

CURRICULUM VITAE

September 29, 2014

Andrew Lawrence Frelinger III

Assistant Professor in Pediatrics, Harvard Medical School
Associate Director, Center for Platelet Research Studies
Staff Scientist
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Date Prepared: September 29, 2014
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Education:

5/1975 B.S. Biology San Diego State University, San Diego, CA
5/1984 Ph.D. Biology Case Western Reserve University, Cleveland, OH
(Thesis advisor: James E. Zull)

Postdoctoral Training:

1984-1986: Postdoctoral Fellow, Neurobiology, Case Western Reserve Univ. School of Medicine,
(Lab PI: Urs Rutishauser, PhD)
1986-1989: Postdoctoral Fellow, Cell Biology, Department of Immunology, The Scripps Research
Institute, La Jolla, CA, (Lab PI, Mark Ginsberg, MD)

Faculty Academic Appointments:

1989 – 1990: Senior Research Associate, Committee on Vascular Biology, The Scripps Research
Institute, La Jolla, CA
5/1998 – 5/2009: Research Associate Professor of Pediatrics and Molecular Biology & Microbiology,
University of Massachusetts Medical School, Worcester, Massachusetts
1998 – 5/2009: Associate Director, Center for Platelet Function Studies, University of Massachusetts
Medical School
5/2009 – present: Adjunct Research Associate Professor of Pediatrics, University of Massachusetts
Medical School, Worcester, Massachusetts (non-voting)
5/2009 – present: Staff Scientist, Division of Hematology/Oncology, Department of Medicine, Children's
Hospital Boston
5/2009 – present: Associate Director, Center for Platelet Research Studies, Children's Hospital Boston
5/2009 – 12/2009: Lecturer in Pediatrics, Department of Pediatrics, Harvard Medical School
1/2010 – present: Assistant Professor of Pediatrics, Department of Pediatrics, Harvard Medical School

Certification:

- 2005: CITI Course in The Protection of Human Research Subjects, completed 5/2/2005
- 2008: Environmental Health and Safety, Certificate #20-61-08, 11/26/2008 UMass Medical School
- 2008: Public Health Service Policy on Humane Care and Use of Laboratory Animals, AALAS Learning Library, Exam # 159511, 12/10/2008
- 2008: Introduction to Rats, AALAS Learning Library, Exam # 1595167, 12/10/2008
- 2009: CITI Course in The Protection of Human Research Subjects CITI Collaborative Institutional Training Initiative, Human Research Curriculum, Refresher Course, completed 3/11/2009
- 2010: NetLearning course: "NIH Guidelines for Research Involving Recombinant DNA Molecules", completed 10/2010
- 2011: NetLearning course: "Principal Investigator Responsibilities". Completed 3/21/2011
- 2011: CHB course in Hazardous Materials Shipping. Completed 3/21/2011
- 2011: NetLearning course: "CHERP (Children's Hospital eResearch Portal) Research Training". Completed 3/23/2011
- 2011: NetLearning course: "Workplace Harassment-Manager Course". Completed 12/5/2011
- 2012: Radiation Safety Training, Children's Hospital Boston, Radiation Safety Office
- 2012: NetLearning course: "Radiation Safety". Completed 1/30/2012
- 2012: Children's Hospital Boston Radiation Permit (^3H , ^{125}I , ^{33}P , ^{35}S), issued 3/27/2012
- 2014: NetLearning course: "Cultural Competence and Diversity Awareness". Completed 1/23/2014
- 2014: NetLearning course: "Chemical Safety". Completed 1/23/2014
- 2014: NetLearning course: "Workplace Violence (Manager Supplement)". Completed 1/23/2014
- 2014: Boston Children's Hospital Lab Safety Refresher Course 5/30/2014
- 2014: NetLearning course: "IBC Training". Completed 7/10/2014

Other Professional Positions:

