



October 31, 2012

CDR Sheri Parker
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 #N00014-11-1-0339 between the Office of Naval Research and the National Marrow Donor Program

Dear Cdr. Parker:

Enclosed is subject document which provides the performance activity for each statement of work task item of the above reference for the period of July 1, 2012 to September 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, MA
Contracts Manager

Enclosure: Quarterly Report with SF298

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14. ABSTRACT <u>1. Contingency Preparedness:</u> 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. <u>2. Rapid Identification of Matched Donors :</u> Increase operational efficiencies that accelerate the search process and increase patient access are key to preparedness in a contingency event. <u>3. Immunogenetic Studies:</u> Increase understanding of the immunologic factors important in HSC transplantation. <u>4. Clinical Research in Transplantation:</u> Create a platform that facilitates multicenter collaboration and data management.						
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Grant Award N00014-11-1-0339

DEVELOPMENT OF MEDICAL TECHNOLOGY
FOR CONTINGENCY RESPONSE TO MARROW TOXIC AGENTS
QUARTERLY
PERFORMANCE / TECHNICAL REPORT
FOR
JULY 01, 2012 to SEPTEMBER 30, 2012
PERIOD 7

Office of Naval Research

And

The National Marrow Donor Program
3001 Broadway Street N.E.
Minneapolis, MN 55413
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QUARTER PROGRESS REPORT**Development of Medical Technology for Contingency Response to Marrow Toxic Agents****July 01, 2012 through September 30, 2012**

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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 7 Activity: No activity this period.
IIA.1 Task 2: GCSF in Radiation Exposure	Period 7 Activity: No activity this period.
IIA.1 Task 3: Patient Assessment Guidelines and System Enhancements	Period 7 Activity: No activity this period.

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 7 Activity: - Interviewed to hire an Instructional Design contractor to assist with updating the RITN training materials - Continued the development of a Full Scale Exercise to be held at Memorial Sloan Kettering Cancer Center in NYC on November 19th, 2012 - Released to a test group the RITN Basic Radiation Training through the new web based learning management system (LMS)
IIA.2 Task 2: Sibling Typing Standard Operating Procedures	Period 7 Activity: No activity this period.

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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

Period 7 Activity:

- No activity this period.

IIA.3 Task 2:
Critical Facility and
Staff Related
Functions

Period 7 Activity:

- No activity this period.

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 7 Activity:

NMDP hosted a meeting for representatives from one of the new registry member HLA typing laboratories to discuss operational topics including: the current scope of work, future goals for registry HLA typing, and the laboratory's future HLA testing vision. The NMDP has secured meeting dates with the remaining contract laboratories to cover the same agenda in the next quarter. These discussions are important to allow the NMDPs to continue to provide low cost and high quality HLA typing for patients searching the registry.

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 7 Activity:

Sample Storage Research Study

The initial phase of the Sample Storage Research Study was executed in September 2007. Blood and buccal swabs were collected from 30 current and fully HLA characterized volunteer quality control donors. Study samples required for the 5-year study were prepared and stored at the NMDP Repository. Fresh blood, blood spotted onto Whatman® 903 filter paper and buccal swabs for each donor were sent to two laboratories to initiate the study (Time Point Zero) in September 2007. One laboratory was contracted to perform high resolution typing for HLA-A, B, C, DRB1, and DQB1 loci. A second laboratory was contracted to perform intermediate resolution typing for HLA-A, B, C, and DRB1 loci. The second

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	laboratory was also contracted to evaluate the quantity and quality of DNA within each sample type. Complete results were received from each of the two laboratories. All typing results were 100% accurate, and the evaluation of the DNA was complete and thorough. The results from Time Point Zero are the basis for determining the stability and usefulness of the DNA stored in each sample type for the next 5 years. Results from this study will provide key quality parameters for NMDP operational decisions concerning sample storage and may also contribute sample storage guidelines for other registries. • Stored donor samples were sent to the laboratories at Time Point 5 Years in September 2012. Results from this testing are pending and will be presented in a future reporting.
IIB.1 Task 5: Enhancing HLA Data for Selected Donors – This task is closed.	
IIB.1 Task 6: Maintain a Quality Control Program	Period 7 Activity: During this quarter, the remainder of the 110 samples sent in FY2011 were received from the cell processing laboratory and incorporated into the NMDP QC program. Of the 110 samples sent in FY2011, 16 (15%) exhibited negative cell growth. A total of 100 unique buccal B-LCL QC Masters were added to the inventory, 94 of which were confirmatory typed at high resolution SBT prior to incorporation into the database. The remaining budget was used to fund high resolution typing of 9 of the 20 cord blood units that were obtained at no cost for inclusion into the cord QC program, which nearly doubled the total number of cord blood units available for cord QC purposes. With these 9 units, the diversity of the cord QC program was expanded, adding 1 unique allele at the A locus, 3 at B, 1 at DRB1, and 1 at C, as well as at least 18 unique haplotypes.
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 7 Activity: • No activity this period.
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.	

