

**Ioannis (Yannis) P. Androulakis**  
Biomedical Engineering Department  
Chemical & Biochemical Engineering Department  
Surgery Department, Rutgers-RWJ Medical School (adjunct)  
599 Taylor Road, Piscataway, NJ 08854  
*Rutgers, The State University of New Jersey*  
e-mail: [yannis@soe.rutgers.edu](mailto:yannis@soe.rutgers.edu), web: [www.ipandro.com](http://www.ipandro.com)

## PROFESSIONAL EXPERIENCE

2016- Member, Institute for Quantitative Biomedicine  
*Rutgers, The State University of New Jersey*

2014- Professor, Biomedical Engineering Department and  
Chemical & Biochemical Engineering Department  
*Rutgers, The State University of New Jersey*

2014- Member, Center for Biophysical Pathology,  
*Rutgers - New Jersey Medical School*

2014- Vice-chair, Biomedical Engineering Department  
*Rutgers, The State University of New Jersey*

2013- Member, Graduate Program in Electrical and Computer Engineering  
*Rutgers University*

2013- Member, Graduate Programs in Molecular Biosciences  
*Rutgers University*

2012- Member, Exposure Science Division  
Environment and Occupational Health Sciences Institute  
*Rutgers University – RWJ Medical School*

2010-2012 Vice-chair, Biomedical Engineering Department  
*Rutgers, The State University of New Jersey*

2009- Associate Professor  
Biomedical Engineering Department and  
Chemical & Biochemical Engineering Department  
*Rutgers, The State University of New Jersey*

2009- Adjunct Associate Professor  
Department of Surgery  
*UMDNJ - RWJ Medical School*

2008- Undergraduate Program Director  
Biomedical Engineering Department  
*Rutgers, The State University of New Jersey*

2008- Member of the Graduate Faculty, Graduate Program in Computational Biology &  
Molecular Biophysics (BioMaPS)  
*Rutgers, The State University of New Jersey*

2008- Affiliated Faculty  
*Center for Engineering in Medicine, Boston, MA*

2004-2009 Assistant Professor  
Biomedical Engineering Department and  
Chemical & Biochemical Engineering Department  
*Rutgers, The State University of New Jersey*

2002-2004 Knowledge Capitalization Technical Program Leader  
Corporate Strategic Research Laboratories  
*ExxonMobil Research and Engineering Company*

2001-2004 Engineering Associate  
Corporate Strategic Research Laboratories  
*ExxonMobil Research and Engineering Company*

1998-2001 Senior Engineer  
Corporate Strategic Research Laboratories  
*ExxonMobil Research and Engineering Company*

1996-1998 Research Associate  
Corporate Research Science Laboratories  
*Exxon Research and Engineering Company*

## EDUCATION

1993-1996 Postdoctoral Fellow, Chemical Engineering Department, *Princeton University*  
Faculty Advisor: Prof. Christodoulos A. Floudas  
Areas of Research: "*Protein Structure Prediction*" and "*Computational Issues in Global Optimization: Algorithmic Developments and Distributed Computing Implementations*"

1990-1993 Ph.D., Chemical Engineering Department, *Purdue University*  
Faculty Advisor: Prof. Gintaras V. Reklaitis  
Thesis Topic: "*Approaches to Asynchronous and Decentralized Decision Making*"

1988-1990 MS, Chemical Engineering Department, *Purdue University*  
Faculty Advisor: Prof. Venkat Venkatasubramanian  
Thesis Topic: "*Genetic Algorithmic Approaches to Process Design and Optimization*"

1983-1988 Diploma, Chemical Engineering Department, *NTUA, Greece*  
Faculty Advisor: Prof. Dimitri P. Tassios  
Thesis Topic: "*The VdW-711 Equation of State for Polar Compounds and Mixtures*"

## HONORS - AWARDS

- *Fellow, American Institute of Chemical Engineers, 2019*
- Rutgers University Board of Trustees Award for Excellence in Research, 2018
- Member (ad hoc), EPA Scientific Advisory Board, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), 2017
- *Fellow, American Institute of Medical and Biological Engineering, 2015*
- Environmental Protection Agency Scientific and Technological Achievement Award, 2015
- Outstanding Engineering Faculty Award, School of Engineering, Rutgers the State University of New Jersey (2013)
- Excellence in Teaching Award, Engineering Governing Council, School of Engineering, Rutgers University (2006)
- Rutgers FASIP Award for Teaching, Research, and Service
- Outstanding contributed paper, Foundations of Computer-Aided Process Design: Discovery through Product and Process Design, Princeton, NJ, July 2004.

## PUBLICATIONS

### Reports

Euling, S., S. Makris, B. Sen, B. Benson, K. Gaido, V. Wilson, C. Keshava, N. Keshava, L. White, P. Foster, I.P. Androulakis, M. Ovacik<sup>SS</sup>, S. Hester, L.E. Gray, C. Thompson and W. Shiu, *An Approach to Using Toxicogenomic Data in EPA Human Health Risk Assessments: A Dibutyl Phthalate Case Study*, National Center for Environmental Assessment, Office of Research and Development, U.S. Environmental Protection Agency, Washington, DC 20460 (2010)

1. Androulakis, IP. From cells to society: untangling the web of stress, inflammation and social determinants of health, *Frontiers in Systems Biology* (accepted)
2. Nicolau F, Mounier H, Androulakis IP. HPA axis differential flatness and Liouvillian study for higher resiliency investigations. *IMA Journal of Mathematical Control and Information*. 2023;40(4):746-88. doi: 10.1093/imamci/dnad030
3. Li Y, Lu L, Androulakis IP. The physiological and pharmacological significance of the circadian timing of the HPA axis: A mathematical modeling approach. *J Pharm Sci*. 2023. Epub 20230817. doi: 10.1016/j.xphs.2023.08.005. PubMed PMID: 37597751.
4. Li Y, Androulakis IP. The SCN-HPA-Periphery Circadian Timing System: Mathematical Modeling of Clock Synchronization and the Effects of Photoperiod on Jetlag Adaptation. *J Biol Rhythms*. 2023;7487304231188541. Epub 20230802. doi: 10.1177/07487304231188541. PubMed PMID: 37529986.
5. Androulakis IP. Teaching computational systems biology with an eye on quantitative systems pharmacology at the undergraduate level: Why do it, who would take it, and what should we teach? *Front Syst Biol*. 2022. doi: 10.3389/fsysb.2022.1044281.
6. Androulakis IP. Towards a comprehensive assessment of QSP models: what would it take? *Journal of Pharmacokinetics and Pharmacodynamics*. 2022. doi: 10.1007/s10928-022-09820-0. PubMed PMID: WOS:000840294800001.
7. Zhang TL, Androulakis IP, Bonate P, Cheng LM, Helikar T, Parikh J, Rackauckas C, Subramanian K, Cho CR, Working G. Two heads are better than one: current landscape of integrating QSP and machine learning An ISO P QSP SIG white paper by the working group on the integration of quantitative systems pharmacology and machine learning. *Journal of Pharmacokinetics and Pharmacodynamics*. 2022;49(1):5-18. doi: 10.1007/s10928-022-09805-z. PubMed PMID: WOS:000749389200001.
8. Schlesinger N, Brunetti L, Androulakis IP. Does seasonality of the microbiota contribute to the seasonality of acute gout flares? *Clinical and Experimental Rheumatology*. 2022;40(9):1793-800. PubMed PMID: WOS:000883334500025.
9. Putnins M, Campagne O, Mager DE, Androulakis IP. From data to QSP models: a pipeline for using Boolean networks for hypothesis inference and dynamic model building. *Journal of Pharmacokinetics and Pharmacodynamics*. 2022;49(1):101-15. doi: 10.1007/s10928-021-09797-2. PubMed PMID: WOS:000739265800001.
10. Li YN, Androulakis IP. Light-induced synchronization of the SCN coupled oscillators and implications for entraining the HPA axis. *Frontiers in Endocrinology*. 2022;13. doi: 10.3389/fendo.2022.960351. PubMed PMID: WOS:000882401300001.
11. Putnins M, Androulakis IP. Self-selection of evolutionary strategies: adaptive versus non-adaptive forces. *Heliyon*. 2021;7(5). doi: 10.1016/j.heliyon.2021.e06997. PubMed PMID: WOS:000663597600019.
12. Nahmias Y, Androulakis IP. Circadian Effects of Drug Responses. In: Yarmush ML, editor. *Annual Review of Biomedical Engineering*, Vol 23, 20212021. p. 203-24.
13. Li YN, Androulakis IP. Light entrainment of the SCN circadian clock and implications for personalized alterations of corticosterone rhythms in shift work and jet lag. *Scientific Reports*. 2021;11(1). doi: 10.1038/s41598-021-97019-7. PubMed PMID: WOS:000695272000093.
14. Androulakis IP. Circadian rhythms and the HPA axis: A systems view. *Wires Mechanisms of Disease*. 2021;13(4). doi: 10.1002/wsbm.1518. PubMed PMID: WOS:000607075300001.
15. Acevedo A, Mavroudis PD, DuBois D, Almon RR, Jusko WJ, Androulakis IP. Pathway-level analysis of genome-wide circadian dynamics in diverse tissues in rat and mouse. *Journal of Pharmacokinetics*