- 1990 – 1993: Scientist II, Thrombosis and Hemostasis, Biogen, Inc., Cambridge, Massachusetts: GPIIb-IIIa Inhibitor Project Team Leader; Thrombin Receptor Inhibitor Project Team Leader; direct supervisory responsibilities for one senior scientist and three research associates
- 1993 – 1995: Principal Scientist, Biology, ARIAD Pharmaceuticals, Cambridge, Massachusetts: Thromboerythrocyte Project Team Leader; team comprised biologists, chemists, and pharmacologists; direct supervisory responsibilities for one senior scientist and two research associates
- 1996 – 1997: Director of Biomaterials R&D, Organogenesis, Inc., Canton, Massachusetts: Tissue Engineered Vascular Graft Project Team Leader; direct supervisory responsibilities for three research associates
- 1996 – 1998: Consultant for Accumetrics, Inc., San Diego, California: Platelet biologist for RPFA (Rapid Platelet Function Assay) device development team; consultant for clinical trial for FDA 510K approval of Accumetrics VerifyNow System
- 2013 – present Co-chair, Scientific and Standardization Committee (SSC) Scientific Subcommittee on Platelet Physiology, International Society on Thrombosis and Haemostasis (ISTH) (8/28/2013 – present)

7/2014 – present Internal Advisory Board Member, Robert’s Program, a clinical program at Boston Children’s Hospital on sudden and unexpected death in pediatrics (SUDP). Richard Goldstein, MD, Program Director.

Professional Societies:

1988 – present: American Association for the Advancement of Science.

2002 – present: American Heart Association.
Scientific Council(s)
Stroke Council - Member
Council on Arteriosclerosis, Thrombosis and Vascular Biology - Member
Interdisciplinary Working Group (IWG)
Atherosclerotic Peripheral Vascular Disease

2002 – present: American Society of Hematology.

2002 – present: Thrombosis Council, American Heart Association.

2002 – present: International Society on Thrombosis and Haemostasis.

Grant Review Activities:

2008 – 2009: Center for Environmental Genomics and Integrative Biology (CEGIB), National Institute of Environmental Health Sciences

3/2009 External Reviewer

3/2008 Invited Reviewer

2013: Health Research Board, Dublin, Ireland

2014: National Science Centre, Kraków, Poland

Editorial Activities (Ad hoc Reviewer):

- Circulation
- Blood
- JAMA
- Atherosclerosis
- Arteriosclerosis, Thrombosis, and Vascular Biology
- Journal of the American College of Cardiology
- Journal of Thrombosis and Haemostasis
- Thrombosis and Haemostasis
- Circulation, Japan
- Platelets
- Expert Opinion On Drug Safety

Honors and Prizes:

1980-1981: NIH Predoctoral Traineeship

1981: Sigma Xi Research Award

1982: American Chemical Society Travel Award

1983: Graduate Alumni Travel Award, Case Western Reserve University

1984 – 1986: NIH Postdoctoral Traineeship in Neurobiology

Research, Teaching, and Clinical Contributions

Narrative Report:

For the last 25 years the focus of my research has been translational studies, combining basic and clinical research, related to platelets and thrombosis. Beginning with a post-doctoral position in the laboratory of Dr. Mark Ginsberg at Scripps Clinic and Research Foundation in 1986, where my colleagues and I discovered novel epitopes whose exposure is modulated by ligand binding (ligand-induced binding sites or LIBS) on the cell adhesion receptor glycoprotein IIb-IIIa (GPIIb-IIIa), my work has focused on investigations of basic platelet biology, development of platelet-related therapeutics, and evaluation of anti-platelet therapy through clinical trials.

After receiving an NIH FIRST award to study “Immunochemical Analysis of Ligand-Receptor Interaction”, I applied my expertise in platelet biology and biochemistry in the biotechnology industry. At Biogen, Inc. I led a group focused on the discovery of novel antagonists of GPIIb-IIIa, at Ariad Pharmaceuticals I was the team leader for development and pre-clinical research on thromboerythrocytes (red blood cells modified to co-aggregate with platelets for the treatment of thrombocytopenia), at Organogenesis I directed development of a small diameter tissue-engineered vascular graft for coronary and peripheral applications, and at Accumetrics, Inc. I was a key contributor to the design, development, and clinical testing of the VerifyNow System, a point-of-care device for monitoring platelet function and anti-platelet therapy which is now an industry standard. This time spent working in the biotech industry provided me with experience in a wide range of technologies and insights into the practical requirements for translating basic research into viable therapies.