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IIB.2 Task 4:Genotype Lists &
Matching Algorithm**Period 7 Activity:**

- Created a new webservice called ComputeMatchService that computes match results given any two sets of search typings.
- Attended HL7 Annual Plenary & Working Group Meeting (Baltimore, Sep 9-14). Participated with Clinical Genomics (CG) Workgroup to develop constrained CDA for reporting HLA typing. Developed 1st draft using the Model-Driven Health Tools (MDHT) from Open Health Tools. (<https://www.projects.openhealthtools.org/sf/projects/mdht/>).
- Genetic Testing Registry (GTR). Initiated discussions with Mike Feolo and NCBI staff to develop use of GTR for meeting Silver Standard principles for methodology reporting of HLA typing.
- The Silver Standard Project team continued to focus on tool development and meets weekly. Activities of this team include:
 - o Continued development of Silver Standard Traxis, with input from NMDP Scientific Services department. This is a new version of the Transplant Center software that presents HLA without the use of allele-codes.
 - o GL String web services: - continued development of GL String web services. A code repository was established (<http://code.google.com/p/genotype-list>) and source code and documentation released under GNU LGPL.
 - o Deployed demo version of Silver Standard genotype list RESTful web service on Amazon EC2 cloud at <http://gl.immunogenomics.org> as a foundation for feedback and presentation at the American Society for Histocompatibility and Immunogenetics (ASHI) 2012 Meeting, “Tools for Implementation of Silver Standard Principles for HLA Typing”
- In collaboration with CHORI, we have contracted with Knowledge Synthesis (www.knowledgesynthesis.com) to develop a Toolkit for Immunogenomic Data Exchange and Storage (TIDES). The first deliverable -- converting HLA genotyping data generated by three different platforms (StripScan, HLA Fusion, and AssignTM ATF) into Genotype List (GL) Strings, registering them with a GL Service, and returning URIs which are stored in a database -- has been met (gl.knowledgesynthesis.com). The second deliverable -- expanded development of the

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	database for data queries, CGI upload, and format transformation, deployed on an EC2 Linux instance- -- is on track to be delivered by mid-November. NMDP hosted the Next-Generation Sequencing (NGS) Data Consortium in Puerto Rico at the 38th annual ASHI meeting. This meeting has identified the core elements of a Minimum Information for Reporting an Immunogenomic Genotyping Experiment (MIRIGE) MIBBI-type standard (Minimum Information for Biological and Biomedical Investigations). The presentations and outcomes of these meetings are being made available on the IDAWG web-site (immunogenomics.org).
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 7 Activity: - Completed reinterpretation of registry data to HLADB 3.8.0 and streamlined process for calculation of updated US haplotype frequencies. - Further development took place of an automated process to refresh the haplotype frequencies used for matching.
IIB.3 Task 2: Enhancement of EM Algorithm	Period 7 Activity: - Developed a novel method to improve 5-locus BMDW haplotype frequencies by using linkage information from similar populations. - Prepared and circulated a manuscript draft for the IHIW registry diversity working group. - Meeting report summarizing tasks for the IHIW registry diversity working group was drafted and submitted to the International Journal of Immunogenetics.
IIB.3 Task 3: Optimal Registry Size Analysis	Period 7 Activity: Modeled 5/6 NIMA (Non-Inherited Maternal Allele/Antigen) match rates for cord blood inventory. These results are being extended to look at 4/6 NIMA match rates and validated before preparing for publication.

