

# Bone Marrow Transplant and Immune Deficiency

## Division Details

### RESEARCH AND TRAINING DETAILS

Faculty	15
Joint Appointment Faculty	4
Research Fellows and Post Docs	1
Research Graduate Students	1
Total Annual Grant Award Dollars	\$1,284,076
Total Annual Industry Award Dollars	\$257,680
Total Publications	51

### CLINICAL ACTIVITIES AND TRAINING

Staff Physicians	9
Clinical Fellows	5
Inpatient Encounters	11,502
Outpatient Encounters	7,482



Row 1: S Jodele, A Kumar, K Myers, P Khandelwal, S Davies, P Mehta

Row 2: S Chandra, R Marsh, C Dandoy, J El-Bietar, M Grimley, A Nelson

## Division Publications

1. Abdalgani M, Filipovich AH, Choo S, Zhang K, Gifford C, Villanueva J, Blessing JJ, Marsh RA. [Accuracy of Flow Cytometric Perforin Screening for Detecting Patients with Fh1 Due to Prf1 Mutations](#). *Blood*. 2015; 126:1858-60.
2. Ayas M, Eapen M, Le-Rademacher J, Carreras J, Abdel-Azim H, Alter BP, Anderlini P, Battiwalla M, Bierings M, Buchbinder DK, Bonfim C, Camitta BM, Fath AL, Gale RP, Lee MA, Lund TC, Myers KC, Olsson RF, Page KM, Prestidge TD, et al. [Second Allogeneic Hematopoietic Cell Transplantation for Patients with Fanconi Anemia and Bone Marrow Failure](#). *Biol Blood Marrow Transplant*. 2015; 21:1790-5.
3. Ballen K, Ahn K, Chen M, Abdel-Azim H, Ahmed I, Aljurf M, Antin J, Bhatt A, Boeckh M, Chen G. [Infection Rates among Acute Leukemia Patients Receiving Alternative Donor Hematopoietic Cell Transplantation](#). *Biol Blood Marrow Transplant*. 2016; 22:1636-45.

