NATIONAL MARROW DONOR PROGRAM®

BE THE MATCH®

January 31, 2013

CDR Katharine Shobe
Office of Naval Research (ONR 342)
875 N. Randolph St.
Arlington, VA 22203-1995

Subject: **Quarterly Performance/Technical Report of the National Marrow Donor Program®**

Reference: Grant Award #N00014-12-1-0142 between the Office of Naval Research and the National Marrow Donor Program

Dear CDR. Shobe:

Enclosed is subject document which provides the performance activity for each statement of work task item of the above reference for the period of October 1, 2012 to December 30, 2012.

Should you have any questions as to the scientific content of the tasks and the performance activity of this progress report, you may contact our Chief Medical Officer – Dennis L Confer, MD directly at 612-362-3425.

With this submittal of the quarterly progress report, the National Marrow Donor Program has satisfied the reporting requirements of the above reference for quarterly documentation. Other such quarterly documentation has been previously submitted under separate cover.

Please direct any questions pertaining to the cooperative agreement to my attention at 612-362-3403 or at cabler@nmdp.org.

Sincerely,

Carla Abler-Erickson

Carla Abler-Erickson, MA
Contracts Manager

Enclosure: Quarterly Report with SF298

C: D. Ivery – ACO (ONR-Chicago)
Dr. Robert J. Hartzman, CAPT, MC, USN (Ret)
Jennifer Ng, PhD – C.W. Bill Young Marrow Donor Recruitment and Research Program
J. Rike - DTIC (Ste 0944)
NRL (Code 5227)
Dennis Confer, MD, Chief Medical Officer, NMDP
Stephen Spellman

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
31-01-2013	Quarterly	Oct 2012 - Dec 2012

4. TITLE AND SUBTITLE
Development of Medical Technology for Contingency Response to Marrow Toxic Agents - Quarterly Performance/Technical Report for July 01, 2012 to September 30, 2012 Period 3

5a. CONTRACT NUMBER
N/A

5b. GRANT NUMBER
N00014-12-1-0142

5c. PROGRAM ELEMENT NUMBER
N/A

6. AUTHOR(S)
Spellman, Stephen

5d. PROJECT NUMBER
N/A

5e. TASK NUMBER
Project 1, 2, 3, 4

5f. WORK UNIT NUMBER
N/A

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
National Marrow Donor Program
3001 Broadway St., N.E., Ste. 500
Minneapolis, MN 55413

8. PERFORMING ORGANIZATION REPORT NUMBER
N/A

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Office of Naval Research
875 N. Randolph St.
Arlington, VA 22203

10. SPONSOR/MONITOR'S ACRONYM(S)
ONR

11. SPONSORING/MONITORING AGENCY REPORT NUMBER
N/A

12. DISTRIBUTION AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited

13. SUPPLEMENTARY NOTES
N/A

14. ABSTRACT
1. Contingency Prepardness: Collect information from transplant centers, build awareness of the Transplant Center Contingency Planning Committee and educate the transplant community about the critical importance of establishing a nationwide contingency response plan.

2. Rapid Identification of Matched Donors : Increase operational efficiencies that accelerate the search process and increase patient access are key to preparedness in a contingency event.

3. Immunogenetic Studies: Increase understanding of the immunologic factors important in HSC transplantation.

4. Clinical Research in Transplantation: Create a platform that facilitates multicenter collaboration and data management.

15. SUBJECT TERMS
Research in HLA Typing, Hematopoietic Stem Cell Transplantation and Clinical Studies to Improve Outcomes

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE	Same as Report	20	Dennis L. Confer, MD – Chief Medical Office
U	U	U			19b. TELEPONE NUMBER *(Include area code)* 612.362.3425

NATIONAL MARROW DONOR PROGRAM®

Creating Connections. Saving Lives.™

Grant Award N00014-12-1-0142

DEVELOPMENT OF MEDICAL TECHNOLOGY FOR CONTINGENCY RESPONSE TO MARROW TOXIC AGENTS

QUARTERLY PERFORMANCE / TECHNICAL REPORT

FOR

OCTOBER 01, 2012 to DECEMBER 31, 2012

PERIOD 4

Office of Naval Research

And

The National Marrow Donor Program
3001 Broadway Street N.E.
Minneapolis, MN 55413
1-800-526-7809

