Daniel P. Howsmon

327 Lindy Boggs Center for Energy and Biotechnology
Tulane University
6823 St. Charles Avenue
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Education

Ph.D., Chemical and Biological Engineering — 08/2013 – 12/2017
Advisers: Juergen Hahn and B. Wayne Bequette
Rensselaer Polytechnic Institute, Troy, NY
Dissertation title: Data-Driven Modeling for Uncertain Biological Systems

B.S., Chemical Engineering — 08/2008 – 12/2012
B.S., Biochemistry
Texas A&M University, College Station, TX
graduated *summa cum laude*

Professional Experience

Assistant Professor — 08/2023 – Present
Department of Chemical & Biomolecular Engineering
Tulane University, New Orleans, LA

Postdoctoral Fellow — 01/2018 – 08/2023
James T. Willerson Center for Cardiovascular Modeling & Simulation
Adviser: Michael S. Sacks
The University of Texas at Austin, Austin, TX

Intern – Research and Development — 06/2015 – 09/2015
Modeling and Translational Biology Group
Supervisor: Tom Wilde
ZeroChaos (Contracted to GlaxoSmithKline), King of Prussia, PA

Undergraduate Research Assistant — 08/2010 – 07/2013
Department of Chemical Engineering
Adviser: Arul Jayaraman
Texas A&M University, College Station, TX

NSF Research Experience for Undergraduates — 05/2012 – 08/2012
Department of Chemical Engineering
Adviser: Robert S. Parker
University of Pittsburgh, Pittsburgh, PA

Honors and Awards

W. David Smith, Jr. Graduation Publication Award — 11/2022
AIChE Computing and Systems Technology Division

William N. Gill Prize for Excellence in Dissertation Research — 05/2018
Department of Chemical Engineering, Rensselaer Polytechnic Institute

Student Travel Award — 01/2017
Foundations of Computer-Aided Process Optimization / Chemical Process Control Conf.

Founders Award of Excellence — 05/2015
Rensselaer Polytechnic Institute

Outstanding Graduating Senior — 12/2012
Department of Chemical Engineering, Texas A&M University

Professional Activities

Research Grant Review Panel

American Heart Association Reviewer-in-Training — 06/2019 – 06/2020

Journal Article Review

Optimal Control Applications and Methods
Metabolites
Journal of Process Control
Control Engineering Practice

Conference Abstract Review

Summer Biomechanics, Bioengineering, and Biotransport Conference — 06/2020
Undergraduate Research, Biomedical Engineering Society (BMES) Annual Meeting — 10/2019
8th IFAC Conference on Foundations of Systems Biology in Engineering (FOSBE) — 10/2019
7th IFAC Conference on Foundations of Systems Biology in Engineering (FOSBE) — 08/2018

Conference and Professional Society Involvement

Session Chair – AIChE Annual Meeting: "Applied Math for Biological/Biomedical Systems" — 11/2023
Session Chair – BMES Annual Meeting: "Translational Advances Using 'Omics" — 10/2022
Publication Chair – Foundations of Systems Biology in Engineering (FOSBE) — 08/2022
Reviewer – Biomedical Engineering Society (BMES) Student Chapter Development Reports — 06/2020

Professional Society Memberships

American Institute of Chemical Engineers (AIChE)
North American Vascular Biology Organization (NAVBO)
American Heart Association (AHA)

Previous Funding

Project Title:	Dynamic Modeling of Mechanotransduction in the Bicuspid Aortic Valve: Separating the Effects of Altered VICs from Altered Mechanics		
Funding Agency:	National Heart Lung and Blood Institute	Award Number:	F32 HL149210
Award Program:	Ruth L. Kirschstein NRSA Individual Postdoctoral Fellowship (F32)	Award Amount:	$208,182.00
Award Dates:	09/01/2020 – 08/30/2023		
Principal Investigator:	**Daniel P. Howsmon**		
Project Sponsor:	Michael S. Sacks		
Project Co-sponsor:	Giovanni Ferrari		
Collaborating Investigator:	Kristi S. Anseth		
Collaborating Investigator:	Aaron Baker		