- and Pharmacodynamics. 2021;48(3):361-74. doi: 10.1007/s10928-021-09750-3. PubMed PMID: WOS:000632902400001.
16. Scherholz ML, Rao RT, Androulakis IP. Modeling inter-sex and inter-individual variability in response to chronopharmacological administration of synthetic glucocorticoids. *Chronobiology International*. 2020;37(2):281-96. doi: 10.1080/07420528.2019.1660357. PubMed PMID: WOS:000500449200001.
  17. Rao R, Androulakis IP, editors. The circadian rhythms of cortisol: Modelling their role in regulating homeostasis and personalized resilience and adaptation. 21st IFAC World Congress on Automatic Control - Meeting Societal Challenges; 2020 Jul 11-17; Electr Network2020.
  18. Jobanputra AM, Scharf MT, Androulakis IP, Sunderram J. Circadian Disruption in Critical Illness. *Frontiers in Neurology*. 2020;11. doi: 10.3389/fneur.2020.00820. PubMed PMID: WOS:000565316400001.
  19. Acevedo A, DuBois D, Almon RR, Jusko WJ, Androulakis IP. Modeling Pathway Dynamics of the Skeletal Muscle Response to Intravenous Methylprednisolone (MPL) Administration in Rats: Dosing and Tissue Effects. *Frontiers in Bioengineering and Biotechnology*. 2020;8. doi: 10.3389/fbioe.2020.00759. PubMed PMID: WOS:000556414800001.
  20. Scherholz ML, Schlesinger N, Androulakis IP. Chronopharmacology of glucocorticoids. *Advanced Drug Delivery Reviews*. 2019;151:245-61. doi: 10.1016/j.addr.2019.02.004. PubMed PMID: WOS:000502893600014.
  21. Scherholz ML, Androulakis IP. Exploration of sexual dimorphism and inter-individual variability in multivariate parameter spaces for a pharmacokinetic compartment model. *Mathematical Biosciences*. 2019;308:70-80. doi: 10.1016/j.mbs.2018.12.011. PubMed PMID: WOS:000458224200008.
  22. Rao R, Androulakis IP. The physiological significance of the circadian dynamics of the HPA axis: Interplay between circadian rhythms, allostasis and stress resilience. *Hormones and Behavior*. 2019;110:77-89. doi: 10.1016/j.yhbeh.2019.02.018. PubMed PMID: WOS:000466059200009.
  23. Rao R, Androulakis IP. Allostatic adaptation and personalized physiological trade-offs in the circadian regulation of the HPA axis: A mathematical modeling approach. *Scientific Reports*. 2019;9. doi: 10.1038/s41598-019-47605-7. PubMed PMID: WOS:000478012700005.
  24. Mishra P, Martin DC, Androulakis IP, Moghe PV. Fluorescence Imaging of Actin Turnover Parses Early Stem Cell Lineage Divergence and Senescence. *Scientific Reports*. 2019;9. doi: 10.1038/s41598-019-46682-y. PubMed PMID: WOS:000475832700021.
  25. Krzyszczyk P, Patel K, Meng YX, O'Reggio M, Richardson K, Acevedo A, Androulakis IP, Yarmush ML, Schloss RS, Palmer AF, Berthiaume F. Macrophage modulation by polymerized hemoglobins: Potential as a wound-healing therapy. *Technology*. 2019;7(3-4):84-97. doi: 10.1142/s2339547819500055. PubMed PMID: WOS:000516751600002.
  26. Klapa MI, Androulakis IP. Editorial overview: Systems biology approaches in biomedicine and human therapy. *Current Opinion in Biotechnology*. 2019;58:III-IV. doi: 10.1016/j.copbio.2019.08.001. PubMed PMID: WOS:000484879000001.
  27. Bae SA, Fang MZ, Rustgi V, Zarbl H, Androulakis IP. At the Interface of Lifestyle, Behavior, and Circadian Rhythms: Metabolic Implications. *Frontiers in Nutrition*. 2019;6. doi: 10.3389/fnut.2019.00132. PubMed PMID: WOS:000482884700001.
  28. Bae SA, Androulakis IP. Mathematical modeling informs the impact of changes in circadian rhythms and meal patterns on insulin secretion. *American Journal of Physiology-Regulatory Integrative and Comparative Physiology*. 2019;317(1):R98-R107. doi: 10.1152/ajpregu.00230.2018. PubMed PMID: WOS:000475699700003.
  29. Acevedo A, Berthel A, Dubois D, Almon RR, Jusko WJ, Androulakis IP. Pathway-Based Analysis of the Liver Response to Intravenous Methylprednisolone Administration in Rats: Acute Versus Chronic Dosing. *Gene Regulation and Systems Biology*. 2019;13. doi: 10.1177/1177625019840282. PubMed PMID: WOS:000467473900001.

30. Scherholz ML, Forder J, Androulakis IP. A framework for 2-stage global sensitivity analysis of GastroPlus (TM) compartmental models. *Journal of Pharmacokinetics and Pharmacodynamics*. 2018;45(2):309-27. doi: 10.1007/s10928-018-9573-1. PubMed PMID: WOS:000427189900008.
31. Rao RT, Scherholz ML, Androulakis IP. Modeling the influence of chronopharmacological administration of synthetic glucocorticoids on the hypothalamic-pituitary-adrenal axis. *Chronobiology International*. 2018;35(12):1619-36. doi: 10.1080/07420528.2018.1498098. PubMed PMID: WOS:000451611300001.
32. Pierre K, Rao RT, Hartmanshenn C, Androulakis IP. Modeling the Influence of Seasonal Differences in the HPA Axis on Synchronization of the Circadian Clock and Cell Cycle. *Endocrinology*. 2018;159(4):1808-26. doi: 10.1210/en.2017-03226. PubMed PMID: WOS:000430712800021.
33. Mavroudis PD, Scheff JD, Doyle JC, Vodovotz Y, Androulakis IP. The Impact of Stochasticity and Its Control on a Model of the Inflammatory Response. *Computation*. 2018;7(1). doi: 10.3390/computation7010003. PubMed PMID: WOS:000464136100001.
34. Krzyszczyk P, Acevedo A, Davidoff EJ, Timmins LM, Marrero-Berrios I, Patel M, White C, Lowe C, Sherba JJ, Hartmanshenn C, O'Neill KM, Balter ML, Fritz ZR, Androulakis IP, Schloss RS, Yarmush ML. The growing role of precision and personalized medicine for cancer treatment. *Technology*. 2018;6(3-4):79-100. doi: 10.1142/s2339547818300020. PubMed PMID: WOS:000455684100001.
35. Hartmanshenn C, Rao RT, Bae SA, Scherholz ML, Acevedo A, Pierre KK, Androulakis IP. Quantitative systems pharmacology: Extending the envelope through systems engineering. In: Manca D, editor. *Quantitative Systems Pharmacology: Models and Model-Based Systems with Applications*, Vol 422018. p. 3-34.
36. Boyanapalli SSS, Huang Y, Su ZY, Cheng D, Zhang CY, Guo Y, Rao R, Androulakis IP, Kong AN. Pharmacokinetics and Pharmacodynamics of Curcumin in regulating anti-inflammatory and epigenetic gene expression. *Biopharmaceutics & Drug Disposition*. 2018;39(6):289-97. doi: 10.1002/bdd.2136. PubMed PMID: WOS:000440136500002.
37. Bae SA, Androulakis IP. Mathematical analysis of circadian disruption and metabolic re-entrainment of hepatic gluconeogenesis: the intertwining entraining roles of light and feeding. *American Journal of Physiology-Endocrinology and Metabolism*. 2018;314(6):E531-E42. doi: 10.1152/ajpendo.00271.2017. PubMed PMID: WOS:000441171500001.
38. Zhang CY, Wang C, Li WJ, Wu RY, Guo Y, Cheng D, Yang YQ, Androulakis IP, Kong AN. Pharmacokinetics and Pharmacodynamics of the Triterpenoid Ursolic Acid in Regulating the Antioxidant, Anti-inflammatory, and Epigenetic Gene Responses in Rat Leukocytes. *Molecular Pharmaceutics*. 2017;14(11):3709-17. doi: 10.1021/acs.molpharmaceut.7b00469. PubMed PMID: WOS:000414820000009.
39. Rao RT, Scherholz ML, Hartmanshenn C, Bae SA, Androulakis IP. On the analysis of complex biological supply chains: From process systems engineering to quantitative systems pharmacology. *Computers & Chemical Engineering*. 2017;107:100-10. doi: 10.1016/j.compchemeng.2017.06.003. PubMed PMID: WOS:000414081000010.
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41. Pierre K, Schlesinger N, Androulakis IP. The Hepato-Hypothalamic-Pituitary-Adrenal-Renal Axis: Mathematical Modeling of Cortisol's Production, Metabolism, and Seasonal Variation. *Journal of Biological Rhythms*. 2017;32(5):469-84. doi: 10.1177/0748730417729929. PubMed PMID: WOS:000415283900009.
42. Kamisoglu K, Acevedo A, Almon RR, Coyle S, Corbett S, Dubois DC, Nguyen TT, Jusko WJ, Androulakis IP. Understanding Physiology in the Continuum: Integration of Information from Multiple -Omics Levels. *Frontiers in Pharmacology*. 2017;8. doi: 10.3389/fphar.2017.00091. PubMed PMID: WOS:000394744100002.

