AN, GARY

Gary An, MD
Assistant Professor of Surgery

Department of Surgery
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201 East Huron Street
Chicago, Illinois 60611
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October 23, 2007

Dear Dr. Green:

I am responding to your general call for faculty members who are interested in mentoring medical students for the Medical Student Summer Research Program (MSSRP) and the Research Thesis Program (RTP). I am an Assistant Professor in the Division of Trauma/Critical Care in the Department of Surgery, and my research focus is in the development of computer simulations of various pathophysiologic processes, currently directed at the simulation of acute inflammation in sepsis and critical illness, but expandable to other pathophysiologic processes such as atherosclerosis, cancer, transplant immunology and wound healing. Despite being full-time clinical staff I am able to pursue a vigorous research agenda in this area, in large part due to the computer-based nature of this work. As an actively practicing clinician I believe that I have a relatively unique perspective in which to foster the pursuit of these simulation and bioinformatics methods that are at the "bleeding edge" biomedical research. As a person who is not "formally" trained in mathematics or computer science, but has nonetheless been able to become recognized as a leader in the burgeoning field translational biomedical simulation, I believe that I also offer a relatively unique opportunity for a true trans-disciplinary research experience. In particular, I can offer an experience that can augment the future of individuals with a wide spectrum of career interests, as the core processes of developing models (literature review/evaluation, algorithmic critical thinking and the development of explicit conceptual models) are applicable to any aspect of a medical career. Of note, I do not have a list of prior students as I have just recently joined Northwestern (1 year now) after leaving a position that did not offer the opportunity to mentor students in this fashion. However, I have won numerous resident teaching awards, continue to serve as visiting faculty for a multi-disciplinary graduate-level modeling course at the University of Pittsburgh (now in its 4th year), have taught at multiple workshops and symposia directed at biomedical modeling, and am working to develop undergraduate curricula with the Department of Biology at the University of Science in Philadelphia. I hope that this information demonstrates my commitment to education and career development.

I hope that you view my submission favorably and that I have an opportunity to serve as

a mentor in this capacity.

Sincerely,

Gary An, MD
Assistant Professor of Surgery
Division of Trauma/Critical Care
Department of Surgery
Northwestern University Feinberg School of Medicine

Mentor Information for Gary An, MD for the MSSRP and RTP

General Research Description:
My research focuses on the use of complex systems analysis, primarily computer simulation and mathematical modeling, for dynamic biomedical knowledge representation. The greatest challenge facing the biomedical research community is the integration of the vast amount of mechanistic information generated by basic research in a fashion that facilitates the translation of that information into effective clinical therapeutics. Currently, biomedical knowledge is represented statically in publications, diagrams and flowcharts. It is only through computer simulations that synthesize and dynamically represent the knowledge resulting from bench research that the various complex interactions, and particularly the consequences of intervening in those interactions, can be elucidated. Dynamic knowledge representation through computer simulation a way to "bring to life" the conceptual and mental models that researchers generate in order to pursue their investigations. I utilize a series of modeling techniques centered on Agent-based modeling (ABM). ABM focuses on the rules for behavior of the various components of a system, and is particularly well suited to translating the mechanistic information generated in the basic science lab. The development of these ABMs results from extensive review of relevant literature of the system under study. Validation is via existing published data as well as concurrent prospective experimentation through wet lab collaborations. Furthermore, I am also working on computer based text analysis/information extraction, and the development of machine learning algorithms and automated model construction. Thus far my research has focused on aspects of acute inflammation, specifically sepsis, but this methodology is expansible to any pathophysiologic area.

Specific Projects (see HYPERLINK "http://www.swarm.org/wiki/User:Gary_An" http://www.swarm.org/wiki/User:Gary_An for overview):
Development of Virtual Cell Lines: This project involves developing virtual cell types (such as macrophages, gut epithelial cells, endothelial cells) using a combination of ABM and ordinary differential equation models to simulate cell level processes such as receptor activation, intracellular signal propagation, gene regulation and protein synthesis for specific cell types. Models are derived from published knowledge regarding these processes. The intent of these models is to identify factors that affect the behaviors of populations of these cells. Individual projects focus on individual cell types.
Development of Virtual Organs: This project involves creating cell level ABMs of various organs (gut, lung, liver, kidney) based on published knowledge regarding the behaviors of these cell types and organ function/dysfunction. Individual projects focus on individual organ systems. Placement of these models in an overall multi-organ architecture would be the basis for a "virtual patient" that would be used for in-silico simulated clinical trials.
Development of Biomedical Information Extraction Tools: This project involves the ongoing development of computerized text analysis, the development of evolvable biomedical ontological structures, and the automation of the procedures involved in Projects 1 and 2. This area also includes the development of web-based knowledge sharing tools.