Project Title:	Elucidating the Dynamics of Valve Interstitial Cells in Health and Disease: A Mathematical Modeling Approach		
Funding Agency:	American Heart Association	Award Number:	18POST33990101
Award Program:	Association-wide Postdoctoral Fellowship	Award Amount:	$103,328.00
Award Dates:	07/01/2018 – 06/30/2020		
Principal Investigator:	**Daniel P. Howsmon**		
Project Sponsor:	Michael S. Sacks		
Collaborating Investigator:	Kristi S. Anseth		

Journal Articles (* indicates equal contributions)

published

29. A. Khang, Q. Nguyen, X. Feng, **D. P. Howsmon**, and M. S. Sacks, "Three-dimensional analysis of aortic valve interstitial cell shape and its relation to contractile behavior," *Acta Biomateriala*, vol. 163, pp. 194–209, Jun. 2023. DOI: 10.1016/j.actbio.2022.01.039

28. T. M. West, **D. P. Howsmon**, M. W. Messida, H. N. Vo, A. A. Janobas, A. B. Baker, and M. S. Sacks, "The effects of strain rate and level on aortic valve interstitial cell activation in a 3D hydrogel," *APL Bioengineering*, vol. 7, no. 2, p. 026 101, 2023. DOI: 10.1063/5.0138030 **FEATURED ARTICLE**

27. L. Bansal, E.-M. Nichols, **D. P. Howsmon**, J. Neisen, F. Cunningham, S. Petit-Frere, S. Ludbrook, and V. Damian, "Mathematical modeling of complement pathway dynamics for target validation and selection of drug modalities for complement therapies," *Frontiers in Pharmacology*, vol. 13, p. 855 743, Apr. 2022. DOI: 10.3389/fphar.2022.855743

26. A. Khang*, E. M. Lejeune*, A. Abbaspour, **D. P. Howsmon**, and M. S. Sacks, "On the 3D correlation between myofibroblast shape and contraction," *Journal of Biomechanical Engineering*, vol. 143, no. 9, p. 094 503, Sep. 2021. DOI: 10.1115/1.4050915

25. E. Castillero, **D. P. Howsmon**, B. V. Rego, Y. Xue, C. Camillo, S. Keeney, K. H. Driesbaugh, T. Kawashima, I. George, R. C. Gorman, J. H. Gorman III, M. S. Sacks, R. J. Levy, and G. Ferrari, "Altered responsiveness to TGF-β and BMP and increased CD45+ cell presence in mitral valves are unique features of ischemic mitral regurgitation," *Arteriosclerosis, Thrombosis, and Vascular Biology*, vol. 41, no. 6, pp. 2049–2062, Jun. 2021. DOI: 10.1161/ATVBAHA.121.316111 **EDITOR'S PICK**

24. **D. P. Howsmon** and M. S. Sacks, "On valve interstital cell signaling: The link between multiscale mechanics and mechanobiology," *Cardiovascular Engineering and Technology*, vol. 12, pp. 15–27, Feb. 2021. DOI: 10.1007/s13239-020-00509-4

23. K. M. Kodigepalli, K. Thatcher, T. West, **D. P. Howsmon**, F. J. Schoen, M. S. Sacks, C. K. Breuer, and J. Lincoln, "Biology and biomechanics of heart valve extracellular matrix," *Journal of Cardiovascular Development and Disease*, vol. 7, no. 4, p. 57, Dec. 2020. DOI: 10.3390/jcdd7040057

22. S. Ayoub, **D. P. Howsmon**, C.-H. Lee, and M. S. Sacks, "On the role of predicted mitral valve interstitial cell deformation on its biosynthetic behavior," *Biomechanics and Modeling in Mechanobiology*, Aug. 2020. DOI: 10.1007/s10237-020-01373-w

