, Gilbert PM, Blau HM. (2009) "A home away from home: challenges and opportunities in engineering in vitro muscle satellite cell niches." *Differentiation* 78(2-3):185-94. Link
6. **Cosgrove BD**, Alexopoulos LG, Saez-Rodriguez J, Griffith LG, Lauffenburger DA. (2009) "A multipathway phosphoproteomic signaling network model of idiosyncratic drug- and inflammatory cytokine-induced toxicity in human hepatocytes." *Conference Proceedings of the IEEE Engineering in Medicine & Biology Society* 5452-5. Link
5. Lee JH, **Cosgrove BD**, Lauffenburger DA, Han J. (2009) "Microfluidic concentration-enhanced cellular kinase activity assay." *Journal of the American Chemical Society* 131(30): 10340-1. Link
4. Pritchard JR, **Cosgrove BD**, Hemann MT, Griffith LG, Wands JR, Lauffenburger DA. (2009) "Three-kinase inhibitor combination recreates multipathway effects of a geldanamycin analogue on hepatocellular carcinoma cell death." *Molecular Cancer Therapeutics* 8(8):2183-92. Link
3. **Cosgrove BD**, King BM, Hasan MA, Alexopoulos LG, Farazi PA, Hendriks BS, Griffith LG, Sorger PK, Tidor B, Xu JJ, Lauffenburger DA. (2009) "Synergistic drug-cytokine induction of hepatocellular death as an in vitro approach for the study of inflammation-associated idiosyncratic drug hepatotoxicity." *Toxicology & Applied Pharmacology* 237(3)-317-30. Link
2. **Cosgrove BD**, Griffith LG, Lauffenburger DA. (2008) "Fusing tissue engineering and systems biology toward fulfilling their promise." *Cellular and Molecular Bioengineering* 1(1):33-41. Link
1. **Cosgrove BD**, Cheng C, Pritchard JR, Stolz DB, Lauffenburger DA, Griffith LG. (2008) "An inducible autocrine cascade regulates rat hepatocyte proliferation and apoptosis responses to tumor necrosis factor-alpha." *Hepatology* 48(1):276-288. Link

## BOOK CHAPTERS

*Independent Faculty Member at Cornell:*

2. **Aguilar VM, Cosgrove BD**. (2017) "Microcontact-printed hydrogel microwell arrays for clonal muscle stem cell cultures." in Methods in Molecular Biology: Skeletal Muscle Development, ed: Ryall J. Humana Press. pp. 75-92. Link

*Pre-Cornell:*

1. **Cosgrove BD,** Blau HM. (2010). "Skeletal muscle stem cells." In Principles of Regenerative Medicine, 2nd edition, eds: Lanza RP, Atala A, Thomson JA, Nerem RM. Academic Press. pp. 347-363.

## ACTIVITY RECORDS

Google Scholar: https://scholar.google.com/citations?user=P57BYMYAAAAJ&hl=en
NCBI: https://www.ncbi.nlm.nih.gov/myncbi/benjamin.cosgrove.1/bibliography/public/
ORCID: http://orcid.org/0000-0003-2164-350X
ResearcherID: http://www.researcherid.com/rid/A-9810-2016

**RESEARCH SUPPORT**

*Current (as Independent Faculty at Cornell):*

NIH/NCI R01 Award (R01CA238745) 05/01/20-04/30/25
"Biomaterials-based malignant immune tissues to study BCR and TLR signaling in lymphoma"
Role: Co-Investigator | Funding to BDC: $39,551 DC (approx.)

NIH/NIA R01 Award (R01AG058630) 09/30/18-05/31/23
"Revealing muscle stem cell heterogeneity in mice and humans through deep single-cell analysis"
Role: Principal Investigator | Funding to BDC: $2,061,068 DC (approx.)