4. Bride KL, Vincent T, Smith-Whitley K, Lambert MP, Blessing JJ, Seif AE, Manno CS, Casper J, Grupp SA, Teachey DT. **Sirolimus Is Effective in Relapsed/Refractory Autoimmune Cytopenias: Results of a Prospective Multi-Institutional Trial.** *Blood*. 2016; 127:17-28.
5. Cai X, Gao L, Teng L, Ge J, Oo ZM, Kumar AR, Gilliland DG, Mason PJ, Tan K, Speck NA. **Runx1 Deficiency Decreases Ribosome Biogenesis and Confers Stress Resistance to Hematopoietic Stem and Progenitor Cells.** *Cell Stem Cell*. 2015; 17:165-77.
6. Chlon TM, Ruiz-Torres S, Maag L, Mayhew CN, Wikenheiser-Brokamp KA, Davies SM, Mehta P, Myers KC, Wells JM, Wells SI. **Overcoming Pluripotent Stem Cell Dependence on the Repair of Endogenous DNA Damage.** *Stem Cell Reports*. 2016; 6:44-54.
7. Dahl NA, Michaels ST, McMasters RL, Chandra S, O'Brien MM. **Azacitidine and Sorafenib Therapy in a Pediatric Patient with Refractory Acute Myeloid Leukemia with Monosomy 7 and Somatic Ptpn11 Mutation.** *Pediatr Blood Cancer*. 2016; 63:551-3.
8. Dandoy CE, Hariharan S, Weiss B, Demmel K, Timm N, Chiarenzelli J, Dewald MK, Kennebeck S, Langworthy S, Pomaes J, Rineair S, Sandfoss E, Volz-Noe P, Nagarajan R, Alessandrini E. **Sustained Reductions in Time to Antibiotic Delivery in Febrile Immunocompromised Children: Results of a Quality Improvement Collaborative.** *BMJ Qual Saf*. 2016; 25:100-9.
9. Dandoy CE, Haslam D, Lane A, Jodele S, Demmel K, El-Bietar J, Flesch L, Myers KC, Pate A, Rotz S, Daniels P, Wallace G, Nelson A, Waters H, Connelly B, Davies SM. **Healthcare Burden, Risk Factors, and Outcomes of Mucosal Barrier Injury Laboratory-Confirmed Bloodstream Infections after Stem Cell Transplantation.** *Biol Blood Marrow Transplant*. 2016; 22:1671-7.
10. Dandoy CE, Linscott LL, Davies SM, Leach JL, Myers KC, El-Bietar J, Chima RS, Pate A, Nelson A, Wallace G, Wong HR, Jodele S. **Clinical Utility of Computed Tomography and Magnetic Resonance Imaging for Diagnosis of Posterior Reversible Encephalopathy Syndrome after Stem Cell Transplantation in Children and Adolescents.** *Biol Blood Marrow Transplant*. 2015; 21:2028-32.
11. El-Bietar J, Nelson A, Wallace G, Dandoy C, Jodele S, Myers K, Teusink A, Lane A, Davies S, Danziger-Isakov L. **Rsv Infection without Ribavirin Treatment in Pediatric Hematopoietic Stem Cell Transplantation.** *Bone Marrow Transplant*. 2016.
12. El-Bietar J, Warren M, Dandoy C, Myers KC, Lane A, Wallace G, Davies SM, Jodele S. **Histologic Features of Intestinal Thrombotic Microangiopathy in Pediatric and Young Adult Patients after Hematopoietic Stem Cell Transplantation.** *Biol Blood Marrow Transplant*. 2015; 21:1994-2001.
13. Holle JR, Marsh RA, Holdcroft AM, Davies SM, Wang LJ, Zhang KJ, Jordan MB. **Hemophagocytic Lymphohistiocytosis in a Female Patient Due to a Heterozygous Xiap Mutation and Skewed X Chromosome Inactivation.** *Pediatr Blood Cancer*. 2015; 62:1288-90.
14. Hummel TR, Salloum R, Drissi R, Kumar S, Sobo M, Goldman S, Pai A, Leach J, Lane A, Pruitt D, Sutton M, Chow LM, Grimme L, Doughman R, Backus L, Miles L, Stevenson C, Fouladi M, DeWire M. **A Pilot Study of Bevacizumab-Based Therapy in Patients with Newly Diagnosed High-Grade Gliomas and Diffuse Intrinsic Pontine Gliomas.** *J Neurooncol*. 2016; 127:53-61.
15. Jodele S, Dandoy CE, Myers KC, El-Bietar J, Nelson A, Wallace G, Laskin BL. **New Approaches in the Diagnosis, Pathophysiology, and Treatment of Pediatric Hematopoietic Stem Cell Transplantation-Associated Thrombotic Microangiopathy.** *Transfus Apher Sci*. 2016; 54:181-90.
16. Jodele S, Fukuda T, Mizuno K, Vinks AA, Laskin BL, Goebel J, Dixon BP, Chima RS, Hirsch R, Teusink A, Lazear D, Lane A, Myers KC, Dandoy CE, Davies SM. **Variable Eculizumab Clearance Requires Pharmacodynamic Monitoring to Optimize Therapy for Thrombotic Microangiopathy after Hematopoietic Stem Cell Transplantation.** *Biol Blood Marrow Transplant*. 2016; 22:307-15.
17. Jodele S, Zhang K, Zou F, Laskin B, Dandoy CE, Myers KC, Lane A, Meller J, Medvedovic M, Chen J, Davies SM. **The Genetic Fingerprint of Susceptibility for Transplant-Associated Thrombotic Microangiopathy.** *Blood*. 2016; 127:989-96.
18. Kannan JA, Davila-Saldana BJ, Zhang K, Filipovich AH, Kucuk ZY. **Activated Phosphoinositide 3-Kinase Delta Syndrome in a Patient with a Former Diagnosis of Common Variable Immune Deficiency, Bronchiectasis, and Lymphoproliferative Disease.**