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Curriculum Vitae for Gary An

1. PERSONAL INFORMATION:

Name:
Gary An, MD

Home Address:
2540 West Chicago #2
Chicago, IL 60622

Work A ddress:
Galter 10-105
201 East Huron
Chicago, IL 60611

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Email:
docgca@aol.com
docgca@gmail.com

Citizenship:
USA

Date/Place of Birth:
October 28, 1964
Oakland, CA

2. EDUCATION:

Date Degree Awarded:
May 1985
Institution:
University of Miami, Florida
Degree:
BS

Discipline:
Biology

Date Degree Awarded:
May 1988
Institution:
University of Miami, Florida
Degree:
MD
Discipline:
Medicine

3. GRADUATE MEDICAL EDUCATION:

Dates:
July 1988 to July 1993
Institution:
University of Illinois, Chicago/Cook County Hospital
Specialty:
General Surgery

4. POSTDOCTORAL RESEARCH TRAINING
N/A

5. BOARD CERTIFICATION AND MEDICAL LICENSURE

Medical License:
State of Illinois

Board Certification:
General Surgery March 1994/Recertified December 2003
Surgical Critical Care September 2006

6. MILITARY SERVICE
N/A

7. FACULTY APPOINTMENTS

2006 (September-October)
Assistant Professor (Non-tenured)
Rush Medical School
Department of General Surgery

2005-Present
Affiliate Faculty (Non-tenured)
McGowan Institute of Regenerative Medicine

University of Pittsburgh

8. HOSPITAL APPOINTMENTS

October 2006-Present
Attending Surgeon
Northwestern Memorial Hospital

November 1997-October 2006
Attending Trauma/Burn/Critical Care Surgeon
John H. Stroger Hospital of Cook County

January 1995-September 1997
Attending Surgeon
Good Shepherd Hospital, Barrington, IL

September 1993-December 1994
Attending Trauma/Surgical Critical Care Surgeon ar Lutheran General Hospital, Park Ridge, IL

9. ADMINISTRATIVE APPOINTMENTS

October 2006-Present
Assistant Professor of Surgery
Northwestern Memorial Hospital

June 2004-October 2006
Acting Director Burn Intensive Care Unit
John H. Stroger Hospital of Cook County

April 1996-October 1997
Director of Trauma
Good Shepherd Hospital, Barrington, IL

10. COMMITTEE SERVICE

2007-current
Institutional Review Board
Northwestern Memorial Hospital

2004-2006
Critical Care Committee
John H Stroger Hospital of Cook County

1997-2005
Surgical Function Review Committee

John H. Stroger Hospital of Cook County

1995-1997
Credentials Committee
Good Shepherd Hospital, Barrington, IL

11. AWARDS, HONORS, DISTINCTIONS

1989
Intern of the Year
Department of Su rgery
University of Illinois/Cook County Hospital

1992-93
Administrative Chief Resident
Department of Surgery
University of Illinois/Cook County Hospital

1999
Attending of the Year Teaching Award
Department of Emergency Medicine
Cook County Hospital

1999
Attending of the Year Teaching Award
Department of Surgery
Rush University Medical Center

2000
Attending of the Year Teaching Award
Department of Emergency Medicine
Cook County Hospital

2003
Attending of the Year Teaching Award
Department of Emergency Medicine
John H. Stroger Jr. Hospital of Cook County

2004-present
Visiting Faculty
Departments of Surgery, Critical Care and Mathematics
University of PIttsburgh

2006
Visiting Faculty
Center for the Study of Biological Complexity

Virginia Commonwealth University

2007
Outstanding Teaching Award
Department of Surgery
Northwestern University Feinberg School of Medicine

12. PROFESSIONAL SOCIETY MEMBERSHIPS

American Thoracic Society
American Burn Association
Association of Academic Surgery
Shock Society
Society of Complexity in Acute Illness (Co-Founder)
Chicago Metropolitan Trauma Society
Chicago Committee on Trauma of the American College of Surgeons
Society of Critical Care Medicine
The Society of Mathematical Biology
The Society for Modeling and Simulation International
Swarm Development Group
International Society for Computational Biology

