

Dr. Robert J. Fisher – a selective list of published articles and reports: 2004 –present Topics focus on Biomedical Engineering (including Drug Delivery, Materials, Tissue Engineering and Transport Phenomena) and Bioprocessing (including Reaction Engineering and Catalysis)

Chen, X., J.M. Fenton, R.J. Fisher and R.A. Peattie, “Evaluation of In-Situ Electro-enzymatic Regeneration of Co-enzyme NADH in Packed Bed Membrane Reactors: Biosynthesis of Lactate” *J. El. Chem. Soc.*, 151,2: 236-242 (2004)

Peattie, R.A., A.P. Nayate, M.A. Firpo, J. Shelby, R.J. Fisher and G.D. Prestwich, “Stimulation of In-Vivo Angiogenesis by Cytokine Loaded Hyaluronic Acid Hydrogel Implants”, *Biomaterials*, 25:2789-2798 (2004)

Nicolosi, R.J., B. Woolfrey, T. Wilson, P. Scollin, G. Handelman and R. J. Fisher, “Decreased Aortic Early Atherosclerosis and Associated Risk Factors in Hypercholesterolemic Hamsters”, *J.Nutr.BioChem.*, 15:540-547 (2004)

Sokolnicki, A.M., R.J. Fisher, D.L. Kaplan and T.P. Harrah, “Permeability Studies with Bacterial Cellulose Membranes”, *J.Memb.Sci.*, 6793:1-13(2005)

Kumar, R., R. Tyagi, V.S. Parmar, A.C. Watterson, J. Kumar, J. Zhou, M. Hardiman, R. Fisher, and C.K. Colton, “Perfluorinated Amphiphilic Polymers as Nano Probes for Imaging and Delivery of Therapeutics for Cancer”, *Polymer Preprints*, 45:2 (2005)

Peattie, R.A., M.A. Firpo, Y. Shao, J. Shelby, R.J. Fisher and G.D. Prestwich, “Gene Expression Mechanisms for HA/VEGF-induced Angiogenesis In Vivo”, *Proceedings:BMES*, 10,(2005)

Pike, D.B., S. Cai, K.R. Pomraning, M.A. Firpo, R.J. Fisher, X.Z. Shu, G.D. Prestwich and R.A. Peattie, “Heparin-Regulated Release of Growth Factors In Vitro and Angiogenic Response In Vivo to Implanted Hyaluronan Hydrogels Containing VEGF and bFGF”, *Biomaterials* 27,5242-5251 (2006)

Peattie, R.A., E.R. Rieke, E.M. Hewett, R.J. Fisher, X.Z. Shu and G.D.Prestwich, “Dual Growth Factor-induced Angiogenesis In-Vivo using Hyaluronan Hydrogel Implants”, *Biomaterials*, 27, 1868-75 (2006)

Fisher, R.J. and R.A. Peattie, “Controlling Tissue MicroEnvironments: Biomimetics, Transport Phenomena, and Reacting Systems”, *Adv. Biochem. Engg/Biotech.*, 103, 1-73 (2007)

Fisher, R.J. and R.A. Peattie, “Perfusion Effects and Hydrodynamics in Tissue Engineering”, *Adv. Biochem. Engg/Biotech.*, 103,75-156 (2007)

Lewis, A.S., E. O’Sullivan, R.J. Fisher A. Omar, G. C. Weir and C.K. Colton, “Eliminating Oxygen Supply Limitations for Transplanted Microencapsulated Islets” *Xenotransplantation*, 14 (5), 545 (2007)

Panagiotou, T., S. Mesite, R. Fisher, and I. Gruverman, “Production of Stable Drug Nanosuspensions Using Microfluidics Reaction Technology”, *NSTI-Nanotech 2007*, www.nsti.org, ISBN 1420063766, vol. 4 (2007)

Peattie, R.A., D.B. Pike, B. Yu, S. Cai, X.Z. Shu, G.D. Prestwich, M.A. Firpo, and R.J. Fisher, “Effect of Gelatin on Heparin Regulation of Cytokine Release from Hyaluronan-based Hydrogels”, *Drug Delivery*, 15: 363-371,(2008)

Panagiotou, T., S. Mesite, J. M. Bernard and R. Fisher, "Production of Polymer Nano-suspensions Using Microfluidics Reaction Technology", NSTI (Nanotech-2008), March (2008)