In 1998 I re-entered academia, joining the faculty of the Department of Pediatrics at the University of Massachusetts Medical School and Dr. Alan Michelson’s group, the Center for Platelet Function Studies, focusing first on mechanistic studies to explain the increased mortality observed in clinical trials of oral GPIIb-IIIa antagonists. In other studies, I and my colleagues identified monocyte-platelet aggregates as an early marker of acute myocardial infarction, and were the first to report on inhibition in whole blood of platelet activation, markers of inflammation and platelet procoagulant activity by the active metabolite of prasugrel, a third generation thienopyridine inhibitor of the platelet ADP receptor P2Y₁₂.

Starting in 2004, one focus of my research was the study of “aspirin resistance” and “clopidogrel resistance”, terms referring to the occurrence of a clinical thrombotic event, or, the greater-than-expected response in a platelet function assay, despite aspirin or clopidogrel anti-platelet therapy. I was a Principal Investigator of a 700 patient study of aspirin’s pharmacodynamic effects on platelets, and 2-year follow-up study of clinical events which demonstrated that residual activity in both COX-1 -dependent and -independent platelet function assays is associated with adverse clinical outcomes. This phenomena is now termed high on-treatment platelet reactivity or HPR and is widely recognized as a risk factor for adverse thrombotic events in cardiovascular patients. I have also played a key role contributing to the design, execution, and interpretation of pharmacodynamic studies of anti-platelet agents in multi-centered international clinical trials including TRITON-TIMI 38 Platelet Substudy, PRINCIPAL-TIMI 44, PEGASUS-TIMI 54, ELEVATE-TIMI 56, and DAPT with the result that my lab has measured platelet function by multiple end points in more than 7000 individual clinical trial samples.

Ongoing efforts in the lab include evaluation of 1) antiplatelet therapy as a treatment modality for sickle cell disease 2) the effects of thrombopoietin mimetics on platelet activation, 3) novel diadenosine tetraphosphate analogs with dual specificity for platelet P2Y₁ and P2Y₁₂ ADP receptors for their potential as anti-platelet drugs, 4) platelet function as a contributor to bleeding in immune thrombocytopenia, 5) platelets as models of neurons, and 6) induced pluripotent stem cell-derived platelets for therapeutic applications.

Funding Information:

Past Funding:

1. 1987-1989 Research Fellow AHA, California Affiliate
Research Fellowship Award; 87-S13
“Divalent cation regulation of platelet aggregation” (M.H. Ginsberg, M.D., Advisor)
2. 1990 Principal Investigator NIH
First Independent Research Support and Transition (FIRST) Award, HL-44111
“Immunochemical Analysis of Ligand-Receptor Interaction”
3. 1999 – 2000: Co-Principal Investigator Centocor, Inc. (Malvern, PA),
Investigator-initiated sponsored research
“GPIIb-IIIa Antagonist-induced Fibrinogen Binding to Platelets”, Co-PI: Alan D. Michelson
4. 2000 – 2001: Co-Principal Investigator Accumetrics, Inc. (San Diego, CA)
Investigator-initiated sponsored research
“A. Effects of different anticoagulants on eptifibatide inhibition of platelet function as determined by Ultegra RPFA and ADP-stimulated PAC1 binding. B. Validation of PAC1 flow cytometric assay vs. abciximab receptor binding assay. C. Validation of the use of PAC1 flow cytometric assay for use with clopidogrel inhibited samples.”, Co-PI: Alan D. Michelson
5. 2000 – 2001 Co-Principal Investigator Centocor, Inc. (Malvern, PA)
Investigator-initiated sponsored research
“Molecular Mechanism of Abciximab Reversal of Platelet Aggregation”, Co-PI: Alan D. Michelson
6. 2000 – 2001 Co-Principal Investigator Centocor, Inc. (Malvern, PA)
Investigator-initiated sponsored research
“Platelet Priming by GPIIb-IIIa Antagonists”, CoPI: Alan D. Michelson.
7. 2001 – 2002 Co-Principal Investigator Centocor, Inc. (Malvern, PA)
Investigator-initiated sponsored research
“Dissolution of Preformed Platelet Aggregates”, CoPI: Alan D. Michelson.
8. 2002 – 2007 Co-Principal Investigator Dade Behring (Miami, Florida)
Investigator-initiated sponsored research
“Correlation of *In Vitro* and *In Vivo* Determinations of Aspirin Resistance, including Clinical Outcomes”, CoPIs: Mark I. Furman, Alan D. Michelson
9. 2004 Principal Investigator Worcester Foundation (Worcester, MA)
“Genes Associated with Aspirin Resistance”
10. 2004: Co-Principal Investigator Wyeth Pharmaceuticals (Collegeville, PA)
Investigator-initiated sponsored research
“Inhibition of leukocyte-platelet aggregation by WAY-197697”, Co-PI: Alan D. Michelson