43. Bae SA, Androulakis IP. The Synergistic Role of Light-Feeding Phase Relations on Entraining Robust Circadian Rhythms in the Periphery. *Gene Regulation and Systems Biology*. 2017;11:1-21. doi: 10.1177/1177625017702393. PubMed PMID: WOS:000402686900001.
44. Acevedo A, Androulakis IP. Allostatic breakdown of cascading homeostat systems: A computational approach. *Heliyon*. 2017;3(7). doi: 10.1016/j.heliyon.2017.e00355. PubMed PMID: WOS:000432023900014.
45. Scheff JD, Kamisoglu K, Androulakis IP. Mechanistic Modeling of Inflammation. In: Mager DE, Kimko HHC, editors. *Systems Pharmacology and Pharmacodynamics* 2016. p. 325-52.
46. Rao R, Yang Q, Orman MA, Berthiaume F, Ierapetritou MG, Androulakis IP. Burn trauma disrupts circadian rhythms in rat liver. *International Journal of Burns and Trauma*. 2016;6(2):12-25. PubMed PMID: WOS:000377696700001.
47. Rao R, DuBois D, Almon R, Jusko WJ, Androulakis IP. Mathematical modeling of the circadian dynamics of the neuroendocrine-immune network in experimentally induced arthritis. *American Journal of Physiology-Endocrinology and Metabolism*. 2016;311(2):E310-E24. doi: 10.1152/ajpendo.00006.2016. PubMed PMID: WOS:000380372500004.
48. Pierre K, Schlesinger N, Androulakis IP. The role of the hypothalamic-pituitary-adrenal axis in modulating seasonal changes in immunity. *Physiological Genomics*. 2016;48(10):719-38. doi: 10.1152/physiolgenomics.00006.2016. PubMed PMID: WOS:000389638400002.
49. Hartmanshenn C, Scherholz M, Androulakis IP. Physiologically-based pharmacokinetic models: approaches for enabling personalized medicine. *Journal of Pharmacokinetics and Pharmacodynamics*. 2016;43(5):481-504. doi: 10.1007/s10928-016-9492-y. PubMed PMID: WOS:000384575600002.
50. Wu TY, Huang Y, Zhang CY, Su ZY, Boyanapalli S, Khor TO, Wang H, Lin HX, Gounder M, Kagan L, Androulakis IP, Kong ANT. Pharmacokinetics and pharmacodynamics of 3,3'-diindolylmethane (DIM) in regulating gene expression of phase II drug metabolizing enzymes. *Journal of Pharmacokinetics and Pharmacodynamics*. 2015;42(4):401-8. doi: 10.1007/s10928-015-9421-5. PubMed PMID: WOS:000358160100006.
51. Rao R, Orman MA, Berthiaume F, Androulakis IP. Dynamics of hepatic gene expression and serum cytokine profiles in single and double-hit burn and sepsis animal models. *Data in Brief*. 2015;3:229-33. doi: 10.1016/j.dib.2015.02.018. PubMed PMID: WOS:000453156300043.
52. Mavroudis PD, Corbett SA, Calvano SE, Androulakis IP. Circadian characteristics of permissive and suppressive effects of cortisol and their role in homeostasis and the acute inflammatory response. *Mathematical Biosciences*. 2015;260:54-64. doi: 10.1016/j.mbs.2014.10.006. PubMed PMID: WOS:000349575100009.
53. Kamisoglu K, Sukumaran S, Nouri-Nigjeh E, Tu CJ, Li J, Shen XM, Duan XT, Qu J, Almon RR, DuBois DC, Jusko WJ, Androulakis IP. Tandem Analysis of Transcriptome and Proteome Changes after a Single Dose of Corticosteroid: A Systems Approach to Liver Function in Pharmacogenomics. *Omics-a Journal of Integrative Biology*. 2015;19(2):80-91. doi: 10.1089/omi.2014.0130. PubMed PMID: WOS:000349320900002.
54. Kamisoglu K, Haimovich B, Calvano SE, Coyle SM, Corbett SA, Langley RJ, Kingsmore SF, Androulakis IP. Human metabolic response to systemic inflammation: assessment of the concordance between experimental endotoxemia and clinical cases of sepsis/SIRS. *Critical Care*. 2015;19. doi: 10.1186/s13054-015-0783-2. PubMed PMID: WOS:000351991000001.
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56. Androulakis IP. Systems engineering meets quantitative systems pharmacology: from low-level targets to engaging the host defenses. *Wiley Interdisciplinary Reviews-Systems Biology and Medicine*. 2015;7(3):101-12. doi: 10.1002/wsbm.1294. PubMed PMID: WOS:000352706900001.
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58. Sunderram J, Sofou S, Kamisoglu K, Karantza V, Androulakis IP. Time-restricted feeding and the realignment of biological rhythms: translational opportunities and challenges. *Journal of Translational Medicine*. 2014;12. doi: 10.1186/1479-5876-12-79. PubMed PMID: WOS:000336922800001.
59. Nguyen TT, Mattick JSA, Yang Q, Orman MA, Ierapetritou MG, Berthiaume F, Androulakis IP. Bioinformatics analysis of transcriptional regulation of circadian genes in rat liver. *Bmc Bioinformatics*. 2014;15. doi: 10.1186/1471-2105-15-83. PubMed PMID: WOS:000334547900001.
60. Mavroudis PD, Corbett SA, Calvano SE, Androulakis IP. Mathematical modeling of light-mediated HPA axis activity and downstream implications on the entrainment of peripheral clock genes. *Physiological Genomics*. 2014;46(20):766-78. doi: 10.1152/physiolgenomics.00026.2014. PubMed PMID: WOS:000343286600002.
61. Linninger AA, Androulakis IP. Biosystems modeling and engineering Preface. *Computers & Chemical Engineering*. 2014;71:663-4. doi: 10.1016/j.compchemeng.2014.10.003. PubMed PMID: WOS:000346070100050.
62. Kamisoglu K, Sleight K, Nguyen TT, Calvano SE, Coyle SM, Corbett SA, Androulakis IP. Effects of coupled dose and rhythm manipulation of plasma cortisol levels on leukocyte transcriptional response to endotoxin challenge in humans. *Innate Immunity*. 2014;20(7):774-84. doi: 10.1177/1753425913508458. PubMed PMID: WOS:000342982500009.
63. Kamisoglu K, Calvano SE, Coyle SM, Corbett SA, Androulakis IP. INTEGRATED TRANSCRIPTIONAL AND METABOLIC PROFILING IN HUMAN ENDOTOXEMIA. *Shock*. 2014;42(6):499-508. doi: 10.1097/shk.0000000000000248. PubMed PMID: WOS:000345234400003.
64. Androulakis IP. A chemical engineer's perspective on health and disease. *Computers & Chemical Engineering*. 2014;71:665-71. doi: 10.1016/j.compchemeng.2014.09.007. PubMed PMID: WOS:000346070100051.
65. Zhang SL, Androulakis IP, Ierapetritou MG. A hybrid kinetic mechanism reduction scheme based on the on-the-fly reduction and quasi-steady-state approximation. *Chemical Engineering Science*. 2013;93:150-62. doi: 10.1016/j.ces.2013.01.066. PubMed PMID: WOS:000317384200014.
66. Stamatelos SK, Androulakis IP, Kong ANT, Georgopoulos PG. A semi-mechanistic integrated toxicokinetic-toxicodynamic (TK/TD) model for arsenic(III) in hepatocytes. *Journal of Theoretical Biology*. 2013;317:244-56. doi: 10.1016/j.jtbi.2012.09.019. PubMed PMID: WOS:000313758500029.
67. Scheff JD, Mavroudis PD, Foteinou PT, An G, Calvano SE, Doyle J, Dick TE, Lowry SF, Vodovotz Y, Androulakis IP. A multiscale modeling approach to inflammation: A case study in human endotoxemia. *Journal of Computational Physics*. 2013;244:279-89. doi: 10.1016/j.jcp.2012.09.024. PubMed PMID: WOS:000319456900018.
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69. Scheff JD, Mavroudis PD, Calvano SE, Androulakis IP. Translational applications of evaluating physiologic variability in human endotoxemia. *Journal of Clinical Monitoring and Computing*. 2013;27(4):405-15. doi: 10.1007/s10877-012-9418-1. PubMed PMID: WOS:000321261400005.
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71. Ovacik MA, Sen B, Euling SY, Gaido KW, Ierapetritou MG, Androulakis IP. Pathway modeling of microarray data: A case study of pathway activity changes in the testis following in utero exposure to dibutyl phthalate (DBP). *Toxicology and Applied Pharmacology*. 2013;271(3):386-94. doi: 10.1016/j.taap.2010.09.008. PubMed PMID: WOS:000324669500009.
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73. Orman MA, Ierapetritou MG, Androulakis IP, Berthiaume F. Effect of Fasting on the Metabolic Response of Liver to Experimental Burn Injury. *Plos One*. 2013;8(2). doi: 10.1371/journal.pone.0054825. PubMed PMID: WOS:000314692800012.
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4. Scheff, J.D., P. Mavroudis, S.E. Calvano, S.F. Lowry and I.P. Androulakis, Autonomic dysregulation in systemic inflammation and sepsis. In *Brain Dysfunction in Critical Illness*, Stevens, Ely Sharshar Eds, Cambridge University Press (2011)
5. Georgopoulos, P.G., S. Isukapalli, I.P. Androulakis, M.G. Ierapetritou and W. J. Welsh, Multiscale integration of toxicokinetic and toxicodynamic processes: From cell and tissue to organ and "whole body" models", In *Handbook of Systems Toxicology*, Casciano and Sahu Eds (2010)
6. Scheff, J., P.T. Foteinou, S.E. Calvano, S.F. Lowry and Androulakis, I.P., Multiscale dynamic models of systemic inflammation in humans, in *Dynamic Process Modeling*, Pistikopoulos, Georgiadis, Dua Eds., (2009)
7. Foteinou, P.T., J. Scheff, S.E. Calvano, S.F. Lowry and Androulakis, I.P., Approaches towards a multi-scale model of systemic inflammation in *Methods in Bioengineering: Alternatives to animal testing*, Maguire, Novick, Langer, Yarmush Eds., (2009)
8. Androulakis, I.P., Mathematical programming approaches for the analysis of microarray data, in *Handbook of Optimization in Medicine*, E. Romeijn, Ed., (2008)
9. Nguyen, T.T., E. Yang and I.P. Androulakis Machine learning approaches in promoter sequence analysis, in *Machine Learning Research Progress*, Nova Science Publishers, Inc. (2008)
10. Yang, E. and I.P. Androulakis, Assessing the information content of microarray time series. In *Encyclopedia of Healthcare Information Systems*, Wickramasinghe, Ed., (2008)
11. Yang, E., A. Misra, T.J. Maguire and I.P. Androulakis, Analysis of Regulatory and Interactions Networks from Clusters of co-expressed Genes" in *Clustering Challenges, in Biological Networks*, S. Butenko and A. Chaovalitwongse, Eds., Word Scientific Publications (2008)
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22. Androulakis, I.P., "Asynchronous Distributed Optimization Algorithms", *Encyclopedia of Optimization*, C.A. Floudas and P.M. Pardalos, Eds., **1**, 68-73, Kluwer Academic Publishers (2001)
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25. Monos D., A.Soulika, E.Argyris, J. Corga, L. Stern, P. Cordopatis, I.P. Androulakis, V. Magafa and C.A. Floudas, HLA-Peptide Interactions: Theoretical and Experimental Approaches, In *HLA Diversity: Functional and Medical Implications* (D. Charron, Eds.), EDK Sevres, 451-455 (1997)
26. Maranas C.D., I.P. Androulakis and C.A. Floudas, A Deterministic Global Optimization Approach for the Protein Folding Problem, *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, 133-150 (1995)
27. Androulakis I.P., V. Visweswaran and C.A. Floudas, "Distributed Decomposition-based Approaches in Global Optimization", *State of the Art in Global Optimization*, Kluwer Academic Publishers, 1995