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	• IMPUTE Project: We have established collaborations with the following research groups to participate in a project to validate algorithms for predicting HLA allele types and haplotype phase from MHC SNP data: - o Bruce Weir, Department of Biostatistics, University of Washington - o Jerek Meller, Cincinnati Children's Hospital Medical Center - o Gil Mc Vean, Statistical Genetics at the University of Oxford, UK - o Paul de Bakker, Brigham and Women's Hospital and Harvard Medical School, USA - o Lue Ping Zhao, Shuying Li, Division of Public Health Sciences, Fred Hutchinson Cancer Research Center • Training and testing datasets have been developed from the Thousand Genomes (KG) and Human Genome Diversity Panel (HGDP) respectively. Correlations between SNP datasets, regional (ancestry) groups and HLA types have been established and a website for distribution of datasets to participants has been established.
IIB.3 Task 4: Target Under- Represented Phenotypes	Period 7 Activity: • A new version of the HaploStats application (haplostats.org) was released on September 25. • Ancestry questionnaire pilot (AQP) study to introduce enhancements to the ancestry questionnaire used by donors to join the registry was approved by IRB and is on track to start the mailing process to donors during the next quarter. This study will evaluate a novel self-identified race and ethnicity (SIRE) questionnaire and genetic ancestry informative markers in a sample of individuals from within the registry. The study details will be presented by Dr. Hollenbach at the NMDP Council meeting in November.
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.	

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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 7 Activity:

- Testing continued for the 7/8 donor validation project which is nearing completion. During this period 2,519 loci were typed for 2,314 donors. Preliminary 7/8 match rate results show that a 7/8 matched donor was identified for 98% of CAU and 80% of AFA pseudo-patients. Final 7/8 match rates for CAU, AFA, HIS, and API race groups will be completed in the next several weeks. Analysis to determine 9/10 match rate was also started during this period.
- NMDP is developing an online continuing medical education (CME) course for hematologists/oncologists (transplant and non-transplant) based on new CIBMTR publication describing Recommendations for Screening and Preventative Practices for Survivors After Auto & Allo HCT. NMDP is partnering with Medscape Oncology to reach a broad audience. The goal of this activity is to disseminate updates regarding new guidelines for screening and prevention of late effects associated with hematopoietic cell transplantation (HCT). These updates are of specific importance as the number of transplants and survivors of transplants are continuing to increase and relevant for all transplant physicians, hematologists, oncologists, and primary care physicians. The program is expected to be live in the next period.
- NMDP delivered a one-hour CME webinar, HLA Part I – Updated 2012 guidelines for selecting unrelated donors and CBUs for HCT to our transplant audience, based on the new guidelines publication from NMDP. Of the US transplant centers, 70% (97 of 139) had representatives attending this education, with more than 280 personnel. The program will also be available online for additional viewership. In the next period, Part II will be delivered, which will provide case studies so learners can practice applying the guidelines to current practice.

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.

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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 7 Activity:

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. Class I typing was performed and it was determined that the B44:02/44:27 would be the best candidate for complete typing. Typing at all loci for 53 donors occurred but results showed that the alleles did in fact segregate to two distinct haplotypes and are not useful for further testing. Analysis of other potential alleles is ongoing.

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 7 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 Period 7 Quality Development started on a new release. Planned changes include:

- New reports
 1. Pre-project B/C linkage
 2. Post-project DRB linkage audit report

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	3. N of X audit report • Improve look of Excel reports • Enforce DRB linkage rules during data loading • Various minor bug fixes • Full support for multi-donor transplants
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 and NIH Transplant Center	Period 7 Activity: • An audit was performed that identified outstanding milestone payments for donor centers related to the PBSC vs Marrow trial. These payments were made during this report period. • Staff worked with the Principal Investigator of the Adult Double Cord trial to create and submit an abstract on the study to the 2013 BMT Tandem meetings. • During this report period staff worked with the Principal investigator of the Revlamid trial to create and submit an abstract to the 2013 BMT Tandem meetings. • Activities continued on the Long Term Donor Follow up project. Survey Research Group (SRG) staff made outreach to accrued donors whose follow-up time point became due during this quarter. A total of 459 donors were reached and data form completed. Donor Centers continue to actively perform consent sessions with donors during their standard work-up process. SRG continued attempts to enroll donors who had previously donated and had not responded to three earlier contacts. To date an average of 26% (1519 donors) of those contacted enroll during this final attempt. During this reporting period overall accrual reached nearly 13,000 donors. • Final business requirement documents were completed for the following two projects: a) comprehensive system for management of activities and studies within the SRG and b) clinical trial

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management system (CTMS) to coordinate operational and administrative activities within the RCI BMT.