13. PROFESSIONAL AND SCIENTIFIC SERVICE

Co-Founder Society of Complexity in Acute Illness

2005
Invited Participant
"Critical Care Medicine and Complex Systems Analysis"
Sponsored by James S. McDonnell Foundation
November 3-4, 2005, Arlington, VA

2005
Scientific Committee
4th International Conference on Complexity in Acute Illness

2006
Scientific Committee
5th International Conference on Complexity in Acute Illness

2007
Scientific Committee
6th International Conference on Complexity in Acute Illness

2007
Organizing Committee/Scientific Committee

Swarmfest 2007

2007
Chair, Internet Committee
Shock Society

2007
Board Member
Swarm Dev elopment Group

2008
Scientific Committee
7th International Conference on Complexity in Acute Illness

2008
Host and Organizer
Swarmfest 2008

2008-2011
Research Committee Member
Society of Critical Care Medicine

14. TEACHING

1990-1993
Clinical Instructor in Surgery
University of Illinois, Chicago

1993-1994
Clinical Instructor in Surgery
University of Chicago/Lutheran General Hospital

1997-2006
Teaching Attending Surgeon
Department of Trauma
Cook County Hospital/John H. Stroger Hospital of Cook County

2006
Faculty
VCU Bioinformatics and Bioengineering Summer Institute
Virginia Commonwealth University Center for the Study of Biologica l Complexity

2007
Faculty
2nd Biodefense Immune Modeling Summer School
University of Pittsburgh and Carnegie Mellon University

2004-present
Faculty
"A Systems Approach to Inflammation"
Combined Graduate level course from the University of Pittsburgh School of Medicine and University of Pittsburgh Department of Mathematics

2006-present
Assistant Professor of Surgery
Northwestern University Feinberg School of Medicine

15. RESEARCH GRANTS/CONTRACTS

Funded:

1) Grant Number: Pending. Grant Title: Rehabilitation Engineering Research Center on Spinal Cord Injury. Developmental Project 1: Development of a Mathematical Model of Inflammation and Healing Following Spinal Cord Injury. Role in Project: Site Principal Investigator for Developmental Project. Source: National Institute of Disability Rehabilitation Research (NIDRR).

2) Grant Number: R01-DC-008290 (Verdolini). Grant Title: Hybrid Model of Vocal Fold Inflammation and Tissue Mobilization. Role in Project: Consultant. Source: National Institutes of Health (NIDCD).

Pending:

1) Grant Number: Pending. Grant Title: Innate and Adaptive Immune Mechanism in Initiation and Progression of Asthma: Mathematical and Statistical Analysis Core. Role in Project: Site Principal Investigator for Core. Source: National Institutes of Health (NHLBI).

16. SCHOLARLY BIBLIOGRAPHY

a. Original, peer-reviewed research articles

1) Nagy K, Roberts R, Joseph K, An G, Barrett J Evisceration After Abdominal Stab Wounds: Is Lapa rotomy Required? J Trauma 1998; 45(6): 1114.

2) Nagy K, Roberts R, Joseph K, An G, Bokhari F, Barrett J. Prognosis of penetrating trauma in elderly patients: A comparison with younger patients. J Trauma 2000 49(2): 190-193.

3) Nagy K, Roberts R, Joseph K, An G, Bokhari F, Barrett J. Experience with over 2500 diagnostic peritoneal lavages. Injury 2000; 31(7): 479-82.

4) Nagy K, An G, Rettie C. Evaluating the experiences of medical students who complete an elective in trauma surgery. Focus on Surg Edu 2001; 18: 35-38.

5) An G, Lee I. Agent-Based Computer simulation (ABCS) and the inflammatory response: Building a tool to study Systemic Inflammatory Response Syndrome (SIRS).Simulation and Gam ing 2001; 32(3): 344-361.

6) An G. Agent-based computer simulation and SIRS: Building a bridge between basic science and clinical trials. Shock 2001; 16(4): 266-273.

7) Nagy K, Roberts R, Joseph K, An G, Bokhari F, Barrett J.Trans-mediastinal gunshot wounds: are "stable" patients really stable? World J Surg 2002; 26(10): 1247-1250.