## PATENTS

- Catalytic partial oxidation using staged oxygen addition (US Pat. No. 6,726,850)

## INVITED PRESENTATIONS

1. Purdue University, West Lafayette, IN, 2024
2. Tulane University, New Orleans, LA, 2023
3. Institute of Chemical Engineering Sciences, Patras, Greece, 2023
4. Society of Industrial and Applied mathematics (SIAM) Conference on Dynamical Systems, Portland, OR, 2023
5. 13<sup>th</sup> American Institute on Dynamical systems, Wilmington, NC, 2023
6. National Academy of Engineering "Synergies between evolutionary and engineering analyses of failures", on-line, 2022
7. International Federation of Automatic Control World (IFAC) Congress, "The circadian rhythms of cortisol: Modeling is role in regulating homeostasis and personalized resilience and adaptation" on-line, 2020
8. Androulakis, I.P., Systems Medicine, PSE 2018, San Diego, 2018

9. Androulakis, I.P., The circadian nature of the neuroendocrine system, Host-Pathogen Dynamics Workshop – Mathematical Biosciences Institute, Ohio State, February 2018
10. Plenary Speaker, Process Systems Engineering Conference, 2018
11. Invited Speaker, European Conference in Computational Biology, 2018
12. Invited Speaker, American Conference on Pharmacometrics, 2018
13. Invited Speaker, Host-Pathogen Interactions Meeting, Mathematical Biosciences Institute, 2017
14. Invited Speaker, Quantitative Systems Pharmacology Meeting (SUNY Buffalo), 2017
15. Androulakis, I.P. Entrainment and synchronization of mitosis in asthma: An intervention target? American Conference of Pharmacometrics, Fort Lauderdale, October 2017
16. Androulakis, I.P., Entrainment and synchronization of circadian rhythms, Quantitative Systems Pharmacology Workshop, SUNY Buffalo, November 2017.
17. Androulakis, I.P., QSP Approaches – Mathematical Model of Different Complexities, 3<sup>rd</sup> Annual Quantitative Systems Pharmacology Congress, San Francisco, December 2016
18. Androulakis, I.P., QSP: A framework for context, Rutgers 250 Pharmaceutical Sciences Symposium, September 2016
19. Androulakis, I.P., Modeling of systemic inflammation and sepsis: Model systems and system models, Kick-Off Workshop Scientific Computing for Improved Diagnosis and Therapy of Sepsis (SCIDATOS), International Academic Forum Heidelberg (IWH), University of Heidelberg, Heidelberg, Germany, February 2016
20. Androulakis, I.P., A Chemical Engineer's perspective on health and disease, National Technical University of Athens, Greece, November, 2015
21. Androulakis, I.P., From low-level targets to engaging host defenses: The evolving paradigm of Quantitative Systems Pharmacology, American Conference on Pharmacometrics, Arlington, October 2015
22. Androulakis, I.P., Putting systems thinking into systems biology: Back to the future again, 25<sup>th</sup> Anniversary annual INCOSE meeting, Seattle, WA, July 2015.
23. Androulakis, I.P., Quantitative Systems Pharmacology: A framework for context, Bristol Meyers Squibb, Lawrenceville, NJ, Nov 2015  
Androulakis, I.P., Systems engineering meets Quantitative Systems Pharmacology: From low-level targets to engaging the host defences, Biomedical Eng. Department, NJIT, Newark, NJ, May 2015
24. Androulakis, I.P., Systems engineering meets Quantitative Systems Pharmacology: From low-level targets to engaging the host defences, Biomedical Eng. Department, Northwestern University, Chicago, IL, April 2015
25. Androulakis, I.P., Systems engineering meets Quantitative Systems Pharmacology: From low-level targets to engaging the host defences, Biomedical Eng. Department, Sanofi, Bridgewater, NJ, March 2015
26. Androulakis, I.P., Challenges and Opportunities in Multi-Scale Quantitative Systems Pharmacology Models, Quantitative Systems Pharmacology Congress, Boston, MA, January 2015
27. Androulakis, I.P., A Process Systems Engineering Perspective on Health and Disease, *Plenary Lecture, CAST 10D Division*, AIChE Meeting, Atlanta, GA, November 2014
28. Androulakis, I.P., A Towards a Process Engineering Approach to Health and Disease, *Plenary Lecture*, AIChE Meeting, San Francisco, CA, November 2013
29. Androulakis, I.P., The relationship between autonomic function and heart rate variability in human endotoxemia, 12<sup>th</sup> International Conf. on Complexity in Acute Illness, Budapest, Hungary, August 2013
30. Androulakis, I.P., Towards multi-level models of systemic inflammation: A translational systems biology approach, ETH, Zurich, Switzerland, April 2013
31. Androulakis, I.P., Application of on-the-fly kinetic reduction to study fuel combustion, ETH, Zurich, Switzerland, April 2013
32. Androulakis, I.P., Towards multi-level models of systemic inflammation: A translational systems biology approach, Imperial College, London, UK, April 2013
33. Androulakis, I.P., Translational physiomics: Linking processes to outcomes, 4<sup>th</sup> International Conference on Tissue Engineering, Chania, Greece, June 2011
34. Androulakis, I.P. Translational physiomics as a means towards multiscale modes of human endotoxemia, Department of Pharmaceutical Sciences, SUNY Buffalo, September 2010

