

ARUL JAYARAMAN, Ph.D.

EDUCATION

- 1994 - 98 Ph.D. in *Chemical Engineering*
University of California, Irvine, CA
- 1993 - 94 M.S in *Chemical Engineering*
Tufts University, Boston, MA
- 1987 - 92 M.S. in *Physics*
Birla Institute of Technology & Science, Pilani, India
- 1987 - 92 B.E. *Chemical Engineering*
Birla Institute of Technology & Science, Pilani, India

POSTDOCTORAL TRAINING

- 1998 - 2000 Center for Engineering in Medicine, Massachusetts General Hospital and Shriners Burns Institute, Boston, MA

ACADEMIC APPOINTMENTS

- 2004 - Assistant Professor, Department of Chemical Engineering, Texas A&M University
- 2002 - 04 Scientific Staff, Shriners Burns Hospital, Boston
- 2001 - 04 Instructor in Surgery (Bioengineering), Harvard Medical School, Boston, MA
- 1998 - 04 Research Fellow in Surgery, Massachusetts General Hospital, Boston, MA
- 1992 - 93 Research Associate, School of Biotechnology, Madurai Kamaraj University, India

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Biochemical Technology Division, American Chemical Society
- American Institute of Chemical Engineers
- American Society of Microbiology

AWARDS AND HONORS

- 2009 Ray Nesbitt Professorship
- 2009 NSF CAREER award
- 1998 UC Regents Dissertation Fellowship, University of California, Irvine
- 1994 School of Engineering Dean's Teaching Fellowship, University of California, Irvine

PUBLICATIONS

1. Englert, D. L*, Manson, M. D. and **Jayaraman, A.** “A Microfluidic (μ Flow) method for quantifying bacterial chemotaxis”. *Nature Protocols*. Under Revision (2009).
2. Bansal, T*, Alaniz, R., Wood, T. K. and **Jayaraman, A.** “The bacterial signal indole increases transepithelial resistance and attenuates epithelial cell inflammation”. *Proceedings of the National Academy of Sciences*. Under Revision (2009).
3. Englert, D. L*, Adase, C, **Jayaraman, A.** and Manson, M. D. “Repellent Taxis to Nickel Ion Requires Neither Ni²⁺ Transport nor the Periplasmic NikA Binding Protein”. *Journal of Bacteriology*. Under Revision (2009).
4. Kim, J*, Hegde, M*. and **Jayaraman, A.** “Co-culture of bacteria and epithelial cells for investigating signal-mediated interactions in the GI tract”. *Lab Chip* (2009). In press.
5. Huang, J. H., Kim, J*, Agrawal, N., Sudarsan, A., Maxim, J., **Jayaraman, A#.** and Ugaz, V#. “Rapid fabrication of branched 3-D microvascular networks using electric discharge”. *Advanced Materials* 21: 1-5, 2009. #: Joint corresponding authors. **Cover article**
6. Hegde, M*, Wood, T. K. and **Jayaraman, A.** “The neuroendocrine hormone norepinephrine increases *Pseudomonas aeruginosa* PA14 virulence through the *las* quorum sensing pathway”. *Applied Microbiology and Biotechnology* 84: 763-6 (2009).
