

CURRICULUM VITAE

P. C. Dave P. Dingal

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EDUCATION

- 2009-2014 Ph.D. in Chemical and Biomolecular Engineering
(with Distinction), University of Pennsylvania, Philadelphia, PA, USA.
- 2005-2009 Bachelor of Engineering in Chemical and Biomolecular Engineering
(with First Class Honours), Nanyang Technological University, Singapore.

RESEARCH AND PROFESSIONAL EXPERIENCE

- 12/2017- Postdoctoral Fellow, Department of Molecular and Cellular Biology, Harvard University, USA. Supervisor: Alexander F. Schier, Ph.D.
- 4/2015-8/2017 Cancer Research Institute - Irvington Postdoctoral Fellow, Department of Bioengineering, Stanford University, USA. Supervisor: Lei S. Qi, Ph.D.
- 8/2014-3/2015 Postdoctoral Scholar, Molecular and Cell Biophysics Lab, University of Pennsylvania, USA. Supervisor: Dennis E. Discher, Ph.D.
- 2010-2014 PhD research, Department of Chemical & Biomolecular Engineering (CBE), University of Pennsylvania, USA. Supervisor: Dennis E. Discher, Ph.D.
Dissertation: *Mechanochemical control of stem cell biology in development and disease: experimental and theoretical models*
- 2014: Staff Member, Penn Biotech Group (PBG) Healthcare Consulting
For a start-up biologics company, defined landscape of potential markets and a sustainable market entry strategy.
- 2012-2013 Student Member, Biomaterials Advisory Committee – Soft Materials Section, National Science Foundation, USA.

PUBLICATIONS

1. Kipniss NH*, **Dingal PCDP***, Abbott TR, Gao Y, Wang H, Dominguez AA, Labanieh L, Qi LS. Engineering cell sensing and responses using a GPCR-coupled CRISPR-Cas system. *Nature Communications* 8(1):2212 (2017). *co-first authors
2. Ivanovska IL, Swift J, Spinler K, **Dingal D**, Cho S, Discher DE. Cross-linked matrix rigidity and soluble retinoids synergize in nuclear lamin regulation of stem cell differentiation. *Mol Biol Cell* 28(14):2010-2022 (2017).
3. **Dingal PCDP**, Bradshaw A, Cho S, Raab M, Buxboim A, Swift J, Discher DE. Fractal heterogeneity in minimal matrix models of scars elicit stiff-niche stem-cell responses via nuclear exit of a mechanorepressor. *Nature Materials* 14, 951-60 (2015).
4. **Dingal PCDP**, Discher DE. Systems mechano-biology: tension-inhibited protein turnover is sufficient to physically control gene circuits. *Biophysical Journal* 107, 2734-2743 (2014). **Highlighted in New & Notable
5. **Dingal PCDP**, Wells RG, Discher DE. Simple insoluble cues specify stem cell differentiation. *Proceedings of the National Academy of Sciences* 111, 18104-18105 (2014).
6. **Dingal PCDP**, Discher DE. Combining insoluble and soluble factors to steer stem cell fate. *Nature Materials* 13, 532-537 (2014). **Lead article of focus issue on cell culture.
7. Buxboim A, Swift J, Irianto J, Spinler KR, **Dingal PCDP**, Athirasala A, Kao Y-R, Cho S, Harada T, Shin J-W, Discher DE. Matrix elasticity regulates lamin-A,C phosphorylation and turnover with feedback to actomyosin. *Current Biology* 24, 1909-1917 (2014).
8. Majkut S, **Dingal PCDP**, Discher DE. Stress sensitivity and mechanotransduction during heart development. *Current Biology* 24, R495-R501 (2014).
9. **Dingal PCDP**, Discher DE. Material control of stem cell differentiation: challenges in nano-characterization. *Current Opinion in Biotechnology* 28, 46-50 (2014). **Cover Article.
10. Harada T, Swift J, Irianto J, Shin J-W, Spinler KR, Athirasala A, Diegmiller R, **Dingal PCDP**, Ivanovska IL, Discher DE. Nuclear lamin stiffness is a barrier to 3D migration, but softness can limit survival. *Journal of Cell Biology* 204, 669-682 (2014).