35. Androulakis, I.P. Towards a mechanistic understanding of inflammation and physiologic variability. A translational physiomics approach, BioMAPS Institute for Quantitative Biology, Rutgers University, September 2010
36. Androulakis, I.P. Towards a Mechanistic Understanding of Inflammation and Physiologic Variability, Society for Complexity in Acute Illness 9-th Annual Meeting, Atlanta, GA, September 2010
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38. Androulakis, I.P. Towards multiscale modes of human endotoxemia, Mt. Sinai Medical School, NY, December 2009.
39. Androulakis, I.P., Networks, Biology and Systems Engineering: A Case Study in Inflammation, Chemical Engineering Dept., University of Pittsburgh, PA, November 2009.
40. Androulakis, I.P. Bionformatics analysis of gene expression data, J&J PRD, Raritan, NJ, September 2009
41. Androulakis I.P., A modular approach to transcriptional dynamics and toxicokinetics, 3<sup>rd</sup> Annual Systems Toxicology Symposium, May 20, 2009, Piscataway, NJ
42. Androulakis, I.P., Networks, Biology and Systems Engineering: A Case Study in Inflammation, Chemical Engineering Dept., University of South Carolina, SC, Jan 2009.
43. Androulakis, I.P., Networks, Biology and Systems Engineering: A Case Study in Inflammation, Proceeding 5<sup>th</sup> International Conference on the Foundations of Computer-Aided Process Operations, Cambridge, MA, 2008
44. He, K-Y., M.G. Ierapetritou and I.P. Androulakis, On the Use of Elemental Flux Graphs for Developing Adaptive Reduced Representations of Complex Reaction Mechanisms, 12<sup>th</sup> SIAM International Conference on Numerical Combustion, Monterey, CA, 2008
45. Androulakis, I.P., From Data to Models: Systems biology methods and potential applications to toxicoinformatics, Computational Toxicology Seminar Series, National Center for Computational Toxicology, US EPA, 2008
46. Androulakis, I.P., Analysis, reduction and representation of complex reaction mechanisms, NASCRE Meeting, Houston, TX, 2007
47. Androulakis, I.P., What should we be looking for when analyzing microarray data, The Center for Engineering in Medicine, Massachusetts General Hospital, 2005
48. Androulakis, I.P., The interplay between accuracy and complexity: A framework for selecting maximally informative genes, Department of Chemical Engineering, University of Rhodes Island, 2005
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50. Androulakis, I.P., Computational Approaches for the Automated Generation, Analysis, Reduction and Efficient Computational Implementation of Complex Kinetic Mechanisms", Department of Chemical Engineering, University of California, Riverside, 2003
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61. Androulakis, I.P., Detailed Kinetic Modeling and Optimization in the Oxidative Upgrading of Light Alkanes, Chemical Engineering Department, University College, London, 2007
62. Androulakis, I.P., Molecular conformation prediction through global optimization, Process Operations Center, Chemical Engineering Department, Purdue University, 1996

## MEETING PRESENTATIONS

1. Androulakis, I.P. It's all about timing, American Institute of Chemical Engineers Annual Meeting, Phoenix, Arizona, November 2022
2. Puttnins, M and I.P. Androulakis, Networks oscillations and evolution: computational approach, American Institute of Chemical Engineers Annual Meeting, Pittsburgh, Pennsylvania, November 2018
3. Rao R, Pierre K, Hoffman E, Androulakis IP. Modeling the Influence of the HPA Axis and the Circadian Clock on the Regulation of the Cell Cycle. American Institute of Chemical Engineers Annual Meeting, Minneapolis, Minnesota, November 2017.
4. Hartmanshenn C, Rao R, Pierre K, Androulakis IP. Modeling Stochasticity in the Cell Cycle. American Institute of Chemical Engineers Annual Meeting, Minneapolis, Minnesota, November 2017.
5. Bae S-A, Androulakis IP. Effect of Circadian Disruption on Hepatic Gluconeogenesis. American Institute of Chemical Engineers Annual Meeting, Minneapolis, Minnesota, November 2017
6. Androulakis IP. Circadian Entrainment and Synchronization in Health and Disease: A Tail of Many Rhythms. American Institute of Chemical Engineers Annual Meeting, Minneapolis, Minnesota, November 2017
7. Kamau, P., N. Schlesinger and I.P. Androulakis, The role of the hypothalamic-pituitary-adrenal axis in modulating seasonal changes in immunity, BMES National Meeting, Minneapolis, October 2016
8. Acevedo, A. and I.P. Androulakis, Allostatic breakdown of multiple homeostat systems: A computational study, BMES National Meeting, Minneapolis, October 2016
9. Bae S-A and I.P. Androulakis, Modeling convergence of circadian clocks and metabolism, American Institute of Chemical Engineers Annual Meeting, San Francisco, November 2016
10. Scherholtz, M., P. Sinko, M.G. Ierapetritou and I.P. Androulakis, Gender-dependent PBPK modeling, American Institute of Chemical Engineers Annual Meeting, San Francisco, November 2016
11. Rao R., R.R. Almon, D.C. DuBois, W.J. Jusko and I.P. Androulakis, Modeling the sexual dimorphism in the feedback of the HPA axis, American Institute of Chemical Engineers Annual Meeting, San Francisco, November 2016
12. Hartmanshen, C., Z. Wang, M.G. Ierapetritou and I.P. Androulakis, Prediction of formulation effects of continuously formulated solid oral dosage forms non bio-availability using PBPK modeling, American Institute of Chemical Engineers Annual Meeting, San Francisco, November 2016
13. Bae S., Acevedo A, Androulakis IP, American Institute of Chemical Engineers Annual Meeting, November 10-15, 2015, Salt Lake City, UT USA *Asymmetry in Signal Oscillations Contributes to Efficiency of Periodic Systems*
14. Rao R. Almon R, DuBois D, Jusko WJ, Androulakis IP, American Institute of Chemical Engineers Annual Meeting, November 16-21, 2014, Atlanta, GA USA, *Modeling the Dynamics of Neuroendocrine-Immune Interactions in Collagen-Induced Arthritis*
15. Kamisoglu K, Sukumaran S, Nouri-Nigjeh E, Tu C, Li J, Zhang M, Wopperer S, Yu H, Qu Y, Almon RR, DuBois D, Jusko WJ, Androulakis IP, American Institute of Chemical Engineers Annual Meeting,