7. Englert, D. L*, **Jayaraman, A.** and Manson, M. D. “Microfluidic techniques for the analysis of bacterial chemotaxis”. *Methods in Molecular Biology*. Vol 571 (2009).
8. Englert, D. L*, Manson, M. D. and **Jayaraman, A.** “Using a microfluidic device to investigate interactions between signaling molecules on *Escherichia coli* chemotaxis”. *Applied and Environmental Microbiology*. 75: 4557-64 (2009).
9. Englert, D. L*, Janakiraman, V., **Jayaraman, A#.** and Baskaran, H#. “Modeling growth and quorum sensing in biofilms grown in microfluidic chambers”. *Annals of Biomedical Engineering*. 37: 1206-16 (2009). #: Joint corresponding authors
10. Newton*, B., Russell, W. K., Russell, D. H., Ramaiah, S. K. and **Jayaraman, A.** “Liver proteome analysis in a rodent model of alcoholic steatosis”. *Journal of Proteome Research*. 8: 1663-71 (2009).
11. Wang, S., Chen, P. C., Berthiaume, F., Toner, M., **Jayaraman, A.** and Yarmush, M. L. “Dynamic effect of heat shock pre-treatment on apoptotic responses to TNF- α in liver cells”. *Journal of Biomechanical Engineering*. In press (2009).
12. Walton S. P. and **Jayaraman, A.** “Proteomics: Technology development and applications”. *Expert Reviews in Proteomics*. 6: 23-25 (2009).
13. Huang, Z., Senocak, F*, **Jayaraman, A#.** and Hahn, J#. “Integrated modeling and experimental approach for determining transcription factor profiles from fluorescent reporter data”. *BMC Systems Biology*. 2: 64 (2008). #: Joint corresponding authors. **Highly accessed**
14. Lai, N., **Jayaraman, A.** Lee, K. “Vascular endothelial cell growth factor receptor-2 mediates synergistic proliferation and differentiation of adipocytes and endothelial cells in co-culture”. *Tissue Engineering*. Epub ahead of print. (2008).
15. **Jayaraman, A.** and Wood, T. K. “Bacterial quorum sensing: Signals, circuits, and implications for biofilms and disease”. *Annual Reviews of Biomedical Engineering*. 10: 145-167 (2008). **Top 10 downloaded articles.**
16. Banerjee, A., **Jayaraman, A.**, Russell, W. K. and Ramaiah, S. K. “Identification of proteins to predict the molecular basis for observed gender susceptibility in a rat model of alcoholic steatohepatitis by 2-D gel proteomics”. *Proteomics*. 8: 4327-37 (2008).
17. Lee, J., Zhang, X. S., Hegde, M*, Bentley, W. E., **Jayaraman, A.** and Wood, T. K. “Indole cell signaling occurs primarily at low temperatures in *Escherichia coli*”. *ISME Journal*. 2: 1007-23 (2008).
18. **Jayaraman, A.**, Maguire, T, Vemula, M., Kwon, D. W., Vannucci, M., Berthiaume, F. and Yarmush, M. L. “Gene expression profiling of long-term changes in rat liver following burn injury”. *Journal of Surgical Research*. Epub ahead of press, Aug 28, 2008.