8) Brakenridge S, Nagy K, Joseph K, An G, Bokhari F, Barrett J. Detection of intra-abdominal injury using diagnostic peritoneal lavage after shotgun wound to the abdomen. J Trauma 2003; 54(2): 329-331.

9) An G, Walter R, Nagy K. Closure of abdominal wall defects using acellular dermal matrix. J Trauma 2004; 56(6): 1266-1275.

10 24) An G. In-silico experiments of existing and hypothetical cytokine-directed clinical trials using agent based modeling. Crit Care Med 2004; 32(10): 2050-2060.

11) Gast T, Kowal-Vern A, An G, Hanumadass M. Purpura fulminans in an adult patient with Haemophilus influenzae sepsis and a literature review. J Burn Care Res 2006; 1(1): 102-107.

12) An G. Concepts for developing a collaborative in-silico model of the acute inflammatory response using agent based modeling. J Crit Care 2006; 21(1): 105-110.

13) Wakeland, W., Macovsky, L. and An, G.. A Hybrid Simulation for Studying Acute Inflammatory Response. Proceedings of the 2007 Spring Simulation Multiconference (Agent -directed Simulation Symposium). 1:39-46.

14) Sam R, Vaseemuddin M, Siddique A, Haghighat L, Kazlauskaite R, An G and Hanumadass M. Hypercalciemia in patients in the burn intensive care unit. J Burn Care Res, in press.

15) Vodovotz Y, Clermont G, Hunt CA, Lefering R, Bartels J, Seydel R, Hotchkiss J, Ta'asan S, Neugebauer EA and An G. Evidence-based Modeling of Critical Illness: An Initial Consensus from the Society of Complexity in Acute Illness. J of Critical Care 2007; 22(1):77-84.

16) An G, Hunt CA, Clermont G, Neugebauer EA and Vodovotz Y. Challenges and Rewards on the Road to Translational Systems Biology in Acute Illness: F our Case Reports from Interdisciplinary Teams. J of Critical Care 2007; 22(2):169-175.

17) Dunn JH, Goldberg BA, Kim A and An G. Control of Presacral Hemorrhage after Penetrating Trauma: A new technique. J Trauma 2007; 63(1):197-201.

18) Folcik VA, An G and Orosz CG. The Basic Immune Simulator: an agent-based model to study the interactions between innate and adaptive immunity. Theoretical Biology and Medical Modelling 2007; 4:39, Publish ahead of print September 27, 2007.

4019) An G, Faeder J and Vodovotz Y. A Review of Translational Systems Biology as applied to Inflammation: Introduction of an Engineering Approach to the Pathophysiology of the Burn Patient. J Burn Care Res, in press.

b. Editorials, Reviews, Chapters, Books, Commentaries

1) An G. Complexity theory and surgery: Introducing and integrating a new analytical paradigm. New Surg 2001; 1(3): 175-179. (Peer reviewed Review)

2) Vodovotz Y, Clermont G, Chow C, An G. Mathematical models of the acute inflammatory response. Cur Opin Crit Care 2004; 10:383-390. (Peer reviewed Review)

3) An G. Mathematical modeling in medicine: A means not an end. Crit Care Med 2005; 33(1): 253-254. (Invited Editorial)

4) An G. Phenomenological issues related to measurement, mechanisms and manipulation of complex biological systems. Crit Care Med 2006; 34(1): 245-246. (Invited Editorial)

5) An, G: Agent Based Modeling and Endothelial Biomedicine. In Aird, W. (ed): Endothelial Biomedicine: A Comprehensive Treatise. Cambridge University Press, 2007. Pages 1754-1759.

c. Case reports, Technical notes, Letters

1) Kim SS, Roberts R, Nagy K, Joseph K, Bokhari F, An G, Barrett J . Hemosuccus pancreaticus after penetrating trauma to the abdomen. J Trauma 2000; 49(5): 948.

2) Maguina P, Shah-Khan M, An G, Hanumadass M. Chemical Scalp Burns after Hair Highlights. J Burn Care Res 2007; 28(2): 361-363.

d. Proceedings and non-refereed papers

1) An G. Introduction of an in-sIlico syntactical grammar for translating basic science research into agent based models of the acute inflammatory response. Proc 11th Congress Eur Shock Soc 2005, H Redl editor. 161-165.

e. Software, world wide web-based publications, exhibits, audiovisual or other teaching

material

1) An G, Lee I. Complexity, Emergence and Pathophysiology: Using Agent Based Computer Simulation to characterize the Non-Adaptive Inflammatory Response. InterJournal Complex Systems: http://www.interjournal.org. Manuscript # [344]. May, 2000.

f. Patents
None

g. Abstracts (last 2 years)

1) An G. Agent based models of acute inflammation: Translating basic science research into clinical application. Shock 2004; 21S1:s98.