Glenn Medical Research Foundation and American Federation for Aging Research Grant for Junior Faculty 07/01/18-06/30/20
"Single-cell dissociation of muscle stem cell dysfunction in human aging"
Role: Principal Investigator | Funding to BDC: $92,593 DC

NIH/NIAMS R21 Award (R21AR072265) 07/01/18-06/30/20
"Combinatorial biomimetic systems to enable high-throughput evaluation and expansion of genome edited dystrophic muscle stem cells"
Role: Principal Investigator | Funding to BDC: $215,600 DC

NIH/NIBIB R21 Trailblazer Award (R21EB024747) 04/01/18-03/31/21
"Three-dimensional mechano-microscopy of the stem cell niche"
Role: Co-Investigator | Funding to BDC: $199,844 DC

*Completed (as Independent Faculty at Cornell):*

Cornell University Start-up Funds 07/01/14-06/30/19
Role: Principal Investigator

Cornell Center on the Physics of Cancer Metabolism Pilot Project Grant 08/01/17-07/31/18
"Single-cell deep-profiling of signaling and genomic alterations mediating the evolution of chemo-therapeutic resistance in breast cancer"
Role: Co-Principal Investigator | Funding to BDC: $50,000 DC

Cornell University Stem Cell Program Seed Grant 04/01/17-03/31/18
"Mechano-signaling control of invasive breast cancer stem cell phenotypes in obesity-associated microenvironments"
Role: Co-Principal Investigator | Funding to BDC: $7,500 DC

NIH/NIA Administrative Supplement for Diversity (R00AG042491-S1) 04/15/26-04/30/17
"Ex vivo rejuvenation and expansion of muscle stem cells from aged mice"
Role: Principal Investigator | Funding to BDC: $49,333 DC

NIH/NIA Pathway to Independence Award, Independent Phase (R00AG042491) 09/30/14-04/30/17
"Ex vivo rejuvenation and expansion of muscle stem cells from aged mice"
Role: Principal Investigator | Funding to BDC: $499,452 DC

Cornell University Center for Vertebrate Genomics Seed Grant 11/26/14-11/25/15
"Single-cell mitochondrial DNA heteroplasmy in human muscle stem cells"
Role: Co-Investigator | Funding to BDC: $2,000 DC

*Pre-Cornell:*

NIH/NIA Pathway to Independence Award, Mentored Phase (K99AG042491) 08/01/12-06/01/14
"Ex vivo rejuvenation and expansion of muscle stem cells from aged mice"
Role: PI/Postdoctoral Fellow | Funding to BDC: $176,664 DC

Stanford Molecular Imaging Scholars Postdoctoral Fellowship 01/05/09-01/04/12
Role: Postdoctoral Fellow

Whitaker Foundation Graduate Research Fellowship in Biomedical Engineering 09/01/03-08/31/06
Role: Predoctoral Fellow

**INVITED SEMINARS & LECTURES**

*Independent Faculty Member at Cornell:*

University of Michigan, Department of Biomedical Engineering Seminar 2020
[*postponed due to COVID-19]

Binghamton University, Department of Biomedical Engineering Seminar 2020
[*postponed due to COVID-19]

Syracuse University, Department of Biomedical Engineering Seminar 2020
[*postponed due to COVID-19]

Muscle Science Talks Global Zoom Seminar [during COVID19] 2020
"Single-cell analysis of mouse and human skeletal muscle."

Universitat Pompeu Fabra (UPF; Barcelona) 2019
"Engineering better muscle stem cell therapies."

University of Rochester, Department of Biomedical Engineering Seminar 2019
"Engineering better muscle stem cell therapies."

Pennsylvannia State University, Department of Biomedical Engineering Seminar 2019
"Engineering better muscle stem cell therapies."

University at Buffalo, Department of Chemical and Biological Engineering Seminar 2018
"Systems bioengineering dissection of skeletal muscle stem cell fate and function."