19. Bansal, T*, Jesudhasan, P., Pillai, S, Wood, T. K. and **Jayaraman, A.** “Temporal regulation of enterohemorrhagic *Escherichia coli* virulence mediated by autoinducer-2”. *Applied Microbiology & Biotechnology*. 78: 811-9 (2008).
20. Soni, K., Jesudhasan, P., Cepeda, M., Williams, B., Hume, M., Russell, W. K., **Jayaraman, A.** and Pillai, S. D. “Autoinducer-2 is involved in regulating a variety of cellular processes in *Salmonella typhimurium*.” *Foodborne Pathogens and Disease*. 5: 147-53 (2008).
21. King, K. R., Wang, S., **Jayaraman, A.**, Yarmush, M. L. and Toner, M. “Microfluidic flow-encoded switching for parallel control of dynamic cellular microenvironments”. *Lab Chip* 8: 107-16 (2008).
22. Bansal*, T., Englert, D*, Lee, J., Hegde, M*, Wood, T. K. and **Jayaraman, A.** “Differential effects of epinephrine, norepinephrine, and indole on *Escherichia coli* O157:H7 chemotaxis, colonization, and gene expression”. *Infection & Immunity*. 75: 4597-607 (2007).
23. Senocak, F*, Si, Y., Lee, K. and **Jayaraman, A.** “Effect of forced uncoupling protein-1 expression on 3T3-L1 adipocyte gene expression”. *FEBS Letters* 581: 5865-71 (2007). **Featured on the Cover.**
24. Si, Y., Palani, S.*, **Jayaraman, A.** and Lee, K. “Effects of forced uncoupling protein 1 expression in 3T3-L1 cells on mitochondrial function and lipid metabolism”. *Journal of Lipid Research* 48: 826-36 (2007).
25. Lee, J., Bansal, T*, **Jayaraman, A.**, Bentley, W. E. and Wood, T. K. “Enterhemorrhagic *Escherichia coli* biofilms are inhibited by 7-hydroxyindole and stimulated by isatin”. *Applied and Environmental Microbiology* 73: 4100-9 (2007).
26. Lee, J., **Jayaraman, A.** and Wood, T. K. “Indole is an inter-species signal mediated by SdiA”. *BMC Microbiology* 7: 42 (2007).
27. Singh, A., **Jayaraman, A.** and Hahn, J. “A case study of representing signal transduction in liver cells as a feedback control problem”. *Chemical Engineering Education*. 41: 177-182 (2007).
28. Y. Chu, A. Singh, **A. Jayaraman,** and J. Hahn, 2007. Parameter Sensitivity Analysis of IL-6 Signaling Pathways *IEEE Trans Sys Biol*. 1: 342-52 (2007).
29. King, K. R., Wang, S., **Jayaraman, A.**, Toner, M. and Yarmush, M. L. “A High-throughput Microfluidic Real-time Gene Expression Living Cell Array”. *Lab-on-Chip* 7: 77-85 (2007).
30. Soni, K., Jesudhasan, P., Cepeda, M., Williams, B., Hume, M., Russell, W. K., **Jayaraman, A.** and Pillai, S. D. “Proteomic analysis to identify the role of LuxS/AI-2 mediated protein expression in *Escherichia coli* O157:H7”. *Foodborne Pathogens and Disease*. 4: 463-71 (2007).
31. Banta, S., Vemula, M., Yokoyama, T., **Jayaraman, A.**, Berthiaume, F. and Yarmush, M. L. “Contribution of gene expression to metabolic fluxes in hypermetabolic livers induced through burn injury and polymicrobial sepsis in rats”. *Biotechnology & Bioengineering* 97: 118-37. (2007).
32. Singh, A, **Jayaraman, A.**, and Hahn, J. “Modeling regulatory mechanisms in IL-6 signal transduction in hepatocytes”. *Biotechnology & Bioengineering*. 95: 850-62 (2006).
33. Wieder, K. J., King, K. R., Thompson, D. M., Toner, M., Yarmush, M. L. and **Jayaraman, A.** “Optimization of reporter cells for expression profiling in a microfluidic device”. *Biomedical Microdevices*. 7: 213-22 (2005).
34. **Jayaraman, A.**, Roberts, K. A., Yoon, J., Yarmush, D. M., Duan, X., Lee, K. and Yarmush, M. L. ”Identification of neutrophil gelatinase-associated lipocalin (NGAL) as a discriminant marker of the hepatocyte secreted protein response to IL-1 β : a proteomic analysis,” *Biotechnology Bioengineering*. 91: 502-15 (2005).
35. Duan, X, Yarmush, D. M, Berthiaume, F, **Jayaraman, A.**, and Yarmush, M. L. “Evaluation of immunoprecipitation-based depletion of albumin for two-dimensional gel separation of normal and inflamed mouse plasma”. *Proteomics*. 5: 3391-4000 (2005).
36. **Jayaraman, A.**, Roth, C.M. and Yarmush, M.L. “Comprehensive evaluation of an *in vitro* model of hepatic inflammatory response by gene expression profiling”. *Tissue Engineering*. 11: 50-63. (2005).
37. Vemula, M., Berthiaume, F., **Jayaraman, A.**, and Yarmush, M. L. “Expression profiling analysis of the metabolic and inflammatory changes following burn injury in rats”. *Physiological Genomics*. 18: 87-98. (2004).
38. Thompson, D., Toner, M., Yarmush, M. L. and **Jayaraman, A.** “Dynamic gene expression profiling using a living cell array”. *Analytical Chemistry*. 76: 4098-4103. (2004).