- November 16-21, 2014, Atlanta, GA USA. “*Effects of Corticosteroids on Liver Function: Inter-Relationships Between Transcription and Translation*”
16. Kamisoglu K, Calvano SE, Coyle SM, Corbett SA, Androulakis IP, American Institute of Chemical Engineers Annual Meeting, November 16-21, 2014, Atlanta, GA USA. “*Human Metabolic Response to Systemic Inflammation: Concordance between the Experimental Endotoxemia and Clinical Cases*”
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132. Ierapetritou, M.G. and I.P. Androulakis, Uncertainty considerations in the reduction of chemical reaction mechanisms, Breeckenridge, CO, 1999.
133. Adjiman, C.S., I.P. Androulakis, and C.A. Floudas, MINLPs in process synthesis and design: global optimization approaches, Applied Mathematics Programming and Modeling, Limassol, Cyprus, 1998
134. Androulakis I.P., M. G. Ierapetritou, N. N. Nayak, D.S. Monos and C.A. Floudas, A predictive method for the evaluation of peptide binding in pocket 1 of HLA-DRB1 via global minimization of energy interactions, AIChE Annual Meeting, Los Angeles, CA, 1997.
135. Androulakis, I.P., C.D. Maranas, and C.A. Floudas, Global optimization in financial planning, INFORMS, Dallas, TX, 1997.
136. Androulakis, I.P., C.S. Adjiman and C.A. Floudas, Global optimization of MINLP problems in process synthesis and design, PSE/ESCAPE, Norway, 1997.
137. Adjiman, C.S., I.P. Androulakis, and C.A. Floudas, MINLP in process synthesis and design: global optimization approaches, AIChE Annual Meeting, Los Angeles, CA, 1996.
138. Androulakis, I.P., M.G. Ierapetritou, N. Nayak, D. Monos, and C.A. Floudas, A predictive method for the evaluation of peptide binding in pocket I of the HLA-DRB1 via global optimization of energy interactions, AIChE National Meeting, Los Angeles, CA, 1997.
139. Klepeis J.L., I.P. Androulakis, M.G. Ierapetritou and C.A. Floudas, Predicting solvated peptide conformations via global minimization, AIChE Annual Meeting, Los Angeles, CA, 1997.
140. Adjiman, C.S., I.P. Androulakis and C.A. Floudas, Global optimization of MINLP problems in process synthesis, AIChE National Meeting, Chicago, IL, 1996.
141. Adjiman, C.S., I.P. Androulakis and C.A. Floudas, Valid convex underestimators for process design problems, AIChE National Meeting, Chicago, IL, 1996.
142. Androulakis, I.P., C.D. Maranas, and C.A. Floudas, A global optimization method for general constrained nonconvex problems, INFORMS, New Orleans, LA, 1995
143. Androulakis, I.P., and C.A. Floudas, Global minimum total potential energy conformations of oligopeptides, AIChE Annual Meeting, Miami, FL, 1995.
144. Androulakis, I.P., and C.A. Floudas, global minimum total potential energy conformations of oligopeptides, AIChE Annual Meeting, Miami, FL, 1995
145. Androulakis, I.P., C.D. Maranas, and C.A. Floudas,  $\square$ BB: a new global optimization approach for general continuous nonlinear problems, AIChE Annual Meeting, Miami, FL, 1995.
146. Androulakis, I.P., C.D. Maranas, and C.A. Floudas, Finding all multiple steady states of process systems, AIChE Annual Meeting, Miami, FL, 1995
147. Androulakis, I.P., C.D. Maranas, and C.A. Floudas, A deterministic global optimization approach for the protein folding problem, Workshop of Global Optimization of Nonconvex Energy Functions Molecular Conformation and Protein Folding, DIMACS Center – Rutgers University, NJ, 1995.
148. Androulakis, I.P., V. Visweswaran, and C.A. Floudas, Distributed computing in global optimization, AIChE Annual Meeting, San Francisco, CA, 1994.
149. Androulakis, I.P., and G.V. Reklaitis, Asynchronous distributed decision making with applications to process operations, AIChE Annual Meeting, San Francisco, CA, 1994.
150. Androulakis, I.P., C.D. Maranas, J.M. Mulvey and C.A. Floudas, solving dynamic control problems via deterministic global optimization, 15<sup>th</sup> Intl. Symposium on Mathematical Programming, Ann Arbor, MI, 1994.

151. Androulakis, I.P., G.V. Reklaitis, Analysis of the spurious behavior of asynchronous relaxation algorithms, AIChE Annual Meeting, Miami, FL, 1992.
152. Androulakis, I.P., G.V. Reklaitis, Partially asynchronous iterative methods for the numerical integration of dynamical systems, AIChE Annual Meeting, Los Angeles, CA, 1991.
153. Androulakis, I.P., G.V. Reklaitis, Partially asynchronous algorithms, AMOCO Oil Company, Naperville, IL, 1991.
154. Androulakis, I.P., V. Venkatasubramanian, a genetic algorithmic framework for process design and optimization, AIChE Annual Meeting, San Francisco, CA, 1989.
155. Androulakis, I.P., N.S. Kalospiros, D.P. Tassios, Thermophysical properties of pure polar and non-polar compounds with a modified VdW-711 equation of state, 10<sup>th</sup> IUPAC International Conference on Thermodynamics, Budapest, Hungary. 1988.

## PROFESSIONAL SOCIETIES

- American Institute of Medical and Biological Engineering
- Biomedical Engineering Society
- Sigma Xi Honors Society
- Society of Endocrinology
- American Physiological Society
- American Institute of Chemical Engineers
- Society for Complexity in Acute Illness
- International Society of Translational Medicine
- Society of Biological Engineers
- Computer and Systems Technology Division of the AIChE
- Society for Industrial and Applied Mathematics

## ORGANIZER OR CHAIRMAN OF SYMPOSIA

- **American Conference on Pharmacometrics**, *Integration of PM approaches to model-informed decision making: Actorss SIG perspectives (2023)*
- **9<sup>th</sup> International Conference on Foundations of systems Biology in Engineering**, Conference Chair, Boston, MA (2022)
- **American Conference on Pharmacometrics**, *Leveraging big data science and technology to enable the development of QSP models for personalized medicine applications*, San Diego, CA (2018)
- **European Conference on Computational Biology**, Thematic Area of Systems Biology (2018)
- **Computing and Systems Technology Division (AIChE) Area 10C Coordinator** (2012-2013)
- **International Programming Committee Member**, 21<sup>st</sup> European Symposium on Computer Applications in Process Engineering, London, UK (2012)
- **International Steering Committee Member**, The 4<sup>th</sup> International Conference on Foundations of Systems Biology in Engineering (FOSBE), Tsuruoka, Japan (2011)
- **International Programming Committee Member**, 21<sup>st</sup> European Symposium on Computer Applications in Process Engineering, Greece (2011)
- **Programming Committee**, 10<sup>th</sup> IEEE International Conference on Data Mining, Sydney, Australia (2010)
- **Area Chair**, 10<sup>th</sup> IEEE International Conference on Bioinformatics & Bioengineering, Philadelphia, PA (2010)
- **Session Chair**, *Systems Engineering Approaches in Biology and Biomedicine*, AIChE Annual Meeting, Salt Lake City, UT (2010)

- **Area Chair**, *Systems Biology/Modeling for Biomedical Systems/ Biological Networks*. International Conference on Bioinformatics and Bioengineering (2010)
- **International Programming Committee Member**, The 3<sup>rd</sup> International Conference on Foundations of Systems Biology in Engineering (FOSBE), Denver, CO (2009)
- **Session Chair**, *Systems Engineering Approaches in Biology and Biomedicine*, AIChE Annual Meeting, Nashville, TN (2009)
- **Programming Committee Member**, 2008 IEEE International Conference on Data Mining (ICDM-08), Pisa, Italy (2008)
- **Area Chair**, *Network Analysis and Models of Host/Pathogen Interactions*, BMES Meeting, Pittsburg (2009)
- **Associate Editor**, *Advances in Theory and Clinical Applications of Biological Network Studies*, 31<sup>st</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society (2009)
- **Organizer**, *DIMACS Workshop on Nanotechnology and Biology*, Rutgers University (2009)
- **Session Chair**, *Methodology and Applications in Computational Bioengineering and Bioinformatics*, BMES Annual Meeting, Hartford, Conn (2008)
- **Session Chair**, *Systems Engineering Approaches in Biology and Biomedicine*, AIChE Annual Meeting, Philadelphia, PA (2008)
- **Session Chair**, *Systems Engineering Approaches in Biology and Biomedicine*, AIChE Annual Meeting, Salt Lake, UT (2007)
- **Session Chair**, *Multi-scale Modeling*, AIChE Annual Meeting, Salt Lake, UT, (2007)
- **Session Chair**, *Information Technologies and Process Operations*, AIChE Annual Meeting, Cincinnati, OH (2005)
- **Session Chair**, *Fuel Cell technology*, AIChE Annual Meeting, Cincinnati, OH (2005)
- **Session Chair**, *Scheduling and Planning*, AIChE Annual Meeting, Austin, TX (2004)
- **Session Chair**, *Fuel Processing Session I: Modeling and System Integration*, AIChE Annual Meeting, Austin, TX (2004)
- **Session Chair**, *Fuel Cell Technology I*, AIChE Annual Meeting, Austin, TX (2004)
- **Session Chair**, *Complex Systems Modeling*, AIChE Annual Meeting, San Francisco, CA (2003)
- **Session Chair**, *Data Analysis: Design, Algorithms & Applications*, AIChE Annual Meeting, San Francisco, CA (2003)
- **Session Chair**, *Information Management in the Process Industries*, AIChE Meeting, November, Indianapolis, IN (2002)
- **Session Chair**, *Detailed Reaction and Reactor Modeling*, AIChE Annual Meeting, Indianapolis, IN (2002)
- **Session Chair**, *Applications of System Analysis Tools in Information Processing*, AIChE Annual Meeting, Reno, NV (2001)
- **Session Chair**, *Detailed Reaction and Reactor Modeling*, AIChE Annual Meeting, Los Angeles, CA (2000)
- **Session Chair**, *High performance computing: Algorithms and applications*, AIChE Annual Meeting, Los Angeles, CA (2000)