19. Khandelwal P, Lane A, Chaturvedi V, Owsley E, Davies SM, Marmer D, Filipovich AH, Jordan MB, Marsh RA. **Peripheral Blood Cd38 Bright Cd8+ Effector Memory T Cells Predict Acute Graft-Versus-Host Disease.** *Biol Blood Marrow Transplant.* 2015; 21:1215-22.
20. Khandelwal P, Mellor-Heineke S, Rehman N, Lane A, Smiley K, Villanueva J, Marsh RA, Grimley MS, Davies SM, Filipovich AH. **Cytokine Profile of Engraftment Syndrome in Pediatric Hematopoietic Stem Cell Transplant Recipients.** *Biol Blood Marrow Transplant.* 2016; 22:690-7.
21. Khandelwal P, Smiley K, Fieno A, Grant R, Davies S. **Cxcl10 Can Be Detected Non-Invasively from the Skin of Children with Acute Skin Gvhd.** *Bone Marrow Transplant.* 2016.
22. King AA, Kamani N, Bunin N, Sahdev I, Brochstein J, Hayashi RJ, Grimley M, Abraham A, Dioguardi J, Chan KW, Douglas D, Adams R, Andreansky M, Anderson E, Gilman A, Chaudhury S, Yu L, Dalal J, Hale G, Cuvelier G, et al. **Successful Matched Sibling Donor Marrow Transplantation Following Reduced Intensity Conditioning in Children with Hemoglobinopathies.** *Am J Hematol.* 2015; 90:1093-8.
23. Kucuk ZY, Bleesing JJ, Marsh R, Zhang K, Davies S, Filipovich AH. **A Challenging Undertaking: Stem Cell Transplantation for Immune Dysregulation, Polyendocrinopathy, Enteropathy, X-Linked (Ipx) Syndrome.** *J Allergy Clin Immunol.* 2016; 137:953-5 e4.
24. Laskin BL, Singh HK, Beier UH, Moatz T, Furth SL, Bunin N, Witte D, Goebel J, Davies SM, Dandoy C, Jodele S, Nickleit V. **The Noninvasive Urinary Polyomavirus Haufen Test Predicts Bk Virus Nephropathy in Children after Hematopoietic Cell Transplantation: A Pilot Study.** *Transplantation.* 2016; 100:e81-7.
25. Laskin BL, Sullivan KE, Hester J, Goebel J, Davies SM, Jodele S. **Antibodies to Bk Virus in Children Prior to Allogeneic Hematopoietic Cell Transplant.** *Pediatr Blood Cancer.* 2015; 62:1670-3.
26. Lazaryan A, Wang T, Spellman SR, Wang HL, Pidala J, Nishihori T, Askar M, Olsson R, Oudshoorn M, Abdel-Azim H, Yong A, Gandhi M, Dandoy C, Savani B, Hale G, Page K, Bitan M, Reshef R, Drobyski W, Marsh SG, et al. **Human Leukocyte Antigen Supertype Matching after Myeloablative Hematopoietic Cell Transplantation with 7/8 Matched Unrelated Donor Allografts: A Report from the Center for International Blood and Marrow Transplant Research.** *Haematologica.* 2016.
27. Lindsley AW, Saal HM, Burrow TA, Hopkin RJ, Shchelochkov O, Khandelwal P, Xie C, Bleesing J, Filipovich L, Risma K, Assa'ad AH, Roehrs PA, Bernstein JA. **Defects of B-Cell Terminal Differentiation in Patients with Type-1 Kabuki Syndrome.** *J Allergy Clin Immunol.* 2016; 137:179-87 e10.
28. Lo B, Zhang KJ, Lu W, Zheng LX, Zhang Q, Kanellopoulou C, Zhang Y, Liu ZD, Fritz JM, Marsh R, Husami A, Kissell D, Nortman S, Chaturvedi V, Haines H, Young LR, Mo J, Filipovich AH, Bleesing JJ, Mustillo P, et al. **Patients with Lrba Deficiency Show Ctla4 Loss and Immune Dysregulation Responsive to Abatacept Therapy.** *Science.* 2015; 349:436-40.
29. Loiselle K, Rausch J, Bidwell S, Drake S, Davies S, Pai A. **Predictors of Health-Related Quality of Life over Time among Pediatric Hematopoietic Stem Cell Transplant Recipients.** *Pediatr Blood Cancer.* 2016.
30. Marsh R, Rao M, Gefen A, Bellman D, Mehta P, Khandelwal P, Chandra S, Jodele S, Myers K, Grimley M. **Experience with Alemtuzumab, Fludarabine, and Melphalan Reduced-Intensity Conditioning Hematopoietic Cell Transplantation in Patients with Nonmalignant Diseases Reveals Good Outcomes and That the Risk of Mixed Chimerism Depends on Underlying Disease, Stem Cell Source, and Alemtuzumab Regimen.** *Biol Blood Marrow Transplant.* 2015; 21:1460-70.
31. Marsh RA, Lane A, Mehta PA, Neumeier L, Jodele S, Davies SM, Filipovich AH. **Alemtuzumab Levels Impact Acute Gvhd, Mixed Chimerism, and Lymphocyte Recovery Following Alemtuzumab, Fludarabine, and Melphalan Ric Hct.** *Blood.* 2016; 127:503-12.