21. **D. P. Howsmon***, B. V. Rego*, E. Castillero, S. Ayoub, A. H. Khalighi, R. C. Gorman, J. H. Gorman III, G. Ferrari, and M. S. Sacks, "Mitral valve leaflet response to ischaemic mitral regurgitation: From gene expression to tissue remodeling," *Journal of the Royal Society Interface*, vol. 17, no. 165, p. 20 200 098, May 2020. DOI: 10.1098/rsif.2020.0098

20. **D. P. Howsmon***, S. M. Quinn*, J. Hahn, and S. P. Gilbert, "Kinesin-2 heterodimerization alters catalytic properties to control entry into the processive run," *Journal of Biological Chemistry*, vol. 293, no. 35, pp. 13 389–13 400, Jul. 2018. DOI: 10.1074/jbc.RA118.002767

19. **D. P. Howsmon**, T. Vargason, R. A. Rubin, S. Melnyk, S. J. James, R. Frye, and J. Hahn, "Multivariate techniques enablea biochemical classification of children with autism spectrum disorder versus typically-developing peers: A comparison and validation study," *Bioengineering and Translational Medicine*, vol. 3, no. 2, pp. 156–165, May 2018. DOI: 10.1002/btm2.10095 **TOP CITED ARTICLE 2018 – 2019**

18. T. Vargason, **D. P. Howsmon**, and J. Hahn, "From data to diagnosis: The search for biochemical markers of autism spectrum disorder," *Chemical Engineering Progress*, vol. 114, no. 5, pp. 40–45, May 2018

17. G. P. Forlenza, F. M. Cameron, T. T. Ly, D. Lam, **D. P. Howsmon**, N. Baysal, G. Kulina, L. Messer, P. Clinton, C. Levister, S. D. Patek, C. J. Levy, R. P. Wadwa, D. M. Maahs, B. W. Bequette, and B. A. Buckingham, "Fully closed-loop multiple model probabilistic predictive controller artificial pancreas performance in adolescents and adults in a supervised hotel setting," *Diabetes Technology & Therapeutics*, vol. 20, no. 5, pp. 335–343, May 2018. DOI: 10.1089/dia.2017.0424

16. **D. P. Howsmon**, N. Baysal, B. A. Buckingham, G. P. Forlenza, T. T. Ly, D. M. Maahs, T. Marcal, L. Towers, E. Mauritzen, S. Deshpande, L. M. Huyett, J. E. Pinsker, R. Gondhalekar, F. J. Doyle III, E. Dassau, J. Hahn, and B. W. Bequette, "Real-time detection of infusion site failures in a closed-loop artificial pancreas," *Journal of Diabetes Science and Technology*, vol. 12, no. 3, May 2018. DOI: 10.1177/1932296818755173

15. **D. P. Howsmon**, J. B. Adams, U. Kruger, E. Geis, E. Gehn, and J. Hahn, "Erythrocyte fatty acid profiles in children are not predictive of autism spectrum disorder status: A case control study," *Biomarker Research*, vol. 6, p. 12, Mar. 2018. DOI: 10.1186/s40364-018-0125-z

14. D.-W. Kang, Z. E. Ilhan, N. G. Isern, D. W. Hoyt, **D. P. Howsmon**, M. Shaffer, C. A. Lozupone, J. Hahn, J. B. Adams, and R. Krajmalnik-Brown, "Differences in fecal microbial metabolites and microbiota of children with autism spectrum disorders," *Anaerobe*, vol. 49, pp. 121–131, Feb. 2018. DOI: 10.1016/j.anaerobe.2017.12.007

13. **D. P. Howsmon**[*], S. Steinmeyer[*], R. C. Alaniz, J. Hahn, and A. Jayaraman, "Empirical modeling of t cell activation predicts interplay of host cytokines and bacterial indole," *Biotechnology and Bioengineering*, vol. 114, no. 11, pp. 2660–2667, Nov. 2017. DOI: 10.1002/bit.26371