11. 2004 – 2005 Co-Principal Investigator BioCytex (Marseilles, France)
Investigator-initiated sponsored research
“Utility of BioCytex VASP Phosphorylation and P2Y12 Haplotype Assays in Aspirin Resistance and Clopidogrel Resistance”, CoPI: Alan D. Michelson
12. 2004 – 2006 Co-Principal Investigator Eli Lilly & Co. (Indianapolis, IN)
Investigator-initiated sponsored research
H7T-MC-TAAM “Inhibition of Platelet P2Y12 Receptor”, CoPI: Alan D. Michelson
13. 2004 – 2006 Assoc. Director, CPFS Alexion Pharm., Inc. (Cheshire, CT)
Industry-sponsored research
Core Platelet Function Laboratory, TRIUMPH (A Transfusion Avoidance Efficacy and Safety Clinical Investigation, Randomized, Multi-Center, Double-Blind, Placebo-Controlled, Using Eculizumab in Paroxysmal Nocturnal Hemoglobinuria Patients) trial. Core Platelet Function Laboratory Director: A.L. Frelinger
14. 2005 – 2007: Assoc. Director, CPFS Alexion Pharm., Inc. (Cheshire, CT)
Industry-sponsored research
Core Platelet Function Laboratory, SHEPHERD (Safety in Hemolytic PNH Patients Treated with Eculizumab: A Multicenter Open-label Research Design Study) trial. Core Platelet Function Laboratory Director: A.L. Frelinger
15. 2005 – 2007: Assoc. Director, CPFS Alexion Pharm., Inc. (Cheshire, CT)
Industry-sponsored research
Core Platelet Function Studies Laboratory, PNH EXTENSION (A Phase III, Open-Label, Extension Study of Eculizumab in Patients with Transfusion Dependent, Hemolytic Paroxysmal Nocturnal Hemoglobinuria (PNH) Who Have Participated in the TRIUMPH, SHEPHERD or X03-001 Studies) trial. Core Platelet Function Laboratory Director: A.L. Frelinger
16. 2005 - 2007: Assoc. Director, CPFS TIMI Study Group, BWH (Boston, MA)
Sponsored clinical trial
TRITON-TIMI 38 Platelet Substudy, Director, Core Platelet Function Studies Laboratory: Alan D. Michelson.
17. 2005 - 2006: Principal Investigator U.S. Army MRMC
NIH Small Business Technology Transfer Phase I; W81XWH-05-C-0164
“Preservation of platelets for hemostatic and wound healing bandages”
18. 2006 - 2007: Co-Principal Investigator Momenta Pharm., Inc. (Cambridge, MA)
Sponsored clinical trial
“Effects of M-118 on Platelet Function”, Co-PIs: Mark I. Furman, Alan D. Michelson
19. 2006 - 2007: Co-Principal Investigator Momenta Pharm., Inc. (Cambridge, MA)
Sponsored clinical trial
“Phase I Trial of M-118: Platelet Function Core Laboratory”, Co-PIs: Mark I. Furman, Alan D. Michelson.