2) An G, Delude R. Agent based model of cell culture epithelial barrier function: Using computer simulation in conjunction with a basic science model. Shock 2004; 21S2:s13.

3) An G. Computer simulations of multiple organ failure secondary to shock and sepsis with a multi-tissue, endothelial level agent based model. Shock 2004; 21S2:s66.

4) An G. Feinman R, Xu D-Z, Deitch E. In-silico unification of different basic science models of gut epithelial barrier function using agent based modeling. Crit Care Med 2004, 32(12s): A95.

5) An G. Introduction of an in-silico syntactical grammar for translating basic science research into community-wide agent based models of the acute inflammatory response. Shock 2005; 23(S2): 4. ar
6) An G. Multi-hierarchical agent-based modeling of the inflammatory aspects of the gut. J Crit Care 2005; 20(4): 383.

7) An G. Agent based models of pulmonary epithelial barrier function. Proceedings of the American Thoracic Society 2006; 3: A309.

8) An, G. Introduction of a Glossary of Mathematical Modeling Terms: Facilitating Translational Mathematical Modeling. Shock 2006; 25(S1): 59.

9) An, G. A Synthetic Framework for Investigating Multiple Intracellular Signaling 480Pathways using Agent Based Modeling. Shock 2006; 25(S1): 83.

10) An, G. Integrative Modeling of Inflammation and Organ Function Using Agent Based Modeling. Shock 2006; 26(S1):2.

11) West, M, Koons, A and An, G. Differential Effect of Pretreatment with Bacterial Peptidoglycan and Lipopolysaccharide (LPS) on LPS-stimulated Macrophage CytokineRelease. Inflamm Res 2007, 56(S2): s99.

12) Neugebauer, EAM, Vodovotz, Y, Bartels, J, Hunt, CA, Seydel, R and An, G. Evidence-Based Modeling: How to Manage. Inflamm Res 2007, 56(S2):s207

13) An, G. Crossing Levels of Biological Organization: Agent Based Translational Modeling of Genomic/Proteomic Data. Inflamm Res 2007, 56(S2): s208-209.

14) An, G Translational Computational Model of the Cellular and Molecular Effects of Barotrauma using a Hybrid of Finite Element Analysis and Agent Based Modeling. American J of Resp and Crit Care Med (Abstracts Issue) 2007, 175:A388.

15) An G, Shapiro M, Crandall M and West M. Agent Based Modeling of the Dermal Inflammatory Response to Burn Injury. Shock 2007, 27(S1):27.

16) Faeder JR, Hlavacek WR and An G. BioNetGen: A Tool for Formal Knowledge Representation of Intracellular Pathways. Shock 2007, 27(S1):31.

17) Lytinen S, Schroeder P and An G. An Interactive Iterative means of Generating a Cellular/Molecular Lexicon for Computerized Reading of BiomedicalTexts. Shock 2007, 27(S1):66-67.

17. PRESENTATIONS (past 5 years only)

1) An G. "Synthetic microanalysis, agent based computer simulation and Systemic Inflammatory Response Syndrome: Capturing the complexity of the inflammatory response." Poster presentation for the 30th International Educational and Scientific Symposium of the Society of Critical Care Medicine. San Francisco, CA, February 12, 2001.

2) An G. "Using agent based computer simulation to characterize the inflammatory response." Oral Presentation for the 5th Annual Swarm Meeting, Santa Fe, NM, April 29, 2001.

3) An G."Using computer simulation to characterize the robustness of non-adaptive inflammatory response: Implications for planning anti-cytokine therapy." Poster presentation for the 31st International and Scientific Symposium of the Society of Critical Care Medicine. San Diego, CA, January 26, 2002.

4) An G, Barrett J. "In-silico experiments of hypothetical multimodal mediator therapy for SIRS/MOF using agent based computer simulation." Poster presentation for t he 25th Annual Conference on Shock. Big Sky, MT. June 10, 2002.