32. Mehta P, Davies S. **Hematopoietic Cell Transplantation for Acute Lymphoblastic Leukemia in Children.** In: S Forman, R Negrin, J Antin, F Applebaum, eds. *Thomas' Hematopoietic Cell Transplantation: Fifth Edition.* New York: John Wiley & Sons; 2016:600-17.
33. Mehta PA, Zhang MJ, Eapen M, He W, Seber A, Gibson B, Camitta BM, Kitko CL, Dvorak CC, Nemecek ER, Frangoul HA, Abdel-Azim H, Kasow KA, Lehmann L, Gonzalez Vicent M, Diaz Perez MA, Ayas M, Qayed M, Carpenter PA, Jodele S, et al. **Transplantation Outcomes for Children with Hypodiploid Acute Lymphoblastic Leukemia.** *Biol Blood Marrow Transplant.* 2015; 21:1273-7.
34. Michaels ST, Abruzzo TA, Augsburg JJ, Correa ZM, Lane A, Geller JI. **Selective Ophthalmic Artery Infusion Chemotherapy for Advanced Intraocular Retinoblastoma: Cchmc Early Experience.** *J Pediatr Hematol Oncol.* 2016; 38:65-9.
35. Nayak RC, Trump LR, Aronow BJ, Myers K, Mehta P, Kalfa T, Wellendorf AM, Valencia CA, Paddison PJ, Horwitz MS, Grimes HL, Lutsko C, Cancelas JA. **Pathogenesis of Elane-Mutant Severe Neutropenia Revealed by Induced Pluripotent Stem Cells.** *J Clin Invest.* 2015; 125:3103-16.
36. Nelson AS, Marsh RA, Myers KC, Davies SM, Jodele S, O'Brien TA, Mehta PA. **A Reduced-Intensity Conditioning Regimen for Patients with Dyskeratosis Congenita Undergoing Hematopoietic Stem Cell Transplantation.** *Biol Blood Marrow Transplant.* 2016; 22:884-8.
37. Niss O, Quinn CT, Lane A, Daily J, Khoury PR, Bakeer N, Kimball TR, Towbin JA, Malik P, Taylor MD. **Cardiomyopathy with Restrictive Physiology in Sickle Cell Disease.** *JACC Cardiovasc Imaging.* 2016; 9:243-52.
38. Pate A, Rotz S, Warren M, Hirsch R, Cash M, Myers KC, El-Bietar J, Nelson A, Wallace G, Filipovich AH, Bleesing J, Chima RS, Davies SM, Jodele S, Dandoy CE. **Pulmonary Hypertension Associated with Bronchiolitis Obliterans after Hematopoietic Stem Cell Transplantation.** *Bone Marrow Transplant.* 2016; 51:310-2.
39. Rayes A, Morrow AL, Payton LR, Lake KE, Lane A, Davies SM. **A Genetic Modifier of the Gut Microbiome Influences the Risk of Graft-Versus-Host Disease and Bacteremia after Hematopoietic Stem Cell Transplantation.** *Biol Blood Marrow Transplant.* 2016; 22:418-22.
40. Ryan T, Jefferies J, Chin C, Sticka J, Taylor M, Harris R, Moore J, Goodridge E, Mount L, Bolyard A. **Abnormal Circumferential Strain Measured by Echocardiography Is Present in Patients with Shwachman-Diamond Syndrome Despite Normal Shortening Fraction.** *Pediatr Blood Cancer.* 2015; 62:1228-31.
41. Satwani P, Ahn KW, Carreras J, Abdel-Azim H, Cairo MS, Cashen A, Chen AI, Cohen JB, Costa LJ, Dandoy C, Fenske TS, Freytes CO, Ganguly S, Gale RP, Ghosh N, Hertzberg MS, Hayashi RJ, Kamble RT, Kanate AS, Keating A, et al. **A Prognostic Model Predicting Autologous Transplantation Outcomes in Children, Adolescents and Young Adults with Hodgkin Lymphoma.** *Bone Marrow Transplant.* 2015; 50:1416-23.
42. Shaw B, Logan B, Kiefer D, Chitphakdithai P, Pedersen T, Abdel-Azim H, Abidi M, Akpek G, Diaz M, Artz A. **Analysis of the Effect of Race, Socioeconomic Status, and Center Size on Unrelated National Marrow Donor Program Donor Outcomes: Donor Toxicities Are More Common at Low-Volume Bone Marrow Collection Centers.** *Biol Blood Marrow Transplant.* 2015; 21:1830-38.
43. Sobecks RM, Wang T, Askar M, Gallagher MM, Haagenson M, Spellman S, Fernandez-Vina M, Malmberg KJ, Muller C, Battiwalla M, Gajewski J, Verneris MR, Ringden O, Marino S, Davies S, Dehn J, Bornhauser M, Inamoto Y, Woolfrey A, Shaw P, et al. **Impact of Kir and Hla Genotypes on Outcomes after Reduced-Intensity Conditioning Hematopoietic Cell Transplantation.** *Biol Blood Marrow Transplant.* 2015; 21:1589-96.
44. Teusink A, Pinkard S, Davies S, Mueller M, Jodele S. **Plerixafor Is Safe and Efficacious for Mobilization of Peripheral Blood Stem Cells in Pediatric Patients.** *Transfusion.* 2016; 56:1402-05.
45. Teusink A, Vinks A, Zhang K, Davies S, Fukuda T, Lane A, Nortman S, Kissell D, Dell S, Filipovich A, Mehta P. **Genotype-Directed Dosing Leads to Optimized Voriconazole Levels in Pediatric Patients Receiving Hematopoietic Stem Cell Transplantation.** *Biol Blood Marrow Transplant.* 2016; 22:482-6.