39. Duan, X, Berthiaume, F, Yarmush, D. M, **Jayaraman, A.**, and Yarmush, M. L. “A mouse serum two-dimensional gel map: Application to profiling burn injury and infection”. *Electrophoresis*. 25: 3055-3065. (2004).
40. Duan, X., Yarmush, M. L., **Jayaraman, A.** and Yarmush M. L. “Dispensable role for interferon gamma in the acute phase response: A proteomics analysis”. *Proteomics*. 4: 1830-1839. (2004).
41. Yarmush, M. L. and **Jayaraman, A.** “Advances in Proteomics Technologies”. *Annual Reviews of Biomedical Engineering*. 4: 349-373. (2002).
42. **Jayaraman, A.**, Yarmush, M. L. and Roth, C. M. “Molecular Bioengineering”. *Industrial & Engineering Chemistry Research*. 44:441-455. (2002).
43. **Jayaraman, A.**, Walton, S. P. and Roth, C. M. “Rational selection and quantitative evaluation of antisense oligonucleotides”. *Biochimica Biophysica Acta*.1520: 105-114 (2001).
44. **Jayaraman, A.**, Yarmush, M. L. and Roth, C. M. “Dynamics of gene expression in rat hepatocytes under stress”. *Metabolic Engineering*. 2: 239-251. (2000).
45. **Jayaraman, A.**, Duarte, D. D. and Wood, T. K. “Inhibition of anaerobic corrosion of copper and aluminum by protective bacterial biofilms”. *Applied Microbiology & Biotechnology*. 52: 787-790. (1999).
46. **Jayaraman, A.**, Carson, R. M., Hallock, P. J, and Wood, T. K. “Inhibiting anaerobic corrosion of steel by excluding sulfate-reducing bacteria with *in situ* generated antimicrobials”. *Applied Microbiology & Biotechnology*. 52: 267-275. (1999).
47. Ismail, K. M., **Jayaraman, A.**, Wood, T. K. and Earthman, J. C. “The Influence of Bacteria on the Passive Film Stability of 304 Stainless Steel”. *Electrochimica Acta*. 44: 4685-4692. (1999).
48. **Jayaraman, A.**, Duarte, D. D, Lee, C-C., Chen, M. W, Mansfeld, F, and Wood, T. K. “Cloning the antimicrobial peptides indolicidin and bactenecin to inhibit sulfate-reducing bacteria on stainless steel”. *Journal of Industrial Microbiology & Biotechnology*. 22: 167-175. (1999).
49. **Jayaraman, A.**, Sun, A. K., Earthman, J. C. and Wood, T. K. “Characterization of axenic *P. fragi* and *E. coli* biofilms that inhibit corrosion of SAE 1018 steel”. *Journal of Applied Microbiology*. 84: 485 – 492. (1998).
50. **Jayaraman, A.**, Earthman, J. C. and Wood, T. K. “Corrosion inhibition of SAE 1018 steel by aerobic biofilms”. *Applied Microbiology and Biotechnology*. 47: 62-68. (1997).
51. **Jayaraman, A.**, Cheng, E T., Earthman, J. C. and Wood, T. K. “Importance of biofilm formation for corrosion inhibition of SAE 1018 steel by axenic aerobic biofilms” *Journal of Industrial Microbiology and Biotechnology*. 18: 396-401. (1997).
52. **Jayaraman, A.**, Cheng, E T., Earthman, J. C. and Wood, T. K. “Axenic aerobic biofilms inhibit corrosion of SAE 1018 steel through oxygen depletion”. *Applied Microbiology and Biotechnology*. 48: 11-17. (1997).
53. **Jayaraman, A.**, DeBernardez, E. and Goldberg, E. B. “Thermal unfolding of bacteriophage T4 short tail fibers”. *Biotechnology Progress*. 13: 837 – 843. (1997).
54. Kumar, R. A., **Jayaraman, A.**, Lakshmanan, M. and Gunasekaran, P. G. “Bioconversion of gallic acid into pyrogallol by immobilized *Citrobacter freundii* TB3”. *Journal of Fermentation and Bioengineering* 74:159-162 (1992).