QUARTER PROGRESS REPORT

Development of Medical Technology for Contingency Response to Marrow Toxic Agents

October 01, 2012 through December 31, 2012

TABLE OF CONTENTS

IIA. Contingency Preparedness – Objective 1: Recovery of casualties with significant myelosuppression following radiation or chemical exposure is optimal when care plans are designed and implemented by transplant physicians	
IIA.1 Task 1: Secure Interest of Transplant Physicians	**Period 4 Activity: No charges this quarter** • Began coordination to hold a Advanced Medical Response to a Radiological Disaster training session at the Radiation Emergency Assistance Center and Training Site in Oakridge, TN to be held in early to mid 2013
IIA.1 Task 2: GCSF in Radiation Exposure	**Period 4 Activity:** • No Activity
IIA.1 Task 3: Patient Assessment Guidelines and System Enhancements	**Period 4 Activity:** • No Activity
IIA 1 Task 4: National Data Collection Model – This task is closed.	
IIA. Contingency Preparedness – Objective 2: Coordination of the care of casualties who will require hematopoietic support will be essential in a contingency situation.	
IIA.2 Task 1: Contingency Response Network	**Period 4 Activity:** • 98% of 66 RITN centers completed all of their tasks on time, one requested an extension and five were inactive due to competing priorities (e.g. HIS implementation and FACT Accreditation) o A total of six (6) new hospitals have joined RITN this year including: ▪ University of Utah-Primary Children's ▪ Westchester Medical Center, NY ▪ Massachusetts General Hospital, MA ▪ West Virginia University Hospital, WV ▪ Mount Sinai Hospital, NY ▪ University of Wisconsin-Madison, WI

	• Conducted two monthly RITN Center conference calls to review task completion status and allow a venue for centers to talk to peers as well as the 2012 RITN Year in Review webinar • RITN Medical Advisor activity; Dr. Weinstock participated in the following activities supporting the Radiation Injury Treatment Network: o He co-authored: a manuscript Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science entitled," Medical planning and response for a nuclear detonation: a practical guide. o He assisted with the 2012 update of pediatric and adult template admission orders for RITN and the Radiation Emergency Medical Management (REMM) website o He was an invited speaker at the BARDA symposium on blood products in Bethesda, MD in November 2012 o He will be an invited speaker at the Institutes of Medicine Improvised Nuclear Device Workshop in Washington, DC in January 2013 o He organized the formation of a network of 18 RITN centers to participate in a G-CSF user managed inventory program, with a proposal to be submitted to BARDA for funding in 2013 o He assisted with the drafting of the 2013 RITN tabletop exercise • Continued to develop relationships with the National Association of County and City Health Officials (NACCHO), the Association of State and Territorial Health Officials (ASTHO) and the Federal Emergency Management Agency (FEMA) • Initiated work on a User Managed Inventory whitepaper proposal for the Biomedical Advanced Research and Development Authority to provide expanding opportunities for RITN centers to secure funding for preparedness activities
IIA.2 Task 2: Sibling Typing Standard Operating Procedures	**Period 4 Activity:** • No Activity

IIA. Contingency Preparedness – Objective 3: NMDP's critical information technology infrastructure must remain operational during contingency situations that directly affect the Coordinating Center.	
IIA.3 Task 1: I.S. Disaster Recovery – This task is closed.	
IIA.3 Task 2: Critical Facility and Staff Related Functions	**Period 4 Activity:** • Began review and update of critical tasks following the successful FY12Q4 Business Continuity exercise
IIB. Rapid Identification of Matched Donors – Objective 1: Increasing the resolution and quality of the HLA testing of volunteers on the registry will speed donor selection.	
IIB.1 Task 1: Increase Registry Diversity	**Period 4 Activity:** **Laboratory Visits** This period NMDP hosted additional lab visit meetings with representatives from three more (now 6 visits completed total to date) of the registry member recruitment HLA typing laboratories to discuss operational topics including: the current scope of work, future goals for registry HLA typing, and the laboratories' future HLA testing strategy. These discussions are critical to allow the NMDP to continue to provide low cost and high quality HLA typing on donors for patients searching the registry. **Alleles Retyping Projects** In the process of typing and confirming rare alleles, certain patterns became evident that indicated when a sample was likely incorrectly reported. These patterns included 1.) allele reported in multiple race groups or allele reported in race group that differed from the IMGT/HLA submission, 2.) allele reported with a second rare or uncommon allele, and 3.) allele frequently reported before 2004 and infrequently reported after that date. Using these guidelines, uncommon alleles in 321 samples stored at the repository were selected for typing at either intermediate or high resolution typing. To date 76.6% of samples retyped have been corrected to a different allele. **Poster Abstract Presentations:** This period, two staff presented poster abstracts at the 2012 American Society of Histocompatibility and Immunogenetics meeting in San Juan, Puerto Rico. The abstracts are summarized below:

	Elizabeth Beduhn, et al., *Deletion of unconfirmed rare alleles, C*03:12 and C*15:20* A prospective typing project to confirm HLA alleles with an unconfirmed status in the IMGT/HLA database identified sequence errors for 2 HLA-C alleles, C*03:12 and C*15:20. C*03:12 was described in November 1999 on a reference cell from a Be The Match Registry® volunteer. C*15:20 was described in February 2007 on a reference cell typed through an NMDP prospective high resolution typing project (Navy Grant 0859). As a result of the re-sequencing of the reference cells, which were found to contain errors, C*15:20 was deleted from the IMGT/HLA database in June 2012, and C*03:12 was deleted in January 2013. This project highlights the importance of confirming IMGT/HLA database allele sequences to validate existence of reported alleles. Jane H. Kempenich, et al., *HLA-A,B only typed donors: an untapped resource* Race and ethnicity are a significant factor in the ability to find an unrelated stem cell donor match as a patient is most likely to find a match with somebody who shares his/her racial or ethnic heritage. A Caucasian patient will find at least a 7/8 donor on the registry 93% of the time, while only 66% to 73% of minority patients will find a 7/8 donor or better, depending on their race and ethnicity. Donors who are only typed at A and B are infrequently utilized by transplant centers. However, the minority AB only donor pool of 64,000 may carry unique phenotypes. These racial minority (non-Caucasian) donors were targeted for typing at HLA-DRB1 to identify what additional diversity may be present in the cohort and whether further typing could improve the search process for minority patients. In all race groups tested, over 25% of the donors carried an uncommon or unique phenotype contributing additional diversity to the ABDRB1 typed donor registry. Based on these results, additional typing of these donors can add additional diversity and should be considered.
IIB.1 Task 2: Evaluate HLA-DRB1 High Res typing – This task is closed.	
IIB.1 Task 3: Evaluate HLA-C Typing of Donors – This task is closed	

IIB.1 Task 4: Evaluate Buccal Swabs	**Period 4 Activity:** **Alternate Sample Collection Methods Study** • Purified DNA from 3 sample collection formats (Oragene saliva collection kit from DNA Genotek, CEP-Swab ejectable-tip swab from Fitzco, and the standard NMDP cotton-tipped swab) have been stored in a room-temperature stable dry format (GenTegra tubes from GenVault). • Sample sets derived from 10 individuals were sent for Whole Genome Amplification (WGA) of the stored DNA. The WGA DNA has been received and stored as both frozen aliquots and as dry aliquots in GenTegra tubes. • Sample sets will be submitted for high-resolution HLA typing in the next quarter. Sample sets will include the original stored sample, GenTegra DNA, WGA-DNA-frozen, WGA-DNA-GenTegra.
IIB 1 Task 5: Enhancing HLA Data for Selected Donors – This task is closed.	
IIB 1 Task 6: Maintain a Quality Control Program	**Period 4 Activity:** **HLA Typing Quality Control** During this quarter, 14 additional cell lines were received from the cell processing laboratory and incorporated into the regular QC rotation, bringing the total number of active buccal B-LCL QC master lots to 511, and the total number of B-LCL QC Master lots obtained to date from this grant to 20. Of the 94 cells lines selected for incorporation into the QC program in FY2012, 48 have exhibited negative cell growth (49% cell culture success rate), and another 4 are progressing poorly. Of the remaining 22 cell lines in progress, only 9 are progressing well; 13 are progressing slowly. To compensate for the poor culture success rate of the B-LCL lines, another shipment of replacement cells is planned for early next quarter.
IIB. Rapid Identification of Matched Donors – Objective 2: Primary DNA typing data can be used within the registry to improve the quality and resolution of volunteer donor HLA assignments.	
IIB 2 Task 1: Collection of Primary Data	**Period 4 Activity:** • Primary data interpretation process. o Developed new database model for storing interpretation results,