46. Ullrich C, Rodday A, Bingen K, Kupst M, Patel S, Syrjala K, Harris L, Recklitis C, Schwartz L, Davies S. **Parent Outlook: How Parents View the Road Ahead as They Embark on Hematopoietic Stem Cell Transplantation for Their Child.** *Biol Blood Marrow Transplant.* 2016; 22:104-11.
47. Urbano-Ispizua A, Pavletic SZ, Flowers ME, Klein JP, Zhang MJ, Carreras J, Montoto S, Perales MA, Aljurf MD, Akpek G, Bredeson CN, Costa LJ, Dandoy C, Freytes CO, Fung HC, Gale RP, Gibson J, Hamadani M, Hayashi RJ, Inamoto Y, et al. **The Impact of Graft-Versus-Host Disease on the Relapse Rate in Patients with Lymphoma Depends on the Histological Subtype and the Intensity of the Conditioning Regimen.** *Biol Blood Marrow Transplant.* 2015; 21:1746-53.
48. Wallace G, Jodele S, Howell J, Myers KC, Teusink A, Zhao X, Setchell K, Holtzapfel C, Lane A, Taggart C, Laskin BL, Davies SM. **Vitamin D Deficiency and Survival in Children after Hematopoietic Stem Cell Transplant.** *Biol Blood Marrow Transplant.* 2015; 21:1627-31.
49. Wallace G, Myers K, Davies S, Teusink A, Jodele S. **Rapid Rituximab Infusion Is Safe in Paediatric and Young Adult Patients with Non-Malignant Indications.** *Brit J Haematol.* 2016; 173:480-81.
50. Walter JE, Rosen LB, Csomos K, Rosenberg JM, Mathew D, Keszei M, Ujhazi B, Chen K, Lee YN, Tirosh I, Dobbs K, Al-Herz W, Cowan MJ, Puck J, Bleesing JJ, Grimley MS, Malech H, De Ravin SS, Gennery AR, Abraham RS, et al. **Broad-Spectrum Antibodies against Self-Antigens and Cytokines in Rag Deficiency.** *J Clin Invest.* 2015; 125:4135-48.
51. Watanabe M, Roth TL, Bauer SJ, Lane A, Romick-Rosendale LE. **Feasibility Study of Nmr Based Serum Metabolomic Profiling to Animal Health Monitoring: A Case Study on Iron Storage Disease in Captive Sumatran Rhinoceros (Dicerorhinus Sumatrensis).** *PLoS One.* 2016; 11:e0156318.