Cord Blood Research

- The Duke and St. Louis Cord Blood Bank (SLCBB) created and finalized plans for training and validating the assay methodologies to ensure the generation of consistent results at both testing sites for the study investigating biomarkers associated with cord blood engraftment.
 - The effort to procure and place a flow cytometer with the correct lasers to perform the assays within the specifications of the manufacturer has been finalized. Placement and validation of the flow cytometer was complete.
 - Training of the SLCBB technologist was initiated and is on-going. The training will be completed in the next quarter.
- Work continued on a study to assess CBU characteristics (viability, TNC, CFU and CD34) pre-freeze and post thaw. Segment evaluation prior to unit release was under consideration as a third evaluation point. Results of a survey to the cord blood banks were analyzed and the unit release testing data deemed too variable for meaningful analysis. The study will proceed with pre-freeze and post-thaw characteristics only.
 - The study was discussed during the Cord Blood Advisory Group in May. A task force for study development was created and conference calls to discuss study development were conducted. The study design and proposal for submission to the CIBMTR will be completed next quarter.
- Development of the anti-HLA donor specific antibody study of recipients transplanted with cord blood units was initiated.

IID.1 Task 2: Research with NMDP Donors – This task is closed.

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Expand Immuno-
biology Research**Period 7 Activity:**

The CIBMTR IBWC leadership met monthly during the quarter to discuss progress on ongoing research studies

- The IBWC leadership approved an immunobiology research grant to support the costs associated with the use of NMDP Research samples for IB12-05-Plasma YKL-40 and CHI3L1 Genotype to Predict Mortality After Allogeneic Hematopoietic Cell Transplantation.

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ACRONYM LIST

AABB	American Association of Blood Banks	HRSA	Health Resources and Services Administration
ABD	Antigen Binding Domain	HSC	Hematopoietic Stem Cell
AFA	African American	IBWC	Immunobiology Working Committee
AGNIS	A Growable Network Information System	ICRHER	International Consortium for Research on Health Effects of Radiation
AML	Acute Myelogenous Leukemia	IDAWG	Immunogenomics Data Analysis Working Group
		IDM	Infectious Disease Markers
API	Asian Pacific Islander	IHIW	International Histocompatibility and Immunogenetics
AQP	Ancestry Questionnaire Pilot	IHWG	International Histocompatibility Working Group
ARS	Acute Radiation Syndrome (also known as Acute Radiation Sickness)	IPR	Immunobiology Project Results
ASBMT	American Society for Blood and Marrow Transplantation	ICRHER	International Consortium for Research on Health Effects of Radiation
ASHI	American Society for Histocompatibility and Immunogenetics	IND	Investigational New Drug
ATF	Activating Transcription Factor	IS	Information Services
B-LCLs	B-Lymphoblastoid Cell Lines	IT	Information Technology
BARDA	Biomedical Advanced Research and Development Authority	IRB	Institutional Review Board
BBMT	Biology of Blood and Marrow Transplant	JCAHO	Joint Commission on Accreditation of Healthcare Organizations
		KG	Thousand Genomes
BCP	Business Continuity Plan	KIR	Killer Immunoglobulin-like Receptor
		LGPL	Lesser General Public License
BCPeX	Business Continuity Plan Exercise	LMS	Learning Management System
BMCC	Bone Marrow Coordinating Center	MDACC	MD Anderson Cancer Center
		MDHT	Model Driven Health Tools
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