	o Primary data interpretation algorithm was refactored for performance and optimized to the point where 10 million results can be analyzed in 2 days.
IIB 2 Task 2: Validation of Logic of Primary Data – This task is closed.	
IIB 2 Task 3: Reinterpretation of Primary Data – This task is closed.	
IIB 2 Task 4: Genotype Lists & Matching Algorithm	**Period 4 Activity:** • NMDP Bioinformatics Research Staff created a Web Service interface to the HapLogic search server that computes match grades and predictions for all loci. • One manuscript was published: o Jill Hollenbach, et al., 16th IHIW: Immunogenomic Data-Management Methods. Report from the Immunogenomic Data Analysis Working Group (IDAWG)" International Journal of Immunogenetics Dec 26 2012 [Epub ahead of print] • Drafted a manuscript describing "GL Strings" for publication. • Submitted one page summary of Genotype List (GL) Service manuscript to Nucleic Acids Research for annual web service issue.
IIB. Rapid Identification of Matched Donors – Objective 3: Registry data on HLA allele and haplotype frequencies and on the nuances of HLA typing can be used to design computer algorithms to predict the best matched donor.	
IIB.3 Task 1: Phase I of EM Haplotype Logic	**Period 4 Activity:** • Delivered a one-hour CME webinar, Case studies: Applying 2012 HLA matching guidelines for HCT selection to the NMDP Network transplant center audience. The program used case studies to apply the knowledge from Part I of the HLA educational program delivered in Q4, 2012. Approximately 275 transplant clinicians attended, representing 53% (74 of 139) of the US transplant centers. The program was rated highly useful, with 99% of participants indicating that they learned information that could apply to their practice. The program is now available online at http://marrow.org/Physicians/Medical_Education/Med_Ed_Programs/HLA_Matching_Guidelines__Two-Part_CME_Series.aspx.

	• Delivered education on the CIBMTR publication on recommended screening and preventative practices for post-transplant care (citation below). The online continuing medical education (CME) course "Screening and Preventive Practices for Survivors after HCT" for hematologists/oncologists (transplant and non-transplant) offered through Medscape was launched in November and already has had more than 2,700 viewers. Additional metrics will be provided next quarter. o Navneet Mahjail, et al., *Recommended screening and preventive practices for long-term survivors after hematopoietic cell transplantation; Center for International Blood and Marrow Transplant Research (CIBMTR), American Society for Blood and Marrow Transplantation (ASBMT), European Group for Blood and Marrow Transplantation (EBMT), Asia-Pacific Blood and Marrow Transplantation Group (APBMT), Bone Marrow Transplant Society of Australia and New Zealand (BMTSANZ), East Mediterranean Blood and Marrow Transplantation Group (EMBMT) and Sociedade Brasileira de Transplante de Medula Ossea (SBTMO).* BBMT 2012; 18(3): 348-371; BMT, 2012; 47(3): 337-341; and Hematol Oncol Stem Cell Ther, 2012; 5(1): 1-30. • Raised awareness of the PBSC vs. Marrow clinical trial results, published in New England Journal of Medicine (citation below). The large prospective, randomized study compared outcomes of patients receiving transplantation with either peripheral blood stem cells (PBSC) or bone marrow from unrelated donors. Efforts included announcements to Network transplant centers, hematology/oncology referring physicians, and a national press release. The manuscript received tremendous coverage, including more than 12 million media impressions. o Claudio Anasetti, et al., *Peripheral-blood stem cells versus bone marrow from unrelated donors.* NEJM 2012; 367:1487-1496.
IIB 3 Task 2: Enhancement of EM Algorithm	**Period 4 Activity:** • Five abstracts were presented o Loren Gragert, et al., *HLA haplotype frequencies and match rates for the Canadian OneMatch registry.* Poster presentation at ASHI annual meeting.