Hospital for Special Surgery (New York City, NY), Orthopaedic Soft Tissue Research Meeting 2017
"Systems bioengineering dissection of skeletal muscle stem cell fate and function."

University of Illinois at Urbana-Champaign, Department of Bioengineering Seminar 2017
"Systems bioengineering dissection of skeletal muscle stem cell fate and function."

Biomedical Engineering Society (BMES) Annual Mtg., CMBE Young Investigator Session 2017
"Data-modeling identifies conflicting signaling axes governing myoblast proliferation and differentiation responses to diverse ligand stimuli."

Harvard Medical School, Department of Genetics Seminar 2017
"Single-cell dissection of the muscle stem cell functional hierarchy."

AIChE/Soc. for Biological Engineering (SBE) Intl. Conference on Stem Cell Engineering 2016
"Single-cell dissection of the muscle stem cell functional hierarchy."

Northeast Biomedical Engineering Conference (NEBEC) 2015
"Quantitative dissection of heterogeneous muscle stem cell dysfunction in aging."

Western New York Flow Cytometry User Group Meeting 2015
"Quantitative dissection of heterogeneous muscle stem cell dysfunction in aging."

Rensselear Ctr. for Stem Cell Research, Bioengineering and Stem Cell Research Symposium 2015
"Quantitative dissection of heterogeneous muscle stem cell dysfunction in aging."

Neural Stem Cell Institute (Rensselear, NY) Seminar Series 2014
"Synergistic biophysical and biochemical cues rejuvenate the aged muscle stem cell population."

NIH National Institute on Aging, Division of Aging Biology, New Investigators Forum 2014
"Regenerative systems bioengineering."

*Pre-Cornell:*

University of California at San Francisco, Dept. of Bioengineering & Therapeutic Sciences 2013
University of California at Berkeley, Department of Bioengineering 2013
Princess Margaret Cancer Centre (Toronto), Ontario Cancer Institute 2013
Cornell University, Department of Biomedical Engineering Seminar 2013
University of Illinois at Chicago, Department of Bioengineering Seminar 2013
University of Illinois at Urbana-Champaign, Department of Chemical Engineering 2013
Washington University School of Medicine, Department of Orthopediac Surgery 2013
Northeastern University, Department of Chemical Engineering 2013
University of Minnesota, Department of Biomedical Engineering 2012
University of Wisconsin, Department of Biomedical Engineering 2012
University of Southern California, Department of Biomedical Engineering 2012
Keystone Symposium: Omics Meets Cell Biology (Invited Platform Talk) 2009

**REFEREED CONFERENCE PROCEEDINGS & ABSTRACTS**

(key: **Cosgrove Lab authors**, presenting author, * = equal contributrions)

*Independent Faculty Member at Cornell:*

29. AIChE International Conference on Stem Cell Engineering (Invited Talk) 2019
**Cosgrove BD**.
"Engineering better skeletal muscle stem cell therapies."

28. Biomedical Engineering Society Annual Meeting (Talk) 2019
**De Micheli AJ**, De Vlaminck I, Elemento O, **Cosgrove BD**.
"Single-cell hierarchical analysis identifies heterotypic ligand-receptor communication."

27. Society for Muscle Biology: Frontiers in Myogenesis (Talk) 2019
**De Micheli AJ, Cosgrove BD**.
"Single-cell analysis of the muscle stem cell hierarchy identifies heterotypic communication signals involved in skeletal muscle regeneration."

26. Biomedical Engineering Society Annual Meeting (Talk) 2018
**De Micheli AJ**, **Soueid-Baumgarten S**, **Fraczek P, Cosgrove BD**.
"Reconstructing a hierarchial cellular atlas of skeletal muscle regeneration through single-cell RNA-sequencing."

25. Biomedical Engineering Society Annual Meeting (Talk) 2018
**Kim KH, Loiben AM, Soueid-Baumgarten S, Aguilar VM, Fraczek P, Cosgrove BD.**
"Engineering microenvironments to achieve long-term, clinical-scale skeletal muscle stem cell expansion."