## MEMBERSHIP IN SCIENTIFIC BOARDS AND COMMITTEES

- Executive Committee Member, Environmental Bioinformatics and Computational Toxicology Center (ebCTC) (2005-2011)
- Industrial Advisory Board Member, Center for Process Modeling and Control (CPMC), Lehigh University (2001)

## MEMBERSHIP IN EDITORIAL BOARDS

- Associate Editor: *Frontiers in Systems Biology*

- Academic Editor: *PLoS ONE*
- Editor-in-chief: *Open Access Bioinformatics* (2007-2014)
- Editorial Board Member: *International Journal of Burns and Trauma*, *Critical Reviews in Biomedical Engineering*, *The Open Bioinformatics Journal*, *American Journal of Translational Research*, *Open Systems Biology Journal*, *Saturday Review-Drug Trials*, *American Journal of Translational Research*, *CPT: Pharmacometrics & Systems Pharmacology*, *ISRN Bioinformatics*, *Communications in Mathematical Biology and Neuroscience*, *AIMS Bioengineering*, *J. Pharmakinetiks Pharmakodynamics*

## GUEST EDITOR

- ***Critical Reviews in Biomedical Engineering***. Special Issue on “*Inflammation in human health and disease*” (2013)
- ***Mathematical Biosciences***. Special Issue on “*Modelling inflammation*” (2015)
- ***Computers and Chemical Engineering***. Special Issue on “*Bio-Systems Engineering*” (2015)
- ***Gene Regulation and Systems Biology***. Special Issue on “*Quantitative Systems Biology*” (2017)
- ***Current Opinion in Biotechnology***. Special Issue on “*Systems Biology*” (2018)

## SCIENTIFIC REVIEWER

### Journals

- Nature, Cell Biology and toxicity; J. Pharmacokinetics and Pharmacodynamics; AIChE Journal; Annals of Biomedical Engineering; Annual Reviews of Biomedical Engineering; Biophysical Journal; BMC Bioinformatics; BMC Systems Biology; BMC Genomics; Computers and Chemical Engineering; Energy and Fuels; Industrial & Engineering Chemistry Research; Journal of Catalysis; Journal of Global Optimization; Naval Research Logistics; Optimization and Engineering; Algorithms for Molecular Biology; IET Systems biology; Computers in Biology; Transactions on Knowledge and Data Engineering; Personalized Medicine; Chemical Engineering research and Design, PLoS Medicine, Journal Process Control, J. Chemical Information and Modeling, Food and Chemical Toxicology, Psychoneuroendocrinology, Molecular BioSystems, Journal of Physiobiochemical Metabolism, ISRN Bioinformatics, J. Leukocyte Biology

### Conferences

- AIChE National Meeting (1996-present)
- BMES National Meeting (2008, 2009)
- EMBC International Meeting (2009, 2011)
- International Conference on Decision and Control (2002)
- State of the Art in Global Optimization: Computational Methods and Applications (1998)

### Scientific Panels

- NSF, NIH/NIEHS, DOE, EPA
- Defense Threat Reduction Agency
- Italian Ministry of Health General Directorate for Health and Technologies Research
- Fonds National de la Recherche Luxembourg
- European Research Council
- General Secretariat for Research and Technology of Greece

## ADVISING and TEACHING

### *PhD and MS students supervised*

*Ph.D. in progress*

1. Lingjun Lu, expected May 2024

*Ph.D. completed*

1. Yannuo Li, 2023  
Current position: InCyte
2. Matthew Putnins, 2020  
Current position: *Genmab*
3. Alison Acevedo, 2019  
Current positions: *GSK*
4. Megerle Escotet, 2019  
Current position: *BMS*
5. Seul-A Bae, May 2018  
Current position: *Merck*
6. Rohit Rao, May 2018  
Current position: *Pfizer*
7. Kamau Pierre, May 2017  
Current position: *Sanofi*
8. Kubra Kamisoglu, October 2015  
Current position: *Novartis*
9. Panteleimon Mavroudis, September 2014  
Current position: *Sanofi*
10. Shuliang Zhang, June 2014  
Current position: *Norton Engineering Consultants*
11. Jeremy Scheff, June 2013  
Current position: *ZenGM*
12. Qian Yang, August 2012  
Current position: *University of Alberta*
13. Tung Thanh Nguyen, December 2011  
Current position: *Covance*
14. Mehmet Orman. September 2011  
Current position: *University of Houston*
15. MERIC Ovacik. September 2010  
Current position: *Genentech*
16. Kaiyyuan He, June 2010  
Current position: *ExxonMobil Corporate Strategic Research Laboratories*
17. Peggy Foteinou, May 2010  
Current position: *BMS*
18. Eric Yang: Graduated August 2008.  
Current position: *Medidata*

*M.S. in progress*

*M.S. completed*

1. Jordan Eckhoff (2021)
2. Stanley Kho, MS (2016)
3. Jon Pai, MS (2015)
4. Kirsten Sleigh, MS (2013)
5. Niotis, Vassilis, MS (2011)

6. Tien Phong Huynh, MS (2007)
7. James Wu, MS (2006)

### ***Member of Ph.D. Thesis Committees***

#### *Rutgers University*

1. Vahideh Vaki (May 2022)
2. Yue Guo (May 2017)
3. Sarandeep Boyanapalli (May 2016)
4. Nihar Sahai (May 2016)
5. Nikisha Sha (May 2015)
6. Nihar Sahay (May 2015)
7. Dwaipayan Mukherjee (March 2015)
8. Joseph Kim (December 2014)
9. Sebastian Vega (September 2014)
10. Lawrence Sasso (PhD 2012)
11. Spyridon Stamatelos (June 2011)
12. Vicrotia Swiss (June 2011)
13. Er Liu (PhD 2010)
14. Sang Tae Doh (PhD 2010)
15. Zhiping Zhu (PhD 2009)
16. Matt Treiser (PhD 2009)
17. Hong Yang (PhD 2009)
18. Eddie Davis (PhD 2008)
19. Loreto Valenzuela (PhD 2008)
20. Timothy Maguire (PhD 2007)
21. Dan Wu (PhD 2005)
22. Ipsita Banerje (PhD 2005)
23. Aditya Bindal (PhD 2004)

#### *External*

1. Nabil Azhar (PhD 2014) – CMU-Pitt Ph.D. Program in Computational Biology
2. Ho Kei Lon (PhD 2013) – Dept. of Pharmaceutical Sciences, SUNY Buffalo

### ***Undergraduate Students Supervised***

1. Pratyoy Biswas (2023-2025)
2. Sofia Carayannopoulos (2022-2024)
3. Kelly Nugent (2023) U of Michigan
4. Mohammed Khedr (2023-2024)
5. Muhammad Ali (2023-2024)
6. Kyle Werther (2023-2024)
7. Meghna Angara (2023-2024)
8. Nicole Brune (2023-2024)
9. Tyler Chan (2023-2024)
10. Aadya Gadkari (2023-2024)
11. Shriya Kuruba (2023-2024)
12. Tanay Mehta (2023-2024)
13. Kelly Sanango (2023-2024)
14. Wen Luo (2021-2023)