	o Moheeb Al-Awwami, et al., *HLA haplotype frequencies in Saudi Arabia for design of a Saudi stem-cell registry.* Poster presentation at ASHI annual meeting. o Martin Maiers, et al., *Predictions of HLA antigen matching probabilities for patients being considered for solid organ transplants.* Poster presentation at ASHI annual meeting. o James Robinson, et al., *An XML export of the IBMT/HLA database.* Poster presentation at ASHI annual meeting. o Bob Milius, et al., *Tools for implementation of silver standard principles for HLA typing.* Oral presentation at ASHI annual meeting.
IIB 3 Task 3: Optimal Registry Size Analysis	**Period 4 Activity:** **Ancestry Questionnaire Project** • Initiated a pilot study to evaluate a novel self-identified race and ethnicity (SIRE) questionnaire in a sample of individuals from within the registry. This study design and objectives were presented at the annual NMDP Council meeting in November and is currently accruing subjects.
IIB 3 Task 4: Target Under- Repre-sented Phenotypes	**Period 4 Activity:** • Designed and implemented prototype of N vs. N donor search database using Cytoscape distributed graph implementation. Ran performance and simulation tests of up to 1000 vs. 1000 donors.
IIB 3 Task 5: Bioinformatics Web Site – This task is closed.	
IIB 3 Task 6: Consultants to Improve Algorithm – This task is closed.	
IIB 3 Task 7: Population Genetics – This task is closed.	
IIB 3 Task 8: Haplotype Matching – This task is closed.	
IIB 3 Task 9: Global Haplotype/Benchmark – This task is closed.	

IIB. Rapid Identification of Matched Donors – Objective 4: Reducing the time and effort required to identify closely matched donors for patients in urgent need of HSC transplants will improve access to transplantation and patient survival in the context of a contingency response and routine patient care.	
IIB.4 Task 1: Expand Network Communications – This task is closed.	
IIB.4 Task 2: Central Contingency Management	**Period 4 Activity:** • NMDP provided support for donor/cord blood unit identification, selection and collection for the NIH intramural unrelated donor transplant program. Activity in the last quarter was as follows: o 13 formal searches o 27 donor confirmatory typing blood sample and IDM testing requests o 4 cord blood unit confirmatory typing requests o 3 PBSC collections and 1 marrow collection
IIB.4 Task 3: Benchmarking Analysis – This task is closed.	
IIB.4 Task 4: Expand Capabilities of Collection and Apheresis Centers – This task is closed.	
IIC. Immunogenetic Studies – Objective 1: HLA mismatches may differ in their impact on transplant outcome, therefore, it is important to identify and quantify the influence of specific HLA mismatches. In contingency situations it will not be possible to delay transplant until a perfectly matched donor can be found.	
IIC.1 Task 1: Donor Recipient Pair Project	**Period 4 Activity:** Donor Recipient Pair Project In 1994 a retrospective D/R Pair HLA typing project to characterize class I and class II alleles of donor/recipient paired samples from NMDP's Repository was initiated. The goals of this ongoing research project are to assay the impact of DNA-based HLA matching on unrelated donor transplant outcome, develop strategies for optimal HLA matching, evaluate the impact of matching at alternative HLA loci on transplant outcome and finally to promote the development of DNA-based high resolution HLA typing methodologies. Presence/absence typing of 14 KIR loci (2DL1-5, 2DS1-5, 3DL1-3 and 3DS1) has been included. • One manuscript was published:

- Cynthia Vierra-Green, et al., Allele-level haplotype frequencies and pair wise linkage disequilibrium for 14 KIR loci in 506 European-American

- SG30 period of performance came to a close on September , 2012. HLA typing was audited during this period and audit of KIR is ongoing.
- SG31 period of performance came to a close on December , 2012. SG 31 consisted of 168 single cord blood transplants and 33 double cord blood transplants. This is the first sample group with double cord transplants.
- KIR discrepancy and no make resolution have continued.
- To date over 6000 samples have been typed for presence/absence of 14 KIR loci (2DL1-5, 2DS1-5, 3DL1-3 and 3DS1).
- A project has been initiated to add the pseudo genes, 2DP1 and 3DP1, into the IPR database.