24. BMES Advanced Biomanufacturing Meeting (Talk) 2018
**Kim KH, Loiben AM, Soueid-Baumgarten S, Aguilar VM, Fraczek P, Cosgrove BD.**
"Engineering microenvironments to achieve long-term, clinical-scale skeletal muscle stem cell expansion."

23. FASEB Conference on Skeletal Muscle Satellite Cells and Regeneration (Talk, Poster) 2018
**De Micheli AJ**, **Soueid-Baumgarten S**, Nassab RA, De Vlaminck I, **Cosgrove BD**. "Unbiased reconstruction of a cellular atlas in muscle regeneration through single-cell RNA-sequencing."

22. Biomedical Engineering Society Annual Meeting (Talk) 2017
**De Micheli AJ, Soueid-Baumgarten S, Munson BP, Cosgrove BD.** "Interrogation of muscle stem cell-niche interactions using artificial 3D niche micro-gels and single-cell RNA-sequencing."

21. Biomedical Engineering Society Annual Meeting (Poster) 2017
**Loiben AM, Soueid-Baumgarten S, Bhattacharya D, Kopyto RF, Kim JC, Cosgrove BD.**

"Construction of a data-model to identify conflicting signaling axes governing myoblast cell-fate responses to diverse ligands."

20. Orthopaedic Research Society Upstate NY Regional Symposium (Poster) 2017
**Soueid-Baumgarten S, De Micheli AJ, Loiben AM, Aguilar VM, Cosgrove BD.**
**"**Bioengineering approaches to overcome skeletal muscle stem cell dysfunction in aging."

19. Biomedical Engineering Society Annual Meeting (Talk) 2016
**Soueid-Baumgarten S, Chen FM, Munson BP, Cosgrove BD.** "Illumination of muscle stem cell functional diversity from hierarchically-organized single-cell RNA-sequencing."

*Pre-Cornell:*

18. Society for Biomaterials Annual Meeting (Talk) 2017
17. BMES Annual Meeting (Talk) 2016
16. Gordon Research Conf. on Signal Transduction by Engineered Extracellular Matrices (Talk) 2016
15. Empire State Stem Cell Board (NYSTEM) Annual Meeting (Poster) 2016
14. BMES Cellular and Molecular Bioengineering Conference (Talk) 2016
13. BMES Cellular and Molecular Bioengineering Conference (Talk, * *Rising Star Award*) 2015
12. BMES Annual Meeting (Talk) 2013
11. Cold Spring Harbor Meeting on Molecular Genetics of Aging (Talk) 2012
10. BMES Annual Meeting (Talk) 2011
9. Gordon Research Conference on Myogenesis (Talk) 2011
8. International Society for Stem Cell Research Conference (Poster) 2011
7. IEEE Engineering in Medicine and Biology Conference (Talk) 2009
6. BMES Annual Meeting (Talk) 2008
5. FASEB Conference on Liver Growth, Development and Disease (Poster) 2008
4. Aspen Cancer Conference (Poster) 2008
3. Engineering Cell Biology Conference (Poster) 2007
2. Systems Biology of Mammalian Cells Conference (Talk) 2006
1. National Conference on Undergraduate Research (Poster) 2003

## INTERNAL SEMINARS & LECTURES

*Independent Faculty Member at Cornell:*

Cornell Dept. of Molecular Biology and Genetics, Field of Genetics, Genomics & Dev. Seminar 2020
Cornell Nutrional Science, Field Seminar 2018
Cornell Stem Cell Program, Biannual Stem Cell Symposium (Keynote) 2017
Cornell College of Engineering, Layman's Research Seminar to Administration 2016
Cornell Stem Cell Program, Biannual Stem Cell Retreat 2016
Cornell Meinig School of BME, Vision Presentation to the Provost Kotlikoff 2016
Cornell Keck Biomembrane Program Retreat 2015
Cornell Stem Cell Program, Work-in-progress Seminar 2015
Cornell Dept. of Molecular Biology and Genetics, Field of Biochem., Mol. & Cell Biol. Seminar 2015
Cornell Aging, Inflammation and Metabolism Seminar 2015
Cornell Meinig School of BME, External Advisory Board Meeting 2014