12. F. M. Cameron, T. T. Ly, B. A. Buckingham, D. M. Maahs, G. P. Forlenza, C. J. Levy, D. Lam, P. Clinton, L. H. Messer, E. Westfall, C. Levister, Y. Y. Xie, N. Baysal, **D. Howsmon**, S. D. Patek, and B. W. Bequette, "Closed-loop control without meal announcement in type 1 diabetes," *Diabetes Technology & Therapeutics*, vol. 19, no. 9, pp. 527–532, Aug. 2017. DOI: 10.1089/dia.2017.0078

11. G. P. Forlenza[*], S. Deshpande[*], T. T. Ly, **D. P. Howsmon**, F. Cameron, N. Baysal, E. Mauritzen, T. Marcal, L. Towers, B. W. Bequette, L. M. Huyett, J. E. Pinsker, R. Gondhalekar, F. J. Doyle, D. M. Maahs, B. A. Buckingham, and E. Dassau, "Application of zone model predictive control artificial pancreas during extended use of infusion set and sensor: A randomized crossover-controlled home-use trial," *Diabetes Care*, p. dc170500, Jun. 2017. DOI: 10.2337/dc17-0500

10. T. Vargason, **D. P. Howsmon**, D. L. McGuinness, and J. Hahn, "On the use of multivariate methods for analysis of data from biological networks," *Processes*, vol. 5, no. 3, p. 36, Jul. 2017. DOI: 10.3390/pr5030036

9. **D. P. Howsmon**, U. Kruger, S. Melnyk, S. J. James, and J. Hahn, "Classification and adaptive behavior prediction of children with autism spectrum disorder based upon multivariate data analysis of markers of oxidative stress and DNA methylation," *PLoS Computational Biology*, vol. 13, no. 3, e1005385, Mar. 2017. DOI: 10.1371/journal.pcbi.1005385 **JOURNAL COVER**

8. T. Vargason, **D. P. Howsmon**, S. Melnyk, S. J. James, and J. Hahn, "Mathematical modeling of the methionine cycle and transsulfuration pathway in individuals with autism spectrum disorder," *Journal of Theoretical Biology*, vol. 416, pp. 28–37, Mar. 2017. DOI: 10.1016/j.jtbi.2016.12.021

7. **D. P. Howsmon**, F. Cameron, N. Baysal, T. T. Ly, G. P. Forlenza, D. M. Maahs, B. A. Buckingham, J. Hahn, and B. W. Bequette, "Continuous glucose monitoring enables the detection of losses in infusion set actuation (LISAs)," *Sensors*, vol. 17, no. 1, p. 161, Jan. 2017. DOI: 10.3390/s17010161

6. J. Adams, **D. P. Howsmon**, U. Kruger, E. Geis, E. Gehn, V. Fimbres, E. Pollard, J. Mitchell, J. Ingram, R. Hellmers, D. Quig, and J. Hahn, "Significant association of urinary toxic metals and autism-related symptoms — A nonlinear statistical analysis with cross validation," *PLoS ONE*, vol. 12, no. 1, e0169526, Jan. 2017. DOI: 10.1371/journal.pone.0169526

5. B. W. Bequette, F. Cameron, N. Baysal, **D. Howsmon**, B. Buckingham, D. Maahs, and C. Levy, "Algorithms for a single hormone closed-loop artificial pancreas: Challenges pertinent to chemical process operations and control," *Processes*, vol. 4, no. 4, p. 39, Oct. 2016. DOI: 10.3390/pr4040039

4. **D. P. Howsmon** and J. Hahn, "Regularization techniques to overcome over-parameterization of complex biochemical reaction networks," *IEEE Life Sciences Letters*, vol. 2, no. 3, pp. 31–34, Sep. 2016. DOI: 10.1109/LLS.2016.2646498