BOOK CHAPTERS AND EDITED BOOKS

1. Megeed, Z., Rege, K., **Jayaraman, A.** and Yarmush, ML. “Electrokinetic separations” in “Bioseparation and Bioprocessing: A Handbook”, 2nd edition, Wiley, New York, pp 719-734, 2007.
2. King, KR., Yarmush, ML. and **Jayaraman, A.** “Living Cell Arrays for Expression Profiling” in “Microarrays: Preparation, Detection Methods, Microfluidics, Data Analysis, and Applications”, Springer, New York, pp 211-226, 2009.
3. Moya, C*. and **Jayaraman, A.** “Development of green fluorescent protein-based reporter cell lines for dynamic profiling of transcription factor and kinase activation” in “Systems Analysis of Biological Networks”, Artech House, In press, 2009.
4. **Jayaraman, A.** and Hahn, J, (Eds) “Systems Analysis of Biological Networks”, Series Editors: M.

Yarmush and R. Langer, Artech House, 2009.

CONFERENCE PROCEEDINGS AND PAPERS

1. Huang, Z., Chu, Y., Senocak, F*, **Jayaraman, A.** and Hahn, J. “Model update of signal transduction pathways in hepatocytes based on sensitivity analysis”. Proceedings of the Foundations of Systems Biology (FOSBE) 2007, Stuttgart, Germany, pp 45-50, 2007
2. Singh, A.K., Jayaraman, A. and Hahn, J. “Effect of SHP-2, SOCS3, and PP2 on IL-6 Signal Transduction in Hepatocytes,” Proc. Amer. Cont. Conf., Minneapolis, Minnesota, pp. 3771–3776, 2006.
3. Singh, A.K., **Jayaraman, A.** and Hahn, J. “Mathematical Model of IL-6 Signal Transduction in Hepatocytes,” Proceedings of the Foundations of Systems Biology (FOSBE) 2005, Santa Barbara, California, pp. 188-192, 2005.

PRESENTATIONS

1. Bansal, T., Wood, T. K. and **Jayaraman, A.** “Inter-kingdom signaling: A signal-mediated framework of host-pathogen interactions”. *American Society of Microbiology General Meeting*, Philadelphia, PA, 2009.
2. Hegde, M., Wood, T. K. and **Jayaraman, A.** “The neuroendocrine hormone norepinephrine increases *P. aeruginosa* PA14 virulence through the *las* quorum sensing pathway”. *American Society of Microbiology General Meeting*, Philadelphia, PA, 2009.
3. Kim, J., Hegde, M., Senocak, F. and **Jayaraman, A.** “Micropatterned co-culture model of bacteria and epithelial cells for investigating signal-mediated host-pathogen interactions”. *American Institute of Chemical Engineers Annual Meeting*, Philadelphia, PA, 2008.
4. Bansal, T., Wood, T. K. and **Jayaraman, A.** “Inter-kingdom signaling: A signal-mediated framework of host-pathogen interactions”. *American Institute of Chemical Engineers Annual Meeting*, Philadelphia, PA, 2008.
5. Huang, J., Kim, J., **Jayaraman, A.** and Ugaz, V. “Rapid fabrication and characterization of 3-D branched microvascular flow networks”. *American Institute of Chemical Engineers Annual Meeting*, Philadelphia, PA, 2008.
6. Huang, Z., Senocak, F., **Jayaraman, A.** and Hahn, J. “Quantitative measurement technique for transcription factor profiles”. *American Institute of Chemical Engineers Annual Meeting*, Philadelphia, PA, 2008.
7. Huang, J., Kim, J., **Jayaraman, A.** and Ugaz, V. “Rapid fabrication and characterization of 3-D branched microvascular flow networks”. μ TAS 2008: The 12th International Conference on Miniaturized Systems for Chemistry and Life Sciences”, San Diego, CA, 2008.
8. Kim, J., Hegde, M., Senocak, F. and **Jayaraman, A.** “Micropatterned co-culture model of bacteria and epithelial cells for investigating signal-mediated host-pathogen interactions”. μ TAS 2008: The 12th International Conference on Miniaturized Systems for Chemistry and Life Sciences”, San Diego, CA, 2008.
9. Englert, D. L., Senocak, F. S., Kim, J., Wood, T. K. and Jayaraman, A. “Investigating interactions between GI tract signaling molecules on *Escherichia coli* O157:H7 chemotaxis using a novel microfluidic device”. *American Society of Microbiology General Meeting*, Boston, MA, 2008.
10. Bansal, T., Englert, D. L., Lee, J., Wood, T. K. and **Jayaraman, A.** “Epinephrine and norepinephrine exert divergent effects on *E. coli* O157:H7 chemotaxis and biofilm formation as compared to indole”. *American Society of Microbiology General Meeting*, Toronto, Canada, 2007.
11. Bansal, T., Hegde, M. J., Lee, J., Wood, T. K. and **Jayaraman, A.** “AI-2, 7-Hydroxyindole, and Isatin Cell-Cell Signaling Regulate *Escherichia coli* O157:H7 Chemotaxis and Attachment”. *ASM Cell-Cell Signaling Conference*. Austin, TX, 2007.