20. 2006 – 2007: Co-Principal Investigator Eli Lilly & Co. (Indianapolis, IN)
“The Effects of Platelet P2Y₁₂ Inhibition by R-138727 on Platelet Procoagulant Activities”, Co-PI Alan D. Michelson.
21. 2006 - 2008: Assoc. Director, CPFS TIMI Study Group, BWH (Boston, MA)
Sponsored clinical trial
PRINCIPLE-TIMI 44, Director, Core Platelet Function Studies Laboratory: Alan D. Michelson.
22. 2006-2008: Principal Investigator U.S. Army MRMC
NIH Small Business Technology Transfer Phase II; W81XWH-05-C-0164
“Preservation of platelets for hemostatic and wound healing bandages”
23. 2007 - 2008: Principal Investigator NIH
SBIR Phase I Subcontract. Primary awardee: Ivan Yanachkov, GL Synthesis
"Novel Antithrombotic Diadenosine Tetrphosphate Analogs"
24. 2007 - 2008: Principal Investigator NIH SBIR HL081992
SBIR Phase I Subcontract. Primary awardee: Ivan Yanachkov, GL Synthesis
"Diadenosine Boranotetraphosph(on)ates as Antithrombotic Drugs"
25. 2006 - 2009: Co-Principal Investigator Arena Pharm. (San Diego, CA)
“Effects of 5-HT_{2A} Antagonist on Platelet Function”, Co-PI: Alan D. Michelson
26. 2007 – 2009: Co-Principal Investigator Sanofi Aventis-Bristol-Myers Squibb
“PACT (Platelet Activity after Clopidogrel Termination)”, Co-PI: Alan D. Michelson.
27. 2008 – 2009: Principal Investigator Eli Lilly & Co. and Daiichi Sankyo
“Prasugrel and Abciximab: Complementary and Synergistic Inhibition of Prothrombotic Activities”, Co-PI: Alan D. Michelson.
28. 2008 – 2009: Principal Investigator Eli Lilly & Co. (Indianapolis, IN)
“A Pharmacodynamic Comparison of Prasugrel (LY640315) versus High Dose Clopidogrel in Subjects with Type 2 Diabetes Mellitus and Coronary Artery Disease”, Co-PI: Alan D. Michelson.
29. 2009 - 2010: Co-Principal Investigator Sanofi Aventis-Bristol-Myers Squibb
“PACT (Platelet Activity after Clopidogrel Termination)”, Co-PI: Alan D. Michelson.
30. 2009 - 2011: Principal Investigator NIH SBIR HL088828
SBIR Phase II Subcontract. Primary awardee: Ivan Yanachkov, GL Synthesis
"Novel Antithrombotic Diadenosine Tetrphosphate Analogs"
31. 2009 - 2011: Co-Principal Investigator Takeda Pharmaceuticals
“A Phase 1, Randomized, Open-Label, 2-Period, Crossover Design Study to Assess the Effects of Multiple Oral Doses of Dexlansoprazole, Lansoprazole, Omeprazole or Esomeprazole on the Steady-State Pharmacokinetics and Pharmacodynamics of Clopidogrel in Healthy Subjects”. PI: Alan D. Michelson.

32. 2010 – 2011: Principal Investigator Eli Lilly & Co. and Daiichi Sankyo
“Laboratory Functions in support of Protocol H7T-MC-TAEK(a), A Double-Blind, Randomized, Multicenter Study of Prasugrel Compared to Placebo in Adult Patients with Sickle Cell Disease”.
33. 2011 – 2012: Co-Principal Investigator TIMI Study Group
ELEVATE-TIMI 56 “A randomized treatment sequence PD study in 275 Stable CAD Patients on clopidogrel 75 mg and genotyped for CYP2C19”. PI: Alan D. Michelson.
34. 2009 - 2010: Principal Investigator Eli Lilly & Co. and Daiichi Sankyo
“Prasugrel and Abciximab: Complementary and Synergistic Inhibition of Prothrombotic Activities”, Co-PI: Alan D. Michelson.
35. 2009 – 2012: Principal Investigator Eli Lilly & Co. and Daiichi Sankyo
“Platelet Activation and Inhibition in Sickle Cell Disease (PAINS)” A Pilot Study of Monitoring Platelet Function in Adolescents with Sickle Cell Disease. CoPI: Alan D. Michelson
36. 2011 – 2012: Co-Principal Investigator A. Dejam, B&W Hospital
Effect of RBC transfusions on platelet function in patients with ACS. PI: Alan D. Michelson.
37. 2012 – 2013: Co-Principal Investigator Eisai Pharmaceuticals
A Phase 3, Multicenter, Randomized, Double-blind, Active-controlled, Parallel-group Trial with an Open-label Extension Phase to Evaluate the Efficacy and Safety of Oral E5501 versus Eltrombopag, in Adults with Chronic Immune Thrombocytopenia (Idiopathic Thrombocytopenic Purpura). PI: Alan D. Michelson
38. 2012 – 2013: Co-Principal Investigator Cellphire Pharmaceuticals
Sizing of Thrombosomes®. PI: Alan D. Michelson
39. 2013: Principal Investigator Aveo Oncology
GDF-15 Inhibition of Platelet Function
40. 2009 – 2013: Principal Investigator Alexion Pharm., Inc. (Cheshire, CT)
Core Platelet Function Laboratory for Protocols C08-002A, C08-002B, C08-003A, and C08-003B, “Open-Label, Multi-Center Controlled Clinical Trials Of Eculizumab In Adult and Adolescent Patients With Plasma Therapy-Sensitive or Resistant Atypical Hemolytic-Uremic Syndrome (aHUS)”. CoPI: Alan D. Michelson.
41. 2009 – 2013: Co-Principal Investigator NIH
Subcontract, Primary awardee: Marc Sabatine, The Thrombolysis in Myocardial Infarction Study Group. “Platelet substudy to the Dual Anti-Platelet Therapy (DAPT) study”. PI: Alan D. Michelson.
42. 2009 – 2013: Principal Investigator Oxygen Biotherapeutics
“Effects of Oxycyte™ on platelet function”. CoPI: Alan D. Michelson
DoD Award Number W81XWH-11-2-0122 to T.P. Bradshaw, PhD, Oxygen Biotherapeutics, “Preclinical and Clinical Studies of Oxycyte, A Novel Traumatic