3. **D. Howsmon**[*], J. G. Zheng[*], B. Zhang, J. Hahn, D. McGuinness, J. Hendler, and H. Ji, "Entity linking for biomedical literature," *BMC Medical Informatics and Decision Making*, vol. 15, S4, Suppl 1 May 2015. DOI: 10.1186/1472-6947-15-S1-S4

2. **D. Howsmon** and B. W. Bequette, "Hypo- and hyperglycemic alarms: Devices and algorithms," *Journal of Diabetes Science and Technology*, vol. 9, no. 5, pp. 1126–1137, Apr. 2015. DOI: 10.1177/1932296815583507

1. C. Klemashevich, C. Wu, **D. Howsmon**, R. C. Alaniz, K. Lee, and A. Jayaraman, "Rational identification of diet-derived postbiotics for improving intestinal microbiota function," *Current Opinion in Biotechnology*, vol. 26, pp. 85–90, Apr. 2014. DOI: 10.1016/j.copbio.2013.10.006

Books and Book Chapters

1. A. Khang, **D. P. Howsmon**, E. Lejeune, and M. S. Sacks, "Multi-scale modeling of the heart valve interstitial cell," in *Multi-scale Extracellular Matrix Mechanics and Mechanobiology*, ser. Studies in Mechanobiology, Tissue Engineering and Biomaterials, Y. Zhang, Ed., vol. 23, Springer, 2020, pp. 21–53, ISBN: 978-3-030-20181-4. DOI: 10.1007/978-3-030-20182-1

Submitted Abstracts

2. D. Stromberg, T. Raymond, V. Nadkarni, A. Thomas, G. Centers, and **D. P. Howsmon**, "Interposed abdominal compression CPR: Early results from a multicenter comparison to standard CPR in the cardiac ICU," 8th World Congress of Pediatric Cardiology and Cardiac Surgery, Washington D.C., Aug. 27–Sep. 1, 2023

1. **D. P. Howsmon**, M. F. Mikulski, R. P. Lion, C. M. Mery, and D. Stromberg, "Detecting central venous catheter occlusions with alterations in venous pressure waveforms," 8th World Congress of Pediatric Cardiology and Cardiac Surgery, Washington D.C., Aug. 27–Sep. 1, 2023

Conference Presentations

20. **D. P. Howsmon**, K. Colman, I. Arienamo, M. F. Mikulski, R. P. Lion, R. Patel, C. M. Mery, and D. Stromberg, "Elimination of noise and sensor drifts in pediatric pressure transducers for the prediction of central venous catheter-related thrombosis events," American Institute of Chemical Engineers (AIChE) Annual Meeting, Phoenix, Arizona, Nov. 13–18, 2022

19. **D. P. Howsmon** and M. S. Sacks, "Proteomics-informed signal transduction modeling of valve interstitial cell activation," American Institute for Chemical Engineers (AIChE) Annual Meeting, San Francisco, California (Virtual Meeting), Nov. 15–20, 2020

18. A. Khang, E. Lejeune, Q. Nguyen, X. Feng, A. Abbaspour, **D. P. Howsmon**, and M. S. Sacks, "The interrelationship between cell shape and local deformation in gel-imbedded valve interstitial cells," Biomedical Engineering Society (BMES) Annual Meeting, San Diego, California (Virtual Meeting), Oct. 14–17, 2020

17. **D. P. Howsmon**, B. V. Rego, E. Castillero, S. Ayoub, A. H. Khalighi, R. C. Gorman, J. H. Gorman, III, G. Ferrari, and M. S. Sacks, "Mitral valve leaflet response to myocardial infarction: From gene expression to tissue remodeling," Summer Biomechanics, Bioengineering, and Biotransport Conference, Vail, Colorado (Virtual Meeting), Jun. 17–20, 2020

16. M. S. Sacks, B. V. Rego, **D. P. Howsmon**, and S. Wells, "What is the remodeling potential of the native heart valve?" Heart Valve Society (HVS) Annual Meeting, Abu Dhabi, United Arab Emirates, Feb. 15–16, 2020