12. Moya, C., Shi, H., Lee, K. and **Jayaraman, A.** "Elucidating the Transcriptional Regulatory Network Underlying 3T3-L1 Adipocyte Differentiation and Hypertrophic Enlargement". *American Institute of Chemical Engineers Annual Meeting*, Salt Lake City, UT, 2007.
13. Englert, D. L., Manson, M., Wood, T. K., Baskaran, H. and **Jayaraman, A.** "Investigating Intra- and Inter-kingdom Signaling in Microfluidic Devices" *American Institute of Chemical Engineers Annual Meeting*, Salt Lake City, UT, 2007.
14. Bansal, T., Englert, D. L., Lee, J., Wood, T. K. and **Jayaraman, A.** "Interkingdom Signaling in E. coli O157:H7 Infections". *American Institute of Chemical Engineers Annual Meeting*, Salt Lake City, UT, 2007.
15. Newton, B., Russel, W., Ramaiah, S. and **Jayaraman, A.** "Protein Turnover Regulates Oxidatively Modified Proteins in Alcoholic Liver Disease: A Proteomic Analysis". *American Institute of Chemical Engineers Annual Meeting*, Salt Lake City, UT, 2007.
16. Senocak, F, Si, Y, Lee, K. and **Jayaraman, A.** "Gene Expression Profiling of 3T3-L1 Adipocytes Expressing the Mitochondrial Uncoupling Protein 1". *American Institute of Chemical Engineers Annual Meeting*, San Francisco, CA, 2006.
17. Englert, D. L., Bansal, T., Wood, T. K., Baskaran, H. and **Jayaraman, A.** "Effect of Eukaryotic Signaling Molecule Spatio-Temporal Gradients on Pathogenic E. Coli Colonization and Infection". *American Institute of Chemical Engineers Annual Meeting*, San Francisco, CA, 2006.
18. Baskaran, H. and **Jayaraman, A.** "Spatio-Temporal Dynamics of Quorum Sensing during Multi-Species Biofilm Formation". *American Institute of Chemical Engineers Annual Meeting*, San Francisco, CA, 2006.
19. Chu, Y., Singh, A., **Jayaraman, A.** and Hahn, J. "Sensitivity Analysis-Based Approach for Identifying Key Steps in Cell Signaling for Hepatocytes Stimulated by IL-6" *American Institute of Chemical Engineers Annual Meeting*, San Francisco, CA, 2006.
20. Si, Y., Nolan, R., Palani, S., **Jayaraman, A.** and Lee, K. "Metabolic flux analysis of forced uncoupling protein 1 expression in 3T3-L1 cells" *NAASO The Obesity Society Annual Meeting*, Boston, MA, 2006.
21. Si, Y., Senocak, F., **Jayaraman, A.** and Lee, K. "Flux and gene expression profiling of UCP1 expression in white fat cells". Biomedical Engineering Society Annual Meeting, Chicago, IL, 2006.
22. **Jayaraman, A.**, Palani, S., Si, Y. and Lee, K. Adipocyte Metabolic Engineering for Increased Fatty Acid Oxidation through Uncoupling Protein over-Expression. *American Institute of Chemical Engineers Annual Meeting*, Cincinnati, OH, 2005.
23. Wang, S., King, K. R., Wieder, K. J., Toner, M., **Jayaraman, A.** and Yarmush, M. L. "Study of Heat Shock Effects on Inflammatory Signaling Using a Microfluidic Living Cell Array". *American Institute of Chemical Engineers Annual Meeting*, Cincinnati, OH, 2005.
24. Singh, A.K., **Jayaraman, A.**, and Hahn, J. "Mathematical Model of Il-6 Signal Transduction in Hepatocytes," *AIChE 2005 Annual Meeting*, Cincinnati, OH, 2005.
25. Maguire, T. J., Yarmush, M. L. and Jayaraman, A. "Genomic Profiling of Long Term Liver Response to Thermal Injury". *Biomedical Engineering Society Annual Meeting*, Baltimore, MD, 2005.
26. Wang, S., King, KR., Wieder, K. J., Toner, M., Yarmush, M. L. and **Jayaraman, A.** "Study of inflammatory gene expression in a microfluidic device". *American Institute of Chemical Engineers Annual Meeting*, Austin, TX, 2004.
27. **Jayaraman, A.**, Vitolo, JL., Yarmush, ML. and Roth, CM. "Systems biology approaches to understanding acute and chronic inflammatory responses in hepatocytes". *American Institute of Chemical Engineers Annual Meeting*, Austin, TX, 2004.
28. **Jayaraman, A.**, Maguire, T., Orlova, K. and Yarmush, ML. "Transcript profiling of cytokine interactions in hepatic inflammation". *American Institute of Chemical Engineers Annual Meeting*, Austin, TX, 2004.
29. Berthiaume, F., **Jayaraman, A.**, Maguire, T., Orlova, K., Mokuno, Y., Tompkins, RG. and Yarmush, ML. "DNA microarray analysis of marginal donor organs: Applications to fatty livers". *Biomedical Engineering Society Annual Meeting*, Philadelphia, PA, 2004.
30. Wang, S., King, K. R., Wieder, K. J., Toner, M., Yarmush, M. L. and **Jayaraman, A.** "Study of inflammatory gene expression dynamics in a microfluidic device". *Biomedical Engineering Society Annual Meeting*, Philadelphia, PA, 2004.