*Pre-Cornell:*

Stanford Molecular Imaging Program Seminar 2014

## TEACHING

*Lead instruction as independent faculty member at Cornell:*

| Semester | Course # | Course title | Units | Level/Notes |
|---|---|---|---|---|
| S20 | BME 3110 | Cellular Systems Biology | 3 | UG, required for BME MCSE track |
| F19 | BME 6110 | Stem Cell Engineering | 3 | GR, elective |

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|---|---|---|---|---|
| S19 | BME 3110 | Cellular Systems Biology | 3 | UG, required for BME MCSE track |
| F18 | BME 6110 | Stem Cell Engineering | 3 | GR, elective |
| S18 | BME 3110 | Cellular Systems Biology | 3 | UG, required for BME MCSE track |
| F17 | BME 6110 | Stem Cell Engineering | 3 | GR, elective |
| S17 | BME 3110 | Cellular Systems Biology | 3 | UG, required for BME MCSE track |
| S16 | BME 6110 | Stem Cell Engineering | 3 | GR, elective |
| F14-S17 | BME 7900 | BME Seminar Series | 1 | GR, required for BME PhD students |

*Guest instruction as independent faculty member at Cornell:*

| Semester | Course # | Course title | Level | Lead instructor |
|---|---|---|---|---|
| S20 | BME 1310 | Intro to Biomed. Eng. | UG | J. Butcher |
| F19 | BME 6120 | Precision & Genomic Medicine | GR | I. De Vlaminck |
| F19 | BME 4190 | Laboratory for Mol., Cell & Syst. Eng. | UG | C. Fischbach-Teschl |
| S19 | BioMG 7940 | Current topics: Stem Cells & Cancer | GR | P. Sethupathy |
| F18 | BME 6120 | Precision & Genomic Medicine | GR | I. De Vlaminck |
| F18 | BME 4190 | Laboratory for Mol., Cell & Syst. Eng. | UG | C. Fischbach-Teschl |
| S18 | BioMG 4450 | Stem Cell Biology | UG/GR | T. Tumbar |
| S18 | BioMG 7940 | Current topics: Stem Cells & Cancer | GR | P. Sethupathy |
| F17 | BME 4190 | Laboratory for Mol., Cell & Syst. Eng. | UG | C. Fischbach-Teschl |
| F16 | BioMG 8370 | Probs. in Biochem., Mol. & Cell Bio. | GR | Y. Mao |
| F15 | BME 7710 | Fundamentals of BME Research | GR | S. Adie |
| F15 | BioMG 8370 | Probs. in Biochem., Mol. & Cell Bio. | GR | Y. Mao |
| F14 | BME 7710 | Fundamentals of BME Research | GR | S. Adie |

*Instruction pre-Cornell:*

| Year | Institution | Course title | Role |
|---|---|---|---|
| 2011 | Stanford | Perform., Development & Adaptation of Skeletal Muscle | Guest lecturer (2x) |
| 2011 | Stanford | Multi-modality Imaging in Living Subjects | Guest lecturer (2x) |
| 2006 | M.I.T. | Molecular and Engineering Aspects of Biotechnology | Teaching assistant |