11. Shin J-W, Buxboim A, Spinler KR, Swift J, Christian DA, Hunter CA, Léon C, Gachet C, **Dingal PCDP**, Ivanovska IL, Rehfeldt F, Chassis JA, Discher DE. Contractile forces sustain and polarize hematopoiesis from stem and progenitor cells. *Cell Stem Cell* 14, 81-93 (2014). ****Cover Article**
12. Swift J, Ivanovska IL, Buxboim A, Harada T, **Dingal PCDP**, Pinter J, Pajeroski JD, Spinler KS, Shin JW, Tewari M, Rehfeldt F, Speicher DW, Discher DE. Nuclear lamin-A scales with tissue stiffness and enhances matrix-directed differentiation. *Science* 341, 1240104-1 to15 (2013).
13. Raab M, Swift J, **Dingal PCDP**, Shah P, Shin JW, Discher DE. Crawling from soft to stiff matrix polarizes the cytoskeleton and phosphoregulates myosin-II heavy chain. *Journal of Cell Biology* 199, 669-683 (2012).

HONORS AND AWARDS

2017	<i>Invited Talk</i> , Annual Meeting of the American Society for Cell Biology (ASCB), Philadelphia, PA.
2016-2017	Stanford ChEM-H Seed Grant Award: Postdocs at the Interface (\$50,000) in collaboration with: Karen Mruk, Ph.D. of Prof. James Chen's lab
2016	<i>Invited Talk</i> , Annual Meeting of the American Society for Cell Biology (ASCB), San Francisco, CA.
2016	Certificate of Participation, 9th Comprehensive Cancer Research Training Program (CC RTP), Stanford University School of Medicine, Stanford, CA.
2016	<i>Invited Talk</i> , Genome Engineering: CRISPR/Cas Revolution, Cold Spring Harbor Lab, NY
2015-2017	Cancer Research Institute - Irvington Postdoctoral Fellowship
2015	<i>Invited Talk</i> , Biophysical Society (BPS) Annual Meeting, Baltimore, MD
2010	<i>Distinction Award</i> , Ph.D. Candidacy Examinations (out of 12 candidates).
2009-2015	Ph.D. Fellowship Award, University of Pennsylvania.
2012	<i>Invited Talk</i> , Biomedical Engineering Society (BMES) Annual Meeting, Atlanta, GA
2009	<i>First Class Honours</i> , Nanyang Technological University, Singapore
2005-2009	Singapore Government Scholarship by the Ministry of Foreign Affairs, Singapore.

PROFESSIONAL SOCIETIES (active and past Memberships)

International: *Cancer Research Institute, American Association for the Advancement of Science, American Society for Cell Biology, Biophysical Society, Biomedical Engineering Society.*

Intramural: *Penn Biotech Group Healthcare Consulting, Penn Institute of Regenerative Medicine, Penn Center for Musculoskeletal Disorders, Pennsylvania Muscle Institute, Nano-Bio Interface Center*

REFERENCES

Alexander Schier, PhD (schier@fas.harvard.edu)

Leo Erikson Life Sciences Professor of Molecular and Cellular Biology, Harvard University

Bing Wang, PhD (bingwang@gmail.com)

Chief Executive Officer, Refuge Biotechnologies, Inc.

Lei Qi, PhD (slqi@stanford.edu)

Assistant Professor of Bioengineering, Stanford University

Dennis Discher, PhD (discher@seas.upenn.edu)

Robert D. Bent Chaired Professor of Chemical & Biomolecular Engineering, University of Pennsylvania

Kathleen J. Stebe, PhD (kstebe@seas.upenn.edu)

Richer & Elizabeth Goodwin Professor of Chemical & Biomolecular Engineering, University of Pennsylvania