15. Alec Lucato (2022-2023)
16. Phianna Patel (2022-2023)
17. Karolina Ulicki (2022-2023)
18. Adina Weisel (2022-2023)
19. Wen Luo (2021-2023)
20. Amanda Kang (2021-2023)
21. Minjal Patel (2019-2021)
22. Nilay Vora (2016-2017)
23. James Forder (2016-2017)
24. Donald Chawla (2015-2016)
25. Rebecca Jolibois (2015-2016)
26. Chris Chen (2015-2016)
27. Lan Le (2015-2016)
28. Rohan Shah (2014-2016)
29. Melanie Parikh (2014-)
30. Daniel Bradbury (2012-2014)
31. Aditya Sai (2011-2013)
32. Alyssa Kosmides (2010-2012)
33. Zachery Gao (2010) Physics
34. Michael M. Quien (2008-2010)
35. Xu Dong (2008-2009)
36. Jeremy Scheff (2007-2008)
37. Jocelyn Alexander (2007-2008)
38. Andrew Abdou (2007-2008)
39. Farzana Sharmin (2007-2008)
40. Bishoy Hana (2007-2008)
41. Brendan Cyrus (2007-2008)
42. Biren Tarpara (2007)
43. David Simcha (2006-2007)
44. Kelly Horn (2006)
45. Amit Misra (2006)
46. Hiren Solanki (2005)
47. Cliff Sui (2005)
48. Graig Dana (2005)

#### Courses Taught

1. Biomedical Engineering Senior Design (Biomedical Engineering, Senior class, Fall '09, Spring '10, Fall '10, Spring '10, Fall '10, Spring '11, Spring '11, Fall '12)
2. Introduction to Biomedical Engineering (Biomedical Engineering. Sophomore class. Fall '05, '06, '07, '08, '09)
3. Introduction to Biochemical Engineering (Chemical & Biochemical Engineering. Senior class. Fall '07, '08, '09, '10)
4. Biomedical Thermodynamics and Kinetics (Biomedical Engineering. Junior class. Spring '06, '07, '08)
5. Topics in Computational Biology (Department of Cell and Developmental Biology, Graduate Elective, Fall '08)
6. Computational Systems Biology (Biomedical Engineering. Senior class. Spring '06, '07, Fall '13, Spring '15, Spring '16, Spring '17, Spring '19, Spring '21)
7. Freshman Orientation (Biomedical Engineering. Freshman. Fall '06, '07)
8. Chemical Engineering Analysis II (Chemical & Biochemical Engineering, Junior class, Fall '13, Fall '14, Fall '15, Fall '16)
9. Computational Methods in Chemical Engineering (Chemical & Biochemical Engineering, Junior class, Fall '17, Fall '18, Fall '19, Fall '20, Fall '21, Fall '22, Fall '23)

10. Numerical Modeling in Biomedical Engineering (Spring '20, Spring '22, Spring' 23, Spring '24)
11. Biomedical Engineering Researchs Scholars Academy (2021-2022, 2022-2023, 2023-2024)

## SERVICE

- Chair, Graduate admissions committee, Chemical Engineering (2013-2020)
- Vice-chair, Biomedical Engineering Department (2008-2020)
- Undergraduate Program Director, Biomedical Engineering Department (2008-2020)
- Member Courses of Study Committee, School of Engineering, Rutgers University (2008-2020)
- Chair, Undergraduate Curriculum Reform Committee, Biomedical Engineering Department (2008-)
- Faculty Advisor, Biomedical Engineering Society, Rutgers University Chapter (2006-)
- Faculty Advisor, *Honors Academy*, Biomedical Engineering Department (2006-2008)
- Faculty Advisor, *ΩXE* Honors Society, Chemical Engineering Honors Society (2007 -)
- Member Committee on Committees, School of Engineering, Rutgers University (2006 - 2008)
- Faculty Advisor, *Tissue & Molecular Engineering Track*, Biomedical Engineering Department (2006-2011)
- Graduate Admission Committee, Biomedical Engineering Department (2007-)
- Graduate Admission Committee, Chemical Engineering Department (2006-)
- Faculty Advisor, *Biomedical Engineering Student Society* (2006-present)
- Faculty Advisor, *Governors Summer School*, School of Engineering, Rutgers University (2006)
- Organizing Committee *New Jersey Biomedical Engineering Showcase* 2006.

## RESEARCH FUNDING

### Active and Completed

***National Institutes of Health***, Grant Number: R43GM131800

Corticosteroid Pharmacokinetics and Pharmacodynamics

Period: 06/01/19 – 04/30/24, Amount: \$2,400,000

**Role: Sub-award Principal Investigator** (Award PI: W.J. Jusko, SUNY Buffalo)

***National Science Foundation***, Grant Number 2233279

Conference Support, FOSBE 2022

Period 01/01/2022 – 12/31/2023, Amount: \$15,000

**Role: Principal Investigator**

***National Institutes of Health***, Grant Number: R01GM024211

Corticosteroid Pharmacokinetics and Pharmacodynamics

Period: 07/01/15 – 06/30/19, Amount: \$2,400,000

**Role: Sub-award Principal Investigator** (Award PI: W.J. Jusko, SUNY Buffalo)

***National Institutes of Health***, Grant Number: R01GM082974

Bioinformatics Analysis of Control Mechanisms of Hypermetabolism

Period: 09/01/08 – 06/30/13, Amount: \$1,300,000

**Role: Principal Investigator**

***Office of Naval Research***

Efficient Characterization of Complex Reaction Networks

Period: 03/01/10-02/28/13, Amount: \$150,000

**Role: co- Principal Investigator**

***NIH ARRA Supplement***

Parent Grant: Number: R01GM082974  
Bioinformatics Analysis of Control Mechanisms of Hypermetabolism  
Period: 09/01/09 – 08/31/11, Amount: \$303,000  
**Role: Principal Investigator**

*National Science Foundation*, Grant Number: 0836422 Supplemental Award  
Reactive Flow Simulation Using an Adaptive Chemistry Framework  
Period: 09/01/10-08/31/11, Amount: \$45,000  
**Role: Principal Investigator**

*NIGMS Administrative Supplement*  
Parent Grant: R01 GM 34695, Lowry, S.F. (PI)  
Hormone and Cytokine Regulation of Endotoxin Injury  
Period: 07/01/09 – 06/31/10, Amount: \$88,992  
**Role: Principal Investigator** (Rutgers University Subcontract)

*National Science Foundation*, Grant Number: 0836422  
Reactive Flow Simulation Using an Adaptive Chemistry Framework  
Period: 09/01/07-08/031/10 Amount: \$316,000  
**Role: Principal Investigator**

*National Science Foundation*, Grant Number: 0836422 Supplemental Award  
Reactive Flow Simulation Using an Adaptive Chemistry Framework  
Period: 09/01/09-08/31/10, Amount: \$53,000  
**Role: Principal Investigator**

*Environmental Protection Agency*, Grant Number: EPA-GAD R 832721-010  
Environmental Bioinformatics and Computational Toxicology Center  
Period: 09/01/05 – 10/31/10, Amount: \$435,983  
**Role: co- Principal Investigator**

*National Science Foundation*, Grant Number: 0836422 Supplemental Award  
Reactive Flow Simulation Using an Adaptive Chemistry Framework  
Period: 09/01/08-08/31/09, Amount: \$46,871  
**Role: Principal Investigator**

*Clinical and Translational Sciences Pilot Award, UMDNJ*  
Analytical Deconvolution of Total Leukocyte Gene Expression Analysis to Reveal Expression Motifs of Individual Leukocyte Subpopulations  
Period: 09/01/08-08/31/09, Amount: \$25,000  
**Role: co-Principal Investigator**

*Charles & Johanna Busch Memorial Fund, Rutgers University*  
Modeling the dynamics of gene expression in monocytes from LPS-challenged healthy humans pre-treated with cortisol  
Period 7/1/07-6/30/09, Amount: \$50,000  
**Role: Principal Investigator**

*Office of Naval Research*  
Efficient Characterization of Complex Reaction Networks  
Period: 07/01/06-06/30/09, Amount: \$150,000  
**Role: co- Principal Investigator**

***ExxonMobil Research and Engineering Knowledge Built Award***

Period 05/01/06-04/30/09, Amount: \$135,000

**Role: Principal Investigator**

***National Science Foundation***, Grant Number: NSF-0519563

Molecular Network Controls of Hepatocyte Metabolism

Period: 09/13/05 – 08/31/08, Amount: \$667,851

**Role: co- Principal Investigator**