Current HLA matching guidelines for unrelated HCT recommend avoidance of mismatches only within the Antigen Binding Domain (ABD). This recommendation is based on the hypothesis that amino acid differences outside the ABD are not immunogenic. The ABD allo-reactivity assessment project will give insight into the allowable percent tolerance of matching needed outside of the ABD.

- Initial investigation of the class I non-ABD mismatches (A*02:01/02:09, B*44:02/44:27 and C*07:01/07:06) have been performed where both alleles have been seen in the same genotype. Specific queries of the Be The Match Registry allowed for selection of one hundred and forty potential donors to be typed at high resolution for the class I locus of interest. Further typing of haplotypes potentially carrying either Class I C*07:01/07:06 or 07:01/07:18 was performed. Analysis of this data is ongoing. Queries of DRB1*14:01:01/14:54 haplotypes have resumed to identify additional registry member that may be included in the study.

IIC. Immunogenetic Studies – Objective 2: Even when patient and donor are HLA matched, GVHD occurs so other loci may play a role.	
IIC 2 Task 1: Analysis of non-HLA loci	**Period 4 Activity:** The Immunobiology Project Results (IPR) database and its applications allow for storage and analysis of all immunogenetic data collected on NMDP research samples. This database has replaced the existing HLA donor/recipient pair's database and facilitates storage and analysis of data from other immunogenetic loci. During the quarter, full support was added for multiple-donor/cord blood transplants. Also, development continued on the next release. Planned changes include: • New reports 1. Pre-project B/C linkage audit report 2. Post-project B/C linkage audit report 3. Post-project DRB linkage audit report 4. 'N of X' report for analyzing discrepancies between CTR and IPR. • New functionality for exporting IPR reports to Excel and other formats. • Implemented HapLogic Service interface for Immunbiology Integration Database (IIDB) to link HapLogic matching results to all historical transplant pairs • Added a structure for ancestry and ethnicity data to the IIDB system and built the associated ETL data flows.
IIC 2 Task 2: Related Pairs Research Repository – This task is closed.	
IIC 2 Task 3: CIBMTR Integration – This task is closed.	

IID. Clinical Research in Transplantation – Objective 1: Clinical research in transplantation improves transplant outcomes and supports preparedness for a contingency response.	
IID.1 Task 1: Observational Research, Clinical Trials	**Period 4 Activity:** • One abstract was submitted: o Juliet Barker, et al., *Results of a prospective multi-center myeloablative double-unit cord blood transplantation trial in adult patients with acute leukemia and myelodysplasia.* Oral presentation at the 2013 BMT Tandem Meetings. • As part of the CMS-MDS study accrual and data submission continued. Form payment of the comprehensive research forms required to meet the objectives of the study was completed. A total of 90 recipient CRF set of payments were covered.
IID.1 Task 2: Research with NMDP Donors – This task is closed.	
IID.1 Task 3: Expand Immuno-biology Research	**Period 4 Activity:** The CIBMTR IBWC met monthly during the quarter to discuss progress on ongoing research studies • One abstract was submitted: o Mary Eapen, et al., *Is allele-level HLA-matching relevant for single umbilical cord blood transplants?* Oral presentation – Presidential Symposium (top 6 abstracts) 2013 EBMT annual meeting • Three abstracts were presented: o Joseph Pidala, et al., *Amino acid substitution at peptide-binding pockets of HLA Class I molecules adversely impacts hematopoietic cell transplantation outcomes.* Oral presentation 2012 ASH annual meeting o Fabio Giglio, et al., *Donor KIR3DL1 and HLA-B allotypes control leukemia relapse after allogeneic hematopoietic stem cell transplantation.* Oral presentation 2012 ASH annual meeting o Susana Marino, et al., *Identification of high risk HLA Class I amino acid substitution in*