31. Maguire, T., Orlova, K., Yarmush, ML. and **Jayaraman, A.** “Gene and protein expression analysis of cytokine-induced hepatic inflammation”. *Biomedical Engineering Society Annual Meeting*, Philadelphia, PA, 2004.
32. Roth, CM., Vitolo, JL., **Jayaraman, A.** and Yarmush, ML. “Systems biology approaches to understanding acute and chronic inflammatory responses in hepatocytes”. *American Society of Biochemistry and Molecular Biology*, Boston, MA, 2004.
33. Vemula, M., Berthiaume, F., **Jayaraman, A.** and Yarmush, ML. “Expression profiling analysis using DNA Microarrays reveals increased turnover of fatty acids and cholesterol following burn injury”. *American Society of Biochemistry and Molecular Biology*, Boston, MA, 2004.
34. King, KR., Thompson, DM., Wieder, KJ., Toner, M., Yarmush, ML. and **Jayaraman, A.** “Living cell dynamic gene expression assays in a microfluidic device”. *uTAS*, Malmo, Sweden, 2004.
35. Roberts, K. A., Yoon, J., Lee, K., Yarmush, M. L. and **Jayaraman, A.** “Proteomic analysis of the interaction between molecular mediators in determining cellular responses”. *American Institute of Chemical Engineers Annual Meeting*, San Francisco, CA, 2003.
36. Thompson, D., King, K. R., Wieder, K. J., Toner, M., Yarmush, M. L. and **Jayaraman, A.** “Dynamic expression profiling of NF- κ B using a living cell array” *American Institute of Chemical Engineers Annual Meeting*, San Francisco, CA, 2003.
37. Vemula, M., Berthiaume, F., Yarmush, M. L. and Jayaraman, A. “Expression profiling of metabolic networks during inflammation” *Biomedical Engineering Society Annual Meeting*, Nashville, TN, 2003.
38. Roberts, K. A., Yoon, J., Lee, K., Yarmush, M. L. and **Jayaraman, A.** “Proteomic analysis of cytokine interactions in determining cellular stress responses”. *Biomedical Engineering Society Annual Meeting*, Nashville, TN, 2003.
39. Roberts, K. A., Yarmush, M. L. and **Jayaraman, A.** “Secreted protein dynamics in hepatocytes”. *American Institute of Chemical Engineers annual meeting*, Indianapolis, IN, 2002.
40. Thompson, D. M., Toner, M., Yarmush, M. L. and **Jayaraman, A.** “Real-time expression profiling with living cell arrays”. *American Institute of Chemical Engineers annual meeting*, Indianapolis, IN, 2002.
41. **Jayaraman, A.**, Yarmush, M. L. and Roth, C. M. “Dynamics of gene and protein expression under stress: Comparison of cell culture, organ, and whole body models of inflammation”. *American Institute of Chemical Engineers annual meeting*, Reno, NV, 2001.