Panagiotou, T., S. Mesite, and R. Fisher, "Production of Crystalline Nano-particles Using Microfluidics Reaction Technology", Ind. Symp. Ind. Cryst.,(ISIC-17), September (2008)

Panagiotou, T. and R. Fisher, "Form Nano-particles via Controlled Crystallization: A "Bottom-up" Approach", Chem. Eng. Progress, 33-39, (www.aiche.org/cep), October (2008)

Panagiotou, T., S. Mesite, and R.J. Fisher, "Production of Norfloxacin Nanosuspensions Using Microfluidics Reaction Technology (MRT) through Solvent/Anti-solvent Crystallization", Ind. Eng. Chem. Res., Vol. 48, No. 4, (2009)

Johnson, A.S., R.J. Fisher, G.C. Weir and C.K. Colton, "Oxygen Consumption and Diffusion in Assemblages of Respiring Spheres: Performance Enhancement of a Bio-artificial Pancreas", Chem. Eng. Sci, Vol.64, No.22, 4470-87, (2009)

Johnson, A.S., E. O'Sullivan, L. D'Aoust, A. Omar, S. Bonner-Weir, R.J. Fisher, G.C. Weir and C.K. Colton, "Quantitative Assessment of Islets of Langerhans Encapsulated in Alginate-PerFluorocarbon Gels", Tissue Eng., Methods (Accepted 11/10/10; TEC-2009-0510.R2)

Panagiotou, T. and R.J. Fisher, "Enhanced Transport Capabilities via Nanotechnologies: Impacting Bio-efficacy, Controlled Release Strategies and Novel Chaperones", J. Drug Delivery, V-2011, ID 902403, 1-14 (2011)

Panagiotou, T., K.J. Chomistek and R.J. Fisher, "Microfluidics Reaction Technology (MRT) for Continuous Production of Nano-formulation of Drug Entities and Advanced Materials", (originally presented for Conf. Proc., Nanoformulation 2011), published in Royal Society-Chemistry, in press

Panagiotou, T. and R.J. Fisher, "Bottom up Nano-particle Formation via Controlled Crystallization and Chemical Reactions", MRS Proc., in press

Panagiotou, T., R.J. Fisher and R. Bruno, "High Energy Impinging Jet Technologies for Continuous Crystallization of Non-water Soluble Drug Nanosuspensions", ISIC18; J. Cryst. Growth, in press

Iranmahboob, J., Nadim, D., Monemi, S., Hossein, A., and Fisher, R.J., "Acid-Hydrolysis of Cotton Linters for Production of Sugar as a Feedstock for an Ethanol Plant", J. Biomass Bioenergy, (revised: JBB-D-07-00079)

Pandey, M.K., R. Tyagi, R. Kumar, V.S. Parmar, A.C. Watterson, J. Kumar, K.P. Brower, M.T. Hardiman, J. Zhou, R.J. Fisher, and C.K. Colton, "Design and Synthesis of Novel Amphiphilic Polymers for MRI and Selective Targeting in Cancer Diagnosis/Therapy", JACS (submitted)

Lewis, A., R.J. Fisher and C.K. Colton, "Eliminating Oxygen Supply Limitations for Transplanted Microencapsulated Islets using Nano-Emulsion Technology to Functionalize the Immuno-isolation Membrane Barrier", J.AIChE (submitted)

Panagiotou, T., R.J. Fisher and R. Bruno, "Continuous Crystallization for Drug Nano-suspensions", J.AIChE (submitted)

T. Panagiotou and R J. Fisher, "Enhancing Drug Delivery via Encapsulation: Creating Novel Chaperones and Advanced Controlled Release Strategies", BioEncaps. Res. (submitted)

BOOKS, MONOGRAPHS, BOOK CHAPTERS AND REPORTS (GOVERNMENT AND INDUSTRY): 2006- present

Two short course manuals for U.S.AID/NIS program: “Environmental Biotechnology” and “Air Pollution Control”

Two Chapters (with R.A. Peattie) in textbook “Tissue Engineering II”, Advances in Biochemical Engineering/Biotechnology Series; Editors: D.L. Kaplan and K-B. Lee, “Controlling Tissue Micro-Environments: Biomimetics, Transport Phenomena, and Reacting Systems” and “Perfusion Effects and Hydrodynamics”, Springer-Verlag Berlin/Heidelberg, Vol 103, pp 1-73, pp 75-156 (2006).