15. B. V. Rego, **D. P. Howsmon**, S. Ayoub, A. H. Khalighi, E. Castillero, G. Ferrari, R. C. Gorman, J. H. Gorman, III, and M. S. Sacks, "Mitral valve remodeling after myocardial infarction: Tissue and cellular adaptation to altered stresses," Biomedical Engineering Society (BMES) Annual Meeting, Philadelphia, PA, Oct. 16–19, 2019

14. **D. P. Howsmon** and M. S. Sacks, "Integrating cell mechanics and signaling to quantify mechanical information processing by valvular interstitial cells," US National Congress on Computational Mechanics (USNCCM), Austin, TX, Jul. 28–Aug. 1, 2019

13. **D. P. Howsmon** and M. S. Sacks, "A mathematical model for valvular interstitial cell signaling," 8th Biennial Heart Valve Biology & Tissue Engineering Meeting, London, England, Sep. 26–28, 2018

12. **D. P. Howsmon**, T. Vargason, U. Kruger, and J. Hahn, "Biomarker identification in autism spectrum disorder: Common pitfalls and emerging strategies," American Institute of Chemical Engineers (AIChE) Annual Meeting, Minneapolis, Minnesota, Oct. 29–Nov. 3, 2017 **BEST PRESENTATION IN SESSION AWARD**

11. **D. P. Howsmon**, T. Vargason, and J. Hahn, "Role of folate-dependent one-carbon metabolism and transsulfuration pathways in autism spectrum disorder," 2nd Bioengineering & Translational Medicine Conference, Minneapolis, Minnesota, Oct. 28–29, 2017 **INVITED PLENARY PRESENTATION**

10. **D. P. Howsmon** and J. Hahn, "Regularization techniques for biochemcial reaction networks," Society for Industrial and Applied Mathematics (SIAM) Computational Science and Engineering, Atlanta, Georgia, Feb. 27–Mar. 3, 2017 **INVITED PRESENTATION**

9. D. Maahs, F. Cameron, T. T. Ly, B. A. Buckingham, C. Levy, G. Forlenza, D. Lam, P. Clinton, L. Messer, E. Westfall, C. Levister, Y. Y. Xie, N. Baysal, **D. P. Howsmon**, S. D. Patek, and B. W. Bequette, "Multiple model probabilistic predictive control: Is a pre-meal bolus necessary?" The 10th International Conference on Advanced Technologies and Treatments for Diabetes (ATTD), Paris, France, Feb. 15–18, 2017

8. B. W. Bequette, F. Cameron, N. Baysal, **D. P. Howsmon**, B. A. Buckingham, D. M. Maahs, and C. Levy, "Algorithms for a closed-loop artificial pancreas: Challenges and solutions pertinent to chemical process operations and control," American Institute for Chemical Engineers (AIChE) Annual Meeting, San Fransisco, California, Nov. 13–18, 2016

7. **D. P. Howsmon** and J. Hahn, "Regularization techniques for biochemical reaction networks," Northeast Bioengineering Conference, Binghampton, New York, Apr. 5–7, 2016 **INVITED KEYNOTE PRESENTATION**

6. D. M. Maahs, G. P. Forlenza, R. P. Wadwa, L. Messer, B. W. Bequette, F. Cameron, **D. P. Howsmon**, L. Huyett, E. Dassau, F. J. Doyle III, S. D. Patek, E. Schertz, E. Mauritzen, A. Mandell, D. DeSalvo, T. T. Ly, and B. A. Buckingham, "Weak points in closed-loop technology: Fault detection and mitigation," 9th International Conference on Advanced Technologies and Treatments for Diabetes (ATTD), Milan, Italy, Feb. 3–6, 2016

5. **D. P. Howsmon**, W. Dai, and J. Hahn, "Generalization of a parameter set selection procedure for nonlinear systems," American Institute of Chemical Engineers (AIChE) Annual Meeting, Salt Lake City, Utah, Nov. 8–13, 2015