## Grants, Contracts, and Industry Agreements

### Annual Grant Award Dollars

Investigator	Title	Sponsor	ID	Dates	Amount
Sharat Chandra, MD	Pharmacokinetic Monitoring for Personalized Drug Dosing for Very Small Children undergoing Hematopoietic Stem Cell Transplantation	Am Society for Blood & Marrow Transplant	Chandra, Sharat, ASB	7/1/2015 - 6/30/2017	\$30,000
Christopher E Dandoy, MD	Late Effects of Hematopoietic Stem Cell Transplantation in Children and Young Adults: Cardiac Dysfunction	University of Cincinnati Cancer Center	Dandoy, Chris, UCCC	6/1/2016 - 5/31/2017	\$50,000
Stella M Davies, MD	Molecular Epidemiology of Pediatric Germ Cell Tumors	National Institutes of Health (University of Minnesota)	R01 CA151284	8/10/2011 - 5/31/2016	\$17,396
Stella M Davies, MD	Childhood Cancer Survivor Study	National Institutes of Health (St Jude's Children's Hospital)	U24 CA055727	12/1/2011 - 11/30/2016	\$284,000
Alexandra H Filipovich, MD	Consortium for Clinical and Translational Research in Langerhans Cell Histiocytosis	St. Baldrick's Foundation (Dana Farber Cancer Institute)	6253201	7/1/2014 - 6/30/2019	\$11,720
Alexandra H Filipovich, MD	Primary Immune Deficiency Treatment Consortium	National Institutes of Health (The Univ of California, San Francisco)	U54 AI082973	9/1/2014 - 8/31/2019	\$37,350

Svetlana S. Itskovich, PHD	Blocking MBNL1 to Treat Leukemia	Cancer Free Kids	Itskovich, Svetlana,	7/1/2015 - 9/30/2016	\$11,000
Ashish R Kumar, MD-PHD	The Role of MEIS1 in Hematopoiesis and Hematopoietic Transformation	National Institutes of Health	R01 HL111192	5/1/2016 - 4/30/2017	\$423,110
Rebecca A Marsh, MD	CD38 Bright CD8+ Effector Memory T-cells Herald Acute Graft versus Host Disease	Doris Duke Charitable Foundation	Marsh, rebecca, DD	7/1/2015 - 6/30/2018	\$162,000
Parinda Mehta, MD	Quercetin: Novel Targeted Chemoprevention for Fanconi Anemia Patients	Food and Drug Administration	R01 FD004383	8/1/2015 - 7/31/2016	\$200,000
Kasiani C Myers, MD	RAdition-and Alkylator-free Hematopoietic Cell Transplantation for Bone Marrow Failure due to Dyskeratosis Congenita Telomere Disease	Children's Hospital Boston	Myers, Kasiani, CHBO	6/7/2016 - 6/6/2019	\$7,500
Kasiani C Myers, MD	Late Effects of Reduced Intensity Conditioning Regimens for Hematopoietic Stem Cell Transplantation in Children and Young Adults: Gonadal Function and Fertility	University of Cincinnati Cancer Center	Myers, Kasiani, UCCC	7/1/2015 - 6/30/2016	\$50,000

**Total Annual Grant Award Dollars**

**\$1,284,076**

## Annual Industry Award Dollars

Investigator	Industry Sponsor	Amount
Stella M Davies, MD	Novartis Pharmaceuticals	\$240,000
Michael Sean Grimley, MD	Chimerix, Inc.	\$17,680
<b>Total Annual Industry Award Dollars</b>		<b>\$257,680</b>