Co-Editor (with J. Bronzino), 3rd Edition BME Handbook, Vol. II “Tissue Engineering and Artificial Organs”, Section Editor: “Transport Phenomena and Biomimetics”, CRC Press (2006).

Four Chapters in BME Handbook,(as above); sole author: “Introduction to Transport Phenomena in Biomedical Engineering”, and “Biomimetic Systems”; co-author with R.A.Peattie: “Controlling the Microenvironment” and “Hydrodynamics and Perfusion Effects”.

Chapter 46:”Role of Transport Phenomena in Tissue Engineering: Perfusion Effects and Hydrodynamics”, R.A. Peattie and R.J. Fisher, in Fundamentals of Tissue Engineering and Regenerative Medicine, Editor: D Meyer (978-3-540-77754-0; 2008-10-16) (2008)

Chapter 10:”Improving Oxygen Supply to Encapsulated Cells and Islets” in The Bio-artificial Pancreas and Other Bio-Hybrid Therapies, Editors: J.P. Halle, P. deVos and L. Rosenberg (2008)

Gong, Y., J. Baek, V. Raman, and R.J. Fisher, “Characterization of Mass Transfer Limitations during Acid Pretreatment of Biomass: Part 1”, NREL/DOE report 09SP01a, April (2009).

Iyer, J., J. Goda, K. Hsi, and R.J. Fisher, “Automated Compositional Biomass Analysis System using Robotics” NREL/DOE report 09SP02, April (2009).

Quon, J., B. Niesner, and R.J. Fisher, “Thermo-Chemical Review of Alternative Fuel Production from Synthesis Gas”, NREL/DOE report 09SP03, April (2009).

Goda, J., J. Iyer, Y. Gong, and R.J. Fisher, “Characterization of Mass Transfer Limitations during Acid Pretreatment of Biomass: Part 2”, NREL/DOE report 09SP01b, May (2009).

Hsi, K., J. Quon, and R.J. Fisher, “Biofuels from Algae: A Techno-Economic Analysis from NREL”, NREL/DOE report 09SP04, May (2009).

Niesner, B., J. Baek, V. Raman, and R.J. Fisher, “Fluid Mechanics of Hydrolyzed Corn Stover Slurries in Process Equipment”, NREL/DOE report 09SP05, May (2009).

Nimlos, M.R., H.M. Pilath, Y. Gong, J. Baek, V. Raman, R.J. Fisher, M.E. Himmel, and D.K. Johnson, “Xylan Hydrolysis Kinetics – Mass Transfer limitations during Acid Pretreatment of Biomass”, 31st Symposium on Biotechnology for Fuels and Chemicals, San Francisco, CA, May (2009)

Co-Editor (with J. Bronzino), 4rd Edition BME Handbook, Vol. IV “Tissue Engineering and Artificial Organs”, Section Editor: “Transport Phenomena and Biomimetics”, CRC Press (in press for early 2012).

Four Chapters in BME Handbook,(as above); sole author: “Introduction to Transport Phenomena in Biomedical Engineering”, and “Biomimetic Systems: Concepts, Design, and Emulation”; co-author with

R.A.Peattie: "Transport Phenomena and the Microenvironment" and "Fluid Dynamics for Biosystems: Fundamentals and Model Analysis".

Lead Author, Textbook with R.A. Peattie, J.D. Bronzino, and D. Peterson,
"Transport Phenomena in Biomedical Engineering: Principles and Practice"
CRC Press/Taylor and Francis Group, LLC (in press for Mar., 2012).

RECENT INDUSTRIAL REPORTS

"Catalytic Processes: Need for Nano-materials Development"

"Utilization of a Nano-materials Platform Technology to Enhance Transport Capabilities in Bio-Medical Applications"

"Potential Bio-fuels from Algae: A Techno-Economic Analysis"

"Value Added Products from Bio-diesel's co-product; Glycerol"

"Complete Systems Integration of Waste Biomass Conversion to Feed Stocks for High Efficiency Fuel Cells"

"Preparation of Nano-particles in a Membrane-Dispersion Reactor"

"Improving Product Quality with Encapsulated Nano-emulsions: From Theory to Industrial Application"

MANUSCRIPTS PRESENTED (including poster presentations at National and Regional conferences by my academic research collaborators and our students; averaging approximately 15/academic year)

In excess of 300

ALSO: since 1/1/09 to 12/31/11, with Industrial (e.g.,MFIC,BP,GMI)and Government Laboratories (NREL, et. al.) 15