5) An G. "Agent-based computer simulation of the pathophysiology of inhalational and cutaneous anthrax infection" Poster presentation for the 99th International Conference of the American Thoracic Society. Seattle, WA, May 18, 2003.

6) "Agent based modeling of the innate inflammatory response." Invited Speaker. 2nd Workshop on Complex Systems Analysis in Shock and Trauma Research. Cologne, Germany, February 26, 2003

7) "Research approaches to SIRS/MOF using agent based modeling." Invited id5720098 Speaker. 3rd Workshop on Complex Systems in Critical Illness Pittsburgh, PA,
November 3, 2003.

8) "Agent based models of acute inflammation: Translating basic science research into clinical applications." Invited Speaker. 6th World Congress on Trauma, Shock, Inflammation and Sepsis. Munich, Germany, March 4, 2004.

9) An, G. "Agent Based Models of the Acute Inflammatory Response: Update on Development and Future Directions." Oral Presentation for Annual Swarm Meeting 2004. Ann Arbor, MI, May 11, 2004.

10) An, G. "Agent Based Model of Cell Culture Epithelial Barrier Function: Using Comp uter Simulation in Conjunction with a Basic Science Model." Poster Presentation for the 27th Annual Conference on Shock. Halifax, Nova Scotia, June 6, 2004.

11) An, G. "Computer simulations of multiple organ failure secondary to shock and sepsis with a multi-tissue, endothelial level agent based model." Poster Presentation for the 27th Annual Conference on Shock. Halifax, Nova Scotia, June 8, 2004.

12) "Agent based models of the acute inflammatory response: Integrating basic science, pathophysiology and the clinical arena." Invited Speaker. International Conference for Mathematics in Biology and Medicine/ Annual Meeting of the Society of Mathematical Biology. Ann Arbor, MI, July 26, 2004.

13) "Agent based models of the acute inflammatory response: Update on developments and future directions." Invited Visiting Lecturer. Department of Surgery at the University of Medicine and Dentistry, New Jersey. Newark, NJ, August 6, 2004.

14) "Modular concepts of multi-scale, multi-tissue modeling of the acute inflammatory srsid5720098 response." Invited Speaker. 3rd Annual Meeting of the Society of Complexity in Acute
Illness. Pittsburgh, PA, November 9, 2004.

15) An, G. "In-silico unification of different basic science models of gut epithelial barrier function using agent based modeling" Poster presentation for the 34th International and Scientific Symposium of the Society of Critical Care Medicine. Phoenix, AZ, January 17, 2005.

16) "Introduction of an in-silico syntactical gramma 731 r for translating basic science

research into community-wide agent based models of the acute inflammatory response." Invited Speaker. 11th Congress of the European Shock Society. Vienna, Austria, January 27, 2005.

17) "Framework for multi-scale, collaborative mathematical modeling of the acute inflammatory response." Invited Speaker. 28th Annual Conference on Shock, Marco Island, Florida, June 5, 2005.

ararsid10289731 18) "Data and format needed for modeling: Expectations from modelers to bioscientists." Panel Discussant: 4th International Conference on Complexity in Acute Illness, Cologne, Germany, September 29, 2005.

19) "Mathematical modeling: Methods and critical appraisal--agent based modeling." Invited Speaker. 4th International Conference of Complexity in Acute Illness, Cologne, Germany, September 29, 2005.

20) "Multi-hierarchical agent based modeling of the inflammatory aspects of the g ut." Invited Speaker. 4th International Conference on Complexity in Acute Illness, Cologne, Germany, October 30, 2005.

21) "In Pixels and In Health: Computer modeling pushes the threshold of medical research." by Niala Moreira. Featured interview in Science News 2006, 169(3): 40-41, 44.

22) "Agent based models of pulmonary epithelial barrier function" Poster presentation for the 102nd Annual International Conference of the Ameri can Thoracic Society, San Diego, California, May 22, 2006.

23) "Introduction of a Glossary of Mathematical Modeling Terms: Facilitating Translational Mathematical Modeling." Poster Presentation for the 28th Annual Conference on Shock. Broomfield, CO, June 4, 2006.

24) "A Synthetic Framework for Investigating Multiple Intracellular Sign aling Pathways using Agent Based Modeling." Poster Presentation for the 28th Annual Conference on Shock, Broomfield, CO, June 6, 2006.