4. J. Hahn and **D. P. Howsmon**, "Regularization techniques for biochemical reaction networks," Foundations of Systems Biology in Engineering (FOSBE), Boston, Massachusetts, Aug. 9–12, 2015 **INVITED PLENARY PRESENTATION**

3. **D. P. Howsmon**, S. Steinmeyer, R. C. Alaniz, A. Jayaraman, and J. Hahn, "Neural networks elucidate T cell priming conditions for adoptive transfer," Northeast Bioengineering Conference, Troy, NY, Apr. 17–19, 2015

2. **D. Howsmon**, W. Dai, and J. Hahn, "Identifying and validating systems pharmacology models," American Society for Clinical Pharmacology & Therapeutics (ASCPT) Workshop on Quantitative Systems Pharmacology: Multiscale Model-Based Drug Development through Integrating Systems Biology and Pharmacometrics, New Orleans, Louisiana, Mar. 4–7, 2015 **INVITED PRESENTATION**

1. B. W. Bequette and **D. P. Howsmon**, "Hypo- and hyperglycemic alarms: Devices and algorithms," Diabetes Technology Meeting, Bethesda, Maryland, Nov. 6–8, 2014 **INVITED PRESENTATION**

Posters

28. T. M. West, **D. P. Howsmon**, R. Tuscher, M. G. Zheng, O. Snapper, A. A. Janobas, and M. S. Sacks, "Characterizing valve interstitial cell stress fiber formation in valve interstitial cells: A computational-experimental approach," Biomedical Engineering Society (BMES) Annual Meeting, Seattle, Washington, Oct. 11–14, 2023

27. M. F. Mikulski, **D. P. Howsmon**, C. D. Fraser Jr, C. M. Mery, and R. P. Lion, "Trajectory mapping patient hemodynamics after the arterial switch operation using dynamic principal component analysis," 8th World Congress of Pediatric Cardiology and Cardiac Surgery, Washington D.C., Aug. 27–Sep. 1, 2023

26. **D. P. Howsmon**, T. M. West, M. G. Zheng, A. A. Janobas, and M. S. Sacks, "Modeling endothelin-driven stress fiber formation in valve interstitial cells: A computational-experimental approach," Vasculata, New Orleans, Louisiana, Jul. 17–20, 2023

25. T. M. West, **D. P. Howsmon**, M. W. Messida, H. N. Vo, A. A. Janobas, A. B. Baker, and M. S. Sacks, "The effects of strain rate and level on aortic valve interstitial cell activation in a 3D hydrogel," Heart Valve Society Annual Meeting, Malaga, Spain, Mar. 29–Apr. 1, 2023

24. **D. P. Howsmon**, T. M. West, and M. S. Sacks, "Leveraging advances in proteomics to mathematically model cell signaling processes: A case study on TGFβ signaling in valve interstitial cells," American Institute of Chemical Engineers (AIChE) Annual Meeting, Phoenix, Arizona, Nov. 13–18, 2022

23. M. G. Zheng, **D. P. Howsmon**, T. M. West, and M. S. Sacks, "Towards a computational model of endothelin-1 signaling in valve interstitial cells," Biomedical Engineering Society (BMES) Annual Meeting, San Antonio, TX, Oct. 12–15, 2022

22. **D. P. Howsmon**, T. M. West, and M. S. Sacks, "A phosphoproteomics-informed computational model of endothelin-1 signal transduction in valve interstitial cells," Foundations of Systems Biology in Engineering (FOSBE), Boston, MA, Aug. 28–31, 2022

21. **D. P. Howsmon**, T. M. West, R. Tuscher, and M. S. Sacks, "A proteomic-informed mathematical model of TGFβ1-induced aortic valve interstitial cell activation," Heart Valve Society Annual Meeting, Miami, Florida, Mar. 3–5, 2022