**DOCTORAL THESES SUPERVISED (as Committee Chair)**

| Name | Program | Topic | Graduation Year |
|---|---|---|---|
| Umji Lee | EPFL* | Muscle stem cell-endothelial interactions | 2021 (expected) |
| Lauren Walter | GGD | Single-cell analysis of mouse & human muscle aging | 2025 (expected) |
| Emily Laurilliard | BME | Engineering multi-cellular communication in muscle | 2024 (expected) |
| David McKellar** | BME | Single-cell analysis of lncRNAs in muscle repair | 2024 (expected) |
| Paula Petrella | BMCB | Network adaptation in breast cancer chemo-resistance | 2023 (expected) |
| Charles Heinke | BME | Muscle stem cell genome editing therapies | 2023 (expected) |
| Alexander Loiben | BME | Signaling network analysis of muscle cell fates | 2020 (expected) |
| Andrea De Micheli | BME | Single-cell sequencing analysis of muscle stem cells | 2020 (completed) |

** Visiting student from EPFL Bioengineering program; jointly supervised with J. Feige (EPFL)*
*** Jointly supervised with I. De Vlaminck*

**AWARDS TO TRAINEES**

| Name | Award | Year(s) |
|---|---|---|
| U. Lee | Swiss National Science Foundation (SNSF) Doc.Mobility Fellowship | 2019-20 |
| P. Petrella | Cornell Cancer Symposium Poster Award | 2019 |
| P. Petrella | Cornell Stem Cell Program Symposium Poster Award | 2019 |
| P. Fraczek | Cornell Engineering Learning Initiatives Fellowship | 2017-18 |
| A. De Micheli | Best Poster Presentation, FASEB Conf. on Skeletal Muscle Satellite Cells | 2018 |
| A. Loiben | NSF Quantitative Cell Biology Network Cell Modeling Hackathon Fellowship | 2018 |
| A. De Micheli | US Department of Education GAANN Fellowship | 2017-18 |

| | | |
|---|---|---|
| A. De Micheli | Univ. of Penn. Single-Cell RNA-sequencing Workshop Travel Award | 2017 |
| A. Loiben | Roberta G. and John B. DeVries Graduate Fellowship | 2017 |
| A. Loiben | US Department of Education GAANN Fellowship | 2015-16 |
| V. Aguilar | Roberta G. and John B. DeVries Graduate Fellowship | 2015-16 |
| B. Munson | BME Master's of Engineering Teaching Assistant of the Year | 2015 |
| V. Aguilar | Cornell Dean's Excellence Fellowship | 2014-15 |

**DOCTORAL THESIS COMMITTEE MEMBER**

| Name | Program | Committee Chairperson(s) | Year(s) |
|---|---|---|---|
| D. Abetov | BMCB | A. Nikitin | 2019- |
| A. Hovland | GGD | M. Simoes-Costa | 2019- |
| M. Maurer | BME | J. Lammerding | 2019- |
| X. Wang | BEE | M. Ma | 2018- |
| L. An | BMCB | A. White | 2018- |
| K. Driscoll | BME | J. Butcher | 2018- |
| M. Whitman | BME | C. Fischbach-Teschl | 2018- |
| A. Shimpi | BME | C. Fischbach-Teschl | 2017- |
| A. Brunson | BBS | J. Cheetham | 2017-18 |
| K. Wellerling | MAE | B. Kirby | 2016- |
| T. Kosciuk | BMCB | H. Lin | 2016- |
| A. Earle | BME | J. Lammerding | 2015-18 |
| H. Pan | Biophysics | M. Paszek | 2015- |
| D. Bassen | BME | J. Butcher & J. Varner | 2014-19 |
| K. Wang | BME | D. Gourdon | 2015 |

**EXTERNAL THESIS EXAMINER**

| Name | Program | Committee Chair | Year(s) |
|---|---|---|---|
| M. Owen | Harvard Genetics | S. Gaudet | 2016-17 |

**INDIVIDUAL PROJECT SUPERVISION**

*Postdoctoral fellows:*

| Name | Topic | Year(s) |
|---|---|---|
| Yuechuan Lin, Ph.D.* | Imaging muscle stem cell niche mechanics | 2018- |
| Sharon Soueid-Baumgarten, Ph.D. | Muscle stem cell heterogeneity in mouse and human aging | 2014-18 |