	hematopoietic stem cell transplantation. Poster presentation 2012 ASH annual meeting. • One manuscript was submitted: o Christiane Dobbelstein, et. al, *Birth order and transplant outcome in HLA-identical sibling stem cell transplantation – an analysis on behalf of the CIBMTR.* Submitted to BBMT • One manuscript was accepted: o Effie Petersdorf, et al., *Increasing the safety of HLA-mismatched unrelated donor hematopoietic transplantation.* Accepted by Blood. • Two manuscripts were published: o Lawrence Petz, et al., *Hematopoietic cell transplantation with cord blood for cure of HIV infections.* BBMT Oct 23, 2012 [Epub ahead of print] o Effie Petersdorf, et al., IHIW: International histocompatibility working group in hematopoietic cell transplantation. Int. Journal of Immunogenetics Dec 28, 2012 [Epub ahead of print]

ACRONYM LIST

AABB	American Association of Blood Banks	IBWC	Immunobiology Working Committee
ABD	Antigen Binding Domain	ICRHER	International Consortium for Research on Health Effects of Radiation
AFA	African American	IDAWG	Immunogenomics Data-Analysis Working Group
AGNIS	A Growable Network Information System	IDM	Infectious Disease Markers
AML	Acute Myelogenous Leukemia	IHIW	International HLA and Immunogenetics Workshop
APBMT	Asia-Pacific Blood and Marrow Transplantation	IHWG	International Histocompatibility Working Group
API	Asian Pacific Islander	IIDB	Immunbiology Integration Database
ARS	Acute Radiation Syndrome (also known as Acute Radiation Sickness)	IMP_RES	Imputation Results
ASBMT	American Society for Blood and Marrow Transplantation	IPR	Immunobiology Project Results
ASHI	American Society for Histocompatibility and Immunogenetics	IMGT	ImMunoGeneTics
ASTHO	Association of State and Territorial Health Officials	IND	Investigational New Drug
B-LCLs	B-Lymphoblastoid Cell Lines	IS	Information Services
BARDA	Biomedical Advanced Research and Development Authority	IT	Information Technology
BBMT	Biology of Blood and Marrow Transplant	IRB	Institutional Review Board
BCP	Business Continuity Plan	JCAHO	Joint Commission on Accreditation of Healthcare Organizations
BCPeX	Business Continuity Plan Exercise	KIR	Killer Immunoglobulin-like Receptor
BMCC	Bone Marrow Coordinating Center	MDACC	MD Anderson Cancer Center
BMDW	Bone Marrow Donors Worldwide	MDS	Myelodysplastic Syndrome
BMT	Bone Marrow Transplantation	MHC	Major Histocompatibility Complex
BMT CTN	Blood and Marrow Transplant - Clinical Trials Network	MIBBI	Minimum Information for Biological and Biomedical Investigations
BMTSANZ	Bone Marrow Transplant Society of Australia and New Zealand	MICA	MHC Class I-Like Molecule, Chain A

BODI	Business Objects Data Integrator	MICB	MHC Class I-Like Molecule, Chain B
BRT	Basic Radiation Training	MIRIGE	Minimum Information for Reporting Immunogenomic Genotyping Experiment
C&A	Certification and Accreditation	MKE	Milwaukee
CAU	Caucasian	MRD	Minimal Residual Disease
CBMTG	Canadian Blood and Marrow Transplant Group	MSKCC	Memorial Sloan-Kettering Cancer Center
CBB	Cord Blood Bank	MSP	Minneapolis
CBC	Congressional Black Caucus	MUD	Matched Unrelated Donor
CBS	Canadian Blood Service	NAC	Nuclear Accident Committee
CBU	Cord Blood Unit	NACCHO	National Association of County and City health Officials
CEP	Collect Eject Protect	NCBM	National Conference of Black Mayors
CHTC	Certified Hematopoeitic Transplant Coordinator	NCI	National Cancer Institute
CIBMTR	Center for International Blood & Marrow Transplant Research	NEMO	N-locus Expectation-Maximization using Oligonucleotide typing data
CIT	CIBMTR Information Technology	NGS	Next-Generation Sequencing
CLIA	Clinical Laboratory Improvement Amendment	NHLBI	National Heart Lung and Blood Institute
CME	Continuing Medical Education	NIH	National Institutes of Health
CMF	Community Matching Funds	NIMS	National Incident Management System
CMS	Centers for Medicare & Medicaid Services	NK	Natural Killer
COG	Children's Oncology Group	NLE	National Level Exercise
CREG	Cross Reactive Groups	NMDP	National Marrow Donor Program
CRF	Comprehensive Report Forms	NRP	National Response Plan
CSS	Center Support Services	NST	Non-myeloablative Allogeneic Stem Cell Transplantation
CT	Confirmatory Testing	OCR/ICR	Optical Character Recognition/Intelligent Character Recognition
CTA	Clinical Trial Application	OIT	Office of Information Technology
DC	Donor Center	OMB	Office of Management and Budget
DHHS-ASPR	Department of Health and Human Service – Assistant Secretary Preparedness and Response	ONR	Office of Naval Research