20. E. Castillero, **D. P. Howsmon**, B. V. Rego, Y. Xue, R. C. Gorman, M. S. Sacks, R. J. Levy, and G. Ferrari, "Ischemic mitral regurgitation is associated with impaired transforming growth factor/bone morphogenic protein signaling and increased CD45+ cell presence in mitral valve interstitial cell population," American Heart Association (AHA) Scientific Sessions, Dallas, Texas (Virtual Meeting), Nov. 14–16, 2020

19. **D. P. Howsmon**, B. V. Rego, E. Castillero, S. Ayoub, A. H. Khalighi, R. C. Gorman, J. H. Gorman, III, G. Ferrari, and M. S. Sacks, "Cellular mechanisms of mitral valve remodeling after myocardial infarction," Biomedical Engineering Society (BMES) Annual Meeting, San Diego, California (Virtual Meeting), Oct. 14–17, 2020

18. E. Castillero, **D. P. Howsmon**, B. Rego, Y. Xue, R. C. Gorman, M. S. Sacks, R. J. Levy, and G. Ferrari, "Transforming growth factor β pathway gene expression changes in an ovine model of ischemic mitral regurgitation," American Heart Association (AHA) Scientific Sessions, Philadelphia, PA, Nov. 16–18, 2019

17. **D. P. Howsmon**, B. V. Rego, E. Castillero, S. Ayoub, A. H. Khalighi, R. C. Gorman, J. H. Gorman, III, G. Ferrari, and M. S. Sacks, "Mitral valve remodeling and mechanotransduction in ischemic mitral regurgitation: A multi-scale investigation," Vascular Biology 2019, Monterrey, California, Oct. 27–31, 2019

16. **D. P. Howsmon** and M. S. Sacks, "Toward a multiscale model of valvular interstitial cells: An integrin-mediated mechanotransduction module," 63rd Annual Meeting of the Biophysical Society, Baltimore, Maryland, Mar. 2–6, 2019

15. **D. P. Howsmon** and M. S. Sacks, "Mathematical modeling of cellular networks regulating extracellular matrix synthesis and actin dynamics in valvular interstitial cells," Cellular and Molecular Bioengineering (CMBE) Conference, San Diego, California, Jan. 2–6, 2019

14. **D. P. Howsmon** and M. S. Sacks, "A first mathematical model for valvular interstitial cell signaling," Biomedical Engineering Society (BMES) Annual Meeting, Atlanta, Georgia, Oct. 17–20, 2018

13. T. Vargason, **D. P. Howsmon**, U. Kruger, J. B. Adams, and J. Hahn, "Plasma amino acids in individuals with autism spectrum disorder: A multivariate statistical analysis," Biomedical Engineering Society (BMES) Annual Meeting, Phoenix, Arizona, Oct. 11–14, 2017

12. **D. P. Howsmon**, N. Baysal, B. A. Buckingham, G. P. Forlenza, T. T. Ly, D. M. Maahs, T. Marcal, L. Towers, S. Deshpande, R. Gondhalekar, F. J. Doyle III, E. Dassau, J. Hahn, and B. W. Bequette, "Real-time detection of losses in infusion set actuation (LISAs) in a closed-loop artificial pancreas," The 10th International Conference on Advanced Technologies and Treatments for Diabetes (ATTD), Paris, France, Feb. 15–18, 2017

11. G. P. Forlenza, F. Cameron, T. T. Ly, D. Lam, **D. P. Howsmon**, N. Baysal, L. Messer, P. Clinton, C. Levister, S. D. Patek, C. Levy, R. P. Wadwa, D. Maahs, B. W. Bequette, and B. A. Buckingham, "Fully closed loop multiple model probabilistic predictive controller (MMPPC) artificial pancreas (AP) performance in adolescents and adults in a supervised hotel setting," The 10th International Conference on Advanced Technologies and Treatments for Diabetes (ATTD), Paris, France, Feb. 15–18, 2017

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