** Primarily supervised by S. Adie*

*Master's students:*

| Name | Program | Topic | Year(s) |
|---|---|---|---|
| Chris Twombly | BME M.Eng. | Hydrogel encapsulation for muscle cells | 2019- |
| Fan Wei | BME M.Eng. | Muscle function recovery with cell therapy | 2019- |
| Lauren Slowskei | BME M.Eng. | Myogenic cell adhesion by microfluidics | 2019 |
| Gabrielle Ravelo | BME M.Eng. | Chemotherapy resistance in breast cancer | 2018 |
| Kun Ho Kim | BME M.Eng. | Long-term muscle stem cell expansion | 2017-18 |
| Victor Aguilar | BME M.S. | Engineering muscle stem cell biomaterials | 2014-17 |
| Prashant Hariharan | BME M.Eng. | Large-scale skeletal muscle imaging | 2015-16 |
| Brenton Munson | BME M.Eng. | Single-cell muscle stem cell sequencing | 2014-15 |
| Francis Chen | BME M.Eng. | Tetraspanin regulation in muscle stem cells | 2014-15 |

*Undergraduate students and high-school teachers:*

| Name | Program | Notes | Year(s) |
|---|---|---|---|
| Nicholas Chan | Biol. Sciences B.S. | Rawlings Cornell Presid. Res. Scholar | 2020- |
| Tony Shen | High school (RABS) | - | 2019 |

| | | | |
|---|---|---|---|
| Jason Chen | Biol. Sciences B.S. | - | 2019- |
| Leo Song | Biol. Sciences B.S. | - | 2019- |
| Ally Dalaya | Biol. Sciences B.S. | - | 2018- |
| Paula Phillips | High school teacher | NYSTEM RET Trainee | 2018 |
| Jonathan Chin Cheong | Biol. Sciences B.S. | Rawlings Cornell Presid. Res. Scholar | 2017- |
| Isabella Mercado | Chemistry B.S. | Cornell/HHMI CHAMPS Scholar | 2017-18 |
| Paula Frazcek | BME B.S. | BME Honors Thesis | 2017-19 |
| Ashritha Bheemidi | Biol. Eng. B.S. | - | 2017-19 |
| Ryan Asmus | High school teacher | NYSTEM RET Trainee | 2017 |
| Nancy Mejia | Chemistry B.S. | Cornell/HHMI CHAMPS Scholar | 2016 |
| Ruth Kopyto | Biol. Sciences B.S. | Biology Honors Thesis/Rawlings Sch. | 2016-19 |
| Joseph Kim | BME B.S. | Rawlings Cornell Presid. Res. Scholar | 2015-17 |
| Hilarie Sit | Biol. Eng. B.S. | Rawlings Cornell Presid. Res. Scholar | 2015-17 |
| Muhammad Safwan Jalal | Biol. Sciences B.S. | Biology Honors Thesis (*cum laude*) | 2015-17 |
| Grace Livermore | Biol. Eng. B.S. | - | 2015-16 |

## ACADEMIC SERVICE

*University*

| | |
|---|---|
| Trans-campus Single Cell Working Group, Co-organizer | 2019- |
| Biotechnology Resource Center FACS Core Advisory Board | 2019- |
| Presidential Life Sciences Fellowship Committee | 2019- |
| Provost's Committee on Flow Cytometry Infrastructure | 2018-19 |
| Assistant chair, Seminars and Symposia Committee, Cornell Stem Cell Program | 2016- |
| Panelist, Office of Sponsored Programs, NIH K-Award Workshop | 2016 |

*College of Engineering*

| | |
|---|---|
| Participant, College of Engineering website working group | 2018 |
| Faculty academic advisor, College of Engineering unaffiliated students (ENGRG 1050) | 2015-20 |