DIY	Do it yourself	P2P	Peer-to-Peer
DKMS	Deutsche Knochenmarkspenderdatei	PBMC	Peripheral Blood Mononuclear Cells
DMSO	Dimethylsulphoxide	PBSC	Peripheral Blood Stem Cell
DoD	Department of Defense	PCR	Polymerase Chain Reaction
DNA	Deoxyribonucleic Acid	PSA	Public Service Announcement
DR	Disaster Recovery	QC	Quality control
D/R	Donor/Recipient	RCC	Renal Cell Carcinoma
EBMT	European Group for Blood and Marrow Transplantation	RCI BMT	Resource for Clinical Investigations in Blood and Marrow Transplantation
EDC	Electronic Data Capture	REAC/TS	Radiation Emergency Assistance Center/Training Site
EFI	European Federation of Immunogenetics	REMM	Radiation Emergency Medical Management
EM	Expectation Maximization	RFP	Request for Proposal
EMBMT	East Mediterranean Blood and Marrow Transplantation	RFQ	Request for Quotation
EMDIS	European Marrow Donor Information System	RG	Recruitment Group
ENS	Emergency Notification System	RITN	Radiation Injury Treatment Network
ERSI	Environment Remote Sensing Institute	SBT	Sequence Based Typing
FBI	Federal Bureau of Investigation	SBTMO	Sociedade Brasileira de Transplanted de Medula Ossea
FDA	Food and Drug Administration	SCTOD	Stem Cell Therapeutics Outcome Database
FDR	Fund Drive Request	SG	Sample Group
FEMA	Federal Emergency Management Agency	SIRE	Self-Identified Race and Ethnicity
FLOCK	Flow Cytometry Analysis Component	SLCBB	St. Louis Cord Blood Bank
Fst	Fixation Index	SLW	STAR Link® Web
GETS	Government Emergency Telecommunications Service	SRG	Survey Research Group
GCSF	Granulocyte-Colony Stimulating Factor (also known as filgrastim)	SSA	Search Strategy Advice
GIS	Geographic Information System	SSO	Sequence Specific Oligonucleotides
GL	Genotype List	SSP	Sequence Specific Primers
GvHD	Graft vs Host Disease	SSOP	Sequence Specific Oligonucleotide Probes

HCS	HealthCare Standard	STAR®	Search, Tracking and Registry
HCT	Hematopoietic Cell Transplantation	TC	Transplant Center
HEPP	Hospital Emergency Preparedness Program	TED	Transplant Essential Data
HHQ	Health History Questionnaire	TIDES	Toolkit for Immunogenomic Data Exchange and Storage
HHS	Health and Human Services	TNC	Total Nucleated Cell
HIPAA	Health Insurance Portability and Accountability Act	TSA	Transportation Security Agency
HIS	Health Information System	UI	User Interface
HIS	Hispanic	UML	Unified Modeling Language
HLA	Human Leukocyte Antigen	URD	Unrelated Donor
HML	Histoimmunogenetics Mark-up Language	WGA	Whole Genome Amplification
HR	High Resolution	WMDA	World Marrow Donor Association
HRSA	Health Resources and Services Administration	WU	Work-up
HSC	Hematopoietic Stem Cell		