42. **Jayaraman, A.**, Yarmush, M. L. and Roth, C. M. “Dynamics of inflammatory responses in hepatocytes”. *American Chemical Society annual meeting*, San Diego, CA, 2001.
43. **Jayaraman, A.**, Yarmush, D. M., Yarmush, M. L. and Roth, C.M. “Expression profiling of inflammatory responses in hepatocytes”. *American Institute of Chemical Engineers annual meeting*, Los Angeles, CA, 2000.
44. **Jayaraman, A.**, Yarmush, M. L. and Roth, C. M. “Dynamics of stress response gene expression in rat hepatocytes”. *American Chemical Society annual meeting*, San Francisco, CA, 2000.
45. Walton, S. P., **Jayaraman, A.**, Stephanopolous, G. N., Yarmush, M. L. and Roth, C. M. “Rational design of antisense oligonucleotides”. *American Institute of Chemical Engineers annual meeting*, Dallas, TX, 1999.
46. Walton S. P.; **Jayaraman, A.**; Stephanopoulos G. N.; Yarmush M. L.; Roth C. M. “Prediction of antisense oligonucleotide binding affinity and activity in cell culture”. *Biomedical Engineering Society annual meeting*, Atlanta, GA, 1999.
47. Yarmush, M. L., Walton, S. P., Roth, C. M. and **Jayaraman, A.** “Directed discovery and analysis of antisense oligonucleotides”. *Biochemical Engineering XI: Molecular diversity in discovery and processing*, Salt Lake City, UT, 1999.
48. **Jayaraman, A.**, Duarte, D. A., Lee, C.-C., Mansfeld, F. B. and Wood, T. K. “Cloning the antimicrobial peptides bactenecin and indolicidin to inhibit sulfate-reducing bacteria in biofilms on 304 stainless steel”. *American Institute of Chemical Engineers annual meeting*, Miami Beach, FL, 1998.
49. **Jayaraman, A.** and Wood, T. K. “Inhibition of SRB-induced corrosion by *in situ* generated antimicrobials”. *American Institute of Chemical Engineers annual meeting*, Los Angeles, CA, 1997.

50. **Jayaraman, A.**, Cheng, E. T., Earthman, J. C. and Wood, T. K. "Importance of biofilm formation for corrosion inhibition of SAE 1018 steel by aerobic bacteria". *American Institute of Chemical Engineers annual meeting*, Chicago, IL, 1996.
51. **Jayaraman, A.**, Cheng, E. T., Earthman, J. C. and Wood, T. K. "Corrosion inhibition of SAE 1018 mild steel by aerobic biofilms". *American Society for Microbiology meeting on Biofilms*, Snowbird, UT, 1996.
52. **Jayaraman, A.**, Sun, A. K., Earthman, J. C. and Wood, T. K. "Characterization of *P. fragi* and *E. coli* biofilms using CSLM". *American Society for Microbiology annual meeting*, New Orleans, LA, 1996.
53. **Jayaraman, A.**, DeBernardez, E. and Goldberg, E. B. "Folding characteristics of the P12 tail spike protein using heat and SDS denaturation". *American Chemical Society annual meeting*, Anaheim, CA, 1995.