*Meinig School of Biomedical Engineering*

| | |
|---|---|
| Review Panel, College of Engineering Project Team Shen Impact Awards | 2020 |
| Faculty member, BME Tenure-Track Faculty Search Committee | 2017-18 |
| Faculty advisor, Cornell BMES Undergraduate Student Chapter | 2017 |
| Faculty academic advisor, Affiliated BME Major students | 2017- |
| Faculty organizer, BME PhD student work-in-progress seminars | 2016-17 |
| Faculty organizer, Cellular Environments Working Group | 2015-17 |
| Faculty advisor, Cornell BMES Graduate Student Chapter | 2015- |
| Faculty organizer, BME Seminar Series | 2015-17 |
| Faculty member, BME PhD Program Admissions Committee | 2014-17 |

*Other*

| | |
|---|---|
| Faculty member, BMCB PhD Program Admissions Committee | 2018- |

## INSTRUCTIONAL PRESENTATIONS

| | |
|---|---|
| Cornell NYSTEM RET Program: "Adult stem cells and aging." | 2017,18 |
| Cornell Office of Sponsored Projects (OSP): "How to write a successful NIH K99 proposal." | 2016 |
| Cornell BME Graduate Program: "A practical guide to finding a faculty job." | 2014 |

## PROFESSIONAL OUTREACH

| | |
|---|---|
| Faculty host, Cornell NYSTEM Research Experiences for Teachers (RET) Program | 2017,18,20 |
| Faculty host, Cornell 4H Career Explorations University U Program | 2018 |
| Faculty host, Cornell 4H Career Explorations Focus for Teens Camp | 2017 |

Faculty host, Expanding Your Horizons Workshop: “Engineering the Human Body” 2017

## EXTERNAL SERVICE

*Professional/Research Societies*

Program committee, Muscle Science Talks Global Zoom Seminar Series 2020-
Session co-chair, Computational Systems Biology Track, BMES Annual Meeting 2018
Track co-chair, Stem Cell Engineering Track, BMES Annual Meeting 2017
Abstract & award reviewer, BMES Cellular and Molecular Bioengineering Meeting 2016-
Abstract reviewer, AIChE/SBE International Conference on Stem Cell Engineering (ICSCE) 2016
Session chair, Computational Stem Cell Biology Track, AIChE/SBE ICSCE 2016
Abstract reviewer, BMES Annual Meeting 2015-

*Grant Reviewing*

NIH Special Emphasis Panel for Musculoskeletal, Oral and Skin Sciences 2019
NIH Review Panel for “Novel Cell Non-Autonomous Mechanisms of Aging (R01)” RFA 2018
NSF BME Program: Biomanufacturing, Cellular & Molecular Engineering Panel 2017
University of Toronto Medicine by Design (MbD) Initiative Panel 2016
Ontario Institute for Regenerative Medicine (OIRM) Disease Team Grant Panel 2016,18

*Journal Peer Reviewer* 2014-
Cell Stem Cell, Cellular and Molecular Bioengineering, Communications Biology, eLife, Integrative Biology, Matrix Biology, NPJ Regenerative Medicine, Science Advances, Tissue Engineering Part B, Trends in Biotechnology

## PROFESSIONAL MEMBERSHIPS

Member, Gerontological Society of America (GSA) 2019-
Member, Orthopedic Research Society (ORS) 2017-
Member, Society for Biomaterials (SfB) 2017-
Member, Society for Biological Engineering (SBE) 2016-
Member, American Institute for Chemical Engineers (AICHE) 2016-
Member, BMES Cellular and Molecular Bioengineering Special Interest Group 2016-
Member, Biomedical Engineering Society (BMES) 2008-
Member, International Society for Stem Cell Research (ISSCR) 2010-11
Member, IEEE Engineering in Medicine and Biology Society (IEEE EMBS) 2009