Brain Injury Therapeutic for Combat Casualties”

43. 2012 – 2013: Co-Investigator PI: Don Ingber, Wyss Institute
“Spleen-on-a-Chip”. DARPA Award Number N66001-11-1-4180 to Donald Ingber.
Co-investigator: Alan D. Michelson.
44. 2013 – 2014: Principal Investigator Celerion/Camargo Pharmaceutical Services
Omeprazole Drug-Drug Interaction Study: A Randomized, Multiple Dose, 2-Period
Crossover Study To Assess The Effect Of Coadministration Of Omeprazole (Cyp2c19
Inhibitor) On The Pharmacodynamics And Pharmacokinetics Of At-10 In Healthy
Subjects Considered Normal Metabolizers Of CYP2C19 Based On Genotyping
(Alleles *1/*1).
45. 2013 – 2014: Principal Investigator Celerion/Camargo Pharmaceutical Services
A Randomized, Multiple Dose, 2-Period, Crossover Study to Assess the
Pharmacodynamics and Pharmacokinetics of AT-10 Compared to Clopidogrel in
Heavy Smokers Considered Normal Metabolizers of CYP2C19 Based on Genotyping
(*1/*1 alleles).
46. 2013 – 2014: Co-principal Investigator GE Global Healthcare
Effects of pulse electric field on platelet activation. PI: Alan D. Michelson

Current Funding:

1. 2010 – 2014: Co-Principal Investigator TIMI Study Group
PEGASUS-TIMI 54 “PrEvention with TicaGrelor of SecondAry Thrombotic Events
in High-RiSk Patients with Prior AcUte Coronary Syndrome”. PI: Alan D. Michelson.
2. 2013 – 2016: Principal Investigator NIH 9R44TR000983-04A1
SBIR Phase IIb Subcontract. Primary awardee: Ivan Yanachkov, GL Synthesis
"Novel Antithrombotic Diadenosine Tetraphosphate Analogs"
3. 2013 – 2018: Sub- Investigator NIH 2PO1-HD036379-16A1
The Ventral Medulla and the Sudden Infant Death Syndrome. PI: Hannah Kinney

Report of Teaching and Training:**Teaching of Students in Courses:**

- 1983-1984 Laboratory in Cellular and Molecular Biology, Case Western Reserve University, Cleveland, OH
Instructor, four sections/week of ~20 undergraduates/section
- 2013 – present Chair, Thesis Committee for Brenden Smith, Ph.D. candidate, Graduate Medical Sciences, Boston University

Laboratory and Other Research Supervisory and Training Responsibilities:

- 2/2004 – 5/2009 Associate Director, 100% effort
Center for Platelet Function Studies

Directed research carried out by senior research associates, post-docs and visiting scientists (Inge Tarnow, D.V.M., 1/2006 – 6/2006 and Hung Chang, M.D., 12/2006 – 12/2008). Supervised and provided training in preparation of research proposals and manuscripts.