25) "Morphology and Modularity: ABM approaches to Biomedical Modeling. Invited/Featured Speaker. North American Association for Computational Social and Organizational Sciences (NAACSOS) 2006/Swarmfest 2006, South Bend, Indiana, June 23, 2006.

26) "Agent Based Modeling of Acute Inflammation." V isiting Professor/Invited Speaker. Virginia Commonwealth University Center for the Study of Biological Complexity Bioengineering and Bioinformatics Summer Institute, Richmond, VA, July 6, 2006.

27) "Integrative Modeling of Inflammation and Organ Function Using Agent Based Modeling." Twelfth Congress of the European Shock Society, Ulm, Germany, September 14, 2006.
80
28) "Systems Biology and Complexity: Speaking the Same Language." Session Chair. 5th International Conference on Complexity in Acute Illness, Tyson's Corner, VA, October 19, 2006.

29) "Mathematical Modeling of Organ Function and Dysfunction: Organ to Organ Crosstalk." Invited Speaker. 5th International Conference on Complexity in Acute Illness, Tyson's Corner, VA, October 20, 2006.

30) "Computational and Methodological Challenges." Session Chair. 5th 20098 International Conference on Complexity in Acute Illness, Tyson's Corner, VA, October 21, 2006.

31) "Communication through Model Sharing: Integrating Community-wide Knowledge." Invited Speaker. 5th International Conference On Complexity in Acute Illness, Tyson's Corner, VA, October 21, 2006.

32) "Mulihierarchical ABM approaches to Modeling Acute Inflammation." Invited speaker, Systems Biology Seminar Series. Center for Nonlinear Studies at Los Alamos National Laboratory. Los Alamos, NM, November 8, 2006.

33) "ABM Approaches to Modeling Acute Inflammation." Weekly Seminar Series, Northwestern Institute of Complex Systems. Evanston, IL. January 17, 20 07.

34) "Integrative Modeling of Inflammation and Organ Function using Agent Based Modeling." Invited Speaker. Central Surgical Association, Chicago, IL, March 8, 2007.

35) "Crossing Levels of Biological Organization: Agent Based Translational Modeling of Genomic/Proteomic Data." Invited Speaker. 7th World Congress on Trauma, Shock, Inflammation and Sepsis (TSIS 2007). Munich, Germany , March 15, 2007.

36) "A Hybrid Model of the Acute Inflammatory Response." 2007 Spring Simulation Multiconference (Agent Directed Simulation Symposium), Norfolk, VA, March 26, 2007.

37) "Translational Computational Model of the Cellular and Molecular Effects of Barotrauma using a Hybrid of Finite Element Analysis and Agent Based Modeling." Poster Presentation. ATS 2007 (American Thoracic Society) International Conference, San Francisco, CA, May 21, 2007.

38) "An Iterative Interactive means of generating a cellular/molecular lexicon for Computerized reading of Biomedical texts." Poster Presentation for the 29th Annual Conference on Shock, Baltimore, MD, June 11, 2007.

39) "Age nt Based Modeling of the Dermal Inflammatory Response to Burn Injury." Poster Presentation for the 29th Annual Conference on Shock, Baltimore, MD, June 10, 2007.

40) "BioNetGen: A tool for formal knowledge representation of intracellular pathways." Poster Presentation for the 29th Annual Conference Shock, Baltimore, MD, June10, 2007.

41) "Translational, Multi-Hierarchical Agent Based Modeling of Acute Inflammation. Invited Speaker. Using the "Omics" Technologies to Phenotype Disease: A Satellite Pre-Symposium of the 9th Banff Conference on A llograft Pathology, Edmonton, Alberta, CA, June 19, 2007.

42) "Iterative Automated Named Entity Recognition to Bootstrap Biomedical Lexicon Generation." Oral Presentation for Swarmfest 2007, Chicago, IL, July 13, 2007.

43) "Developing Evolving Biomedical Ontologies in "Knowledge Ecologies:" Proposal for an Agent-Based Approach." Oral Presentation for Swarmfest 2007, Chicago, IL, July 14, 2007.

44) "Modeling for Clinicians and other Non-mathematicians: Agent Based Knowledge Representation. uote Invited Oral Presentation for the International Surgical Week 2007, Montreal, Quebec, August 27, 2007.

45) "Developing Knowledge Ecologies: Integrating the Research Community with Modeling and Technology." Invited Oral Presentation for International Surgical Week 2007, Montreal, Quebec, August 27, 2007.