- 5/2009 – present Associate Director, 100% effort
Center for Platelet Research Studies

Plan and supervise research carried out by Lead Research Technologist, Research Assistants, postdoctoral fellows, and visiting scientists. Provide training in experimental design, assay development, and animal procedures. Provide collaborative training and support related to platelet function research to other Boston Children's Hospital faculty and staff. Primary supervisory responsibility for post-doctoral fellows (Michelle Berny-Lang, Ph.D, 5/2011 – 7/2013; Janna Gerrits, Ph.D., 4/2012 – present) and Visiting Scientist (Ji-Young Park, M.D. 9/2012 – 12/2013).

Local Invited Presentations:

- 4/7/1995 Update in Transfusion Medicine 1995
“Synthetic Platelets: Thromboerythrocytes”
Harvard Medical School
Department of Continuing Education
Lecturer
- 9/9/2009 Boston Megakaryocytes and Platelets Club
“The Platelet Activity after Clopidogrel Termination (PACT) Study”
Children’s Hospital Boston/Brigham and Women’s Hospital
- 8/14/2010 Boston Megakaryocytes and Platelets Club
“Association of Cyclooxygenase-1-Dependent and -Independent Platelet Function Assays With Adverse Clinical Outcomes in Aspirin-Treated Patients Presenting for Cardiac Catheterization”
Children’s Hospital Boston/Brigham and Women’s Hospital
- 5/23/2012 Boston Children’s Hospital Multidisciplinary Pediatric Thrombosis and Hemostasis Rounds
“Clopidogrel”
Boston Children’s Hospital
- 1/22/2014 Boston Children’s Hospital Multidisciplinary Pediatric Thrombosis and Hemostasis Rounds
“Can Bleeding in ITP be Predicted by Platelet Function Tests?”

2/27/2014 Boston Children's Hospital
Boston University Hematology/Oncology Grand Rounds
"Can Bleeding in ITP be Predicted by Platelet Function Tests?"
Boston University Medical School

Report of Regional, National and International Invited Teaching and Presentations:

Regional:

3/8/1995 "Platelet Substitutes" Invited speaker, Carolinas Clinical Connection 1995, Myrtle Beach SC

9/18/2008 "Monitoring Platelet Function", Invited speaker, 2nd Eastern Canadian Symposium on Hemostasis 2008, St. John's, Newfoundland, Canada, September 18-19, 2008

10/2/2008 "Monitoring Antiplatelet Therapy for the Coiling of Cerebral Aneurysms" Invited speaker, Micrus North American Senior Fellows Seminar, New England Center for Stroke Research, UMass Medical School, Worcester, MA

11/6/2008 "The Role of Platelets, Anti-platelet Therapy and Monitoring of Anti-platelet Therapy in Stent Thrombosis" Lecturer, Providence Neuro Users Group, Sponsor: Cordis Neurovascular, Providence, RI

National:

9/23/1994 "Platelet Substitutes" Invited speaker ; Transfusion Medicine of the Future Conference, Phoenix, AZ, sponsored by the American Association of Blood Banks

11/6/2007 "Mechanisms and Consequences of Aspirin Resistance", Invited Speaker American Heart Association Scientific Sessions 2007, Orlando, Florida

10/11/2008 "Monitoring Platelet Function", LINC Course – Houston 2008: Endovascular Neuroradiology Workshop and Live Cases. October 11-16, 2008

12/6/2013 "Association of Platelet Function Markers, Independent of Platelet Count, With Bleeding Score in Patients With Immune Thrombocytopenia", Invited Speaker, ASH Friday Morning ITP Breakfast. New Orleans, LA, December 6, 2013.

International:

7/4/2008 "Less Commonly Used and Newly Developed Platelet Function Assays", Invited speaker, 54th Annual Scientific and Standardization Committee (SSC) Meeting of the International Society on Thrombosis and Haemostasis (ISTH), Vienna Austria, July 4, 2008

10/18/2008 "Novel Antiplatelet Agents", Invited speaker, Platelets 2008 International Symposium, Woods Hole, Massachusetts, October 18-21, 2008

6/10/2012 "Platelet Activation and Inhibition in Sick cell disease (PAINS) study", Platelets 2012 International Symposium, Endicott College, Beverly, MA, USA. June 10, 2012

Bibliography:

Summary:

Peer-Reviewed Original Articles: 80
Reviews, Chapters, and Editorials: 21
Published Abstracts and Letters: 51

Peer-Reviewed Original Articles:

1. Roos BA, Cooper CW, **Frelinger AL**, Deftos LJ. Acute and chronic fluctuations of immunoreactive and biologically active plasma calcitonin in the rat. *Endocrinology*. 1978;103:2180-2186.
2. Roos BA, Yoon MJ, **Frelinger AL**, Pensky AE, Birnbaum RS, Lambert PW. Tumor growth and calcitonin during serial transplantation of rat medullary thyroid carcinoma. *Endocrinology*. 1979;105:27-32.
3. Roos BA, Lindall AW, Baylin SB, O'Neil J, **Frelinger AL**, Birnbaum RS, Lambert PW. Plasma immunoreactive calcitonin in lung cancer. *Endocr Res Commun*. 1979;6:169-190.
4. Roos BA, Lindall AW, Baylin SB, O'Neil JA, **Frelinger AL**, Birnbaum RS, Lambert PW. Plasma immunoreactive calcitonin in lung cancer. *J Clin Endocrinol Metab*. 1980;50:659-666.
5. **Frelinger AL**, 3rd, Zull JE. Oxidized forms of parathyroid hormone with biological activity. Separation and characterization of hormone forms oxidized at methionine 8 and methionine 18. *J Biol Chem*. 1984;259:5507-5513.
6. **Frelinger AL**, 3rd, Zull JE. The role of the methionine residues in the structure and function of parathyroid hormone. *Arch Biochem Biophys*. 1986;244:641-649.
7. Botti RE, Jr., Heath E, **Frelinger AL**, Chuang J, Roos BA, Zull JE. Specific cleavage of bovine parathyroid hormone catalyzed by an endopeptidase from bovine kidney. *J Biol Chem*. 1981;256:11483-11488.
8. **Frelinger AL**, 3rd, Rutishauser U. Topography of N-CAM structural and functional determinants. II. Placement of monoclonal antibody epitopes. *J Cell Biol*. 1986;103:1729-1737.
9. Watanabe M, **Frelinger AL**, 3rd, Rutishauser U. Topography of N-CAM structural and functional determinants. I. Classification of monoclonal antibody epitopes. *J Cell Biol*. 1986;103:1721-1727.
10. Loftus JC, Plow EF, **Frelinger AL**, 3rd, D'Souza SE, Dixon D, Lacy J, Sorge J, Ginsberg MH. Molecular cloning and chemical synthesis of a region of platelet glycoprotein IIb involved in adhesive function. *Proc Natl Acad Sci U S A* 1987;84(20):7114-8.
11. **Frelinger AL**, 3rd, Lam SC, Plow EF, Smith MA, Loftus JC, Ginsberg MH. Occupancy of an adhesive glycoprotein receptor modulates expression of an antigenic site involved in cell adhesion. *J Biol Chem* 1988;263(25):12397-402.
12. Lam SC, Plow EF, D'Souza SE, Cheresch DA, **Frelinger AL**, 3rd, Ginsberg MH. Isolation and characterization of a platelet membrane protein related to the vitronectin receptor. *J Biol Chem* 1989;264(7):3742-9.
13. **Frelinger AL**, 3rd, Cohen I, Plow EF, Smith MA, Roberts J, Lam SC, Ginsberg MH. Selective inhibition of integrin function by antibodies specific for ligand-occupied receptor conformers. *J Biol Chem* 1990;265(11):6346-52.
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Patents:

1. United States Patent, Ginsberg, M.H., O'Toole, T., Plow, E.F., and **Frelinger, A.L.** III: Antibodies that bind to a ligand induced binding site on integrin and induce integrin activation. U.S. Patent No. 5,306,620 issued 4/26/1994.

2. **Frelinger, A.L. III**, Plow, E.F., and Ginsberg, M.H.: Antibodies that bind to a ligand-induced binding site on GPIIIa. U.S. Patent Application No. 07/417,565.
3. Ginsberg, M.H., **Frelinger, A.L.**, and Plow, E.F.: In vitro methods for determining in vivo thrombotic events. International Patent Application No. PCT/US 92/03419.

Abstracts (published within last 3 years and not already published as full-length manuscripts):

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Thesis:

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