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BODI	Business Objects Data Integrator	MICA	MHC Class I-Like Molecule, Chain A
BRT	Basic Radiation Training	MICB	MHC Class I-Like Molecule, Chain B
C&A	Certification and Accreditation	MIRIGE	Minimum Information for Reporting Immunogenomic Experiments
CAU	Caucasian	MKE	Milwaukee
CBMTG	Canadian Blood and Marrow Transplant Group	MRD	Minimal Residual Disease
CBB	Cord Blood Bank	MSKCC	Memorial Sloan-Kettering Cancer Center
CBC	Congressional Black Caucus	MSP	Minneapolis
CBS	Canadian Blood Service	MUD	Matched Unrelated Donor
CBU	Cord Blood Unit	NAC	Nuclear Accident Committee
CDA	Clinical Document Architecture	NCBI	National Center for Biotechnology Information
CFU	Colony Forming Units	NCBM	National Conference of Black Mayors
CGI	Common Gateway Interface	NCI	National Cancer Institute
CHORI	Children's Hospital Oakland Research Institute	NGS	Next Generation Sequencing
CHTC	Certified Hematopoietic Transplant Coordinator	NEMO	N-locus Expectation-Maximization using Oligonucleotide typing data
CIBMTR	Center for International Blood & Marrow Transplant Research	NHLBI	National Heart Lung and Blood Institute
CIT	CIBMTR Information Technology	NIH	National Institutes of Health
CLIA	Clinical Laboratory Improvement Amendment	NIMA	Non-Inherited Maternal Allele/Antigen
CME	Continuing Medical Education	NIMS	National Incident Management System
CMF	Community Matching Funds	NK	Natural Killer
COG	Children's Oncology Group	NLE	National Level Exercise
CREG	Cross Reactive Groups	NMDP	National Marrow Donor Program
CSS	Center Support Services	NRP	National Response Plan
CT	Confirmatory Testing	NST	Non-myeloablative Allogeneic Stem Cell Transplantation
CTA	Clinical Trial Application	OCR/ICR	Optical Character Recognition/Intelligent Character Recognition
CTMS	Clinical Trial Management System	OIT	Office of Information Technology
DC	Donor Center	OMB	Office of Management and Budget
DHHS-ASPR	Department of Health and Human Service –	ONR	Office of Naval Research

QUARTER PROGRESS REPORT

Development of Medical Technology for Contingency Response to Marrow Toxic Agents

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	Assistant Secretary Preparedness and Response		
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
DHHS-ASPR	Department of Health and Human Services – Assistant Secretary for Preparedness and Response	PSA	Public Service Announcement
DNA	Deoxyribonucleic Acid	QC	Quality control
DR	Disaster Recovery	RCC	Renal Cell Carcinoma
D/R	Donor/Recipient	RCI BMT	Resource for Clinical Investigations in Blood and Marrow Transplantation
DRB	Design Review Board	REAC/TS	Radiation Emergency Assistance Center/Training Site
EBMT	European Group for Blood and Marrow Transplantation	REST	Representational State Transfer
EDC	Electronic Data Capture	RFP	Request for Proposal
EFI	European Federation of Immunogenetics	RFQ	Request for Quotation
EM	Expectation Maximization	RG	Recruitment Group
EMDIS	European Marrow Donor Information System	RITN	Radiation Injury Treatment Network
ENS	Emergency Notification System	SBT	Sequence Based Typing
ERSI	Environment Remote Sensing Institute	SCTOD	Stem Cell Therapeutics Outcome Database
FBI	Federal Bureau of Investigation	SG	Sample Group
FDA	Food and Drug Administration	SIRE	Self Identified Race and Ethnicity
FDR	Fund Drive Request	SLCBB	St. Louis Cord Blood Bank
FLOCK	Flow Cytometry Analysis Component	SLW	STAR Link® Web
Fst	Fixation Index	SNP	Single Nucleotide Polymorphism
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 Oligonucleotide
GL	Genotype List	SSP	Sequence Specific Primers

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GNU	GNU's Not Unix	SSOP	Sequence Specific Oligonucleotide Probes
GTR	Genetic Testing Registry	SSRS	Sample Storage Research Study
GvHD	Graft vs Host Disease	STAR®	Search, Tracking and Registry
HCS	HealthCare Standard	TC	Transplant Center
HCT	Hematopoietic Cell Transplantation	TED	Transplant Essential Data
HEPP	Hospital Emergency Preparedness Program	TIDES	Toolkit for Immunogenomic Data Exchange and Storage
HGDP	Human Genome Diversity Panel	TNC	Total Nucleated Cell
HHQ	Health History Questionnaire	TSA	Transportation Security Agency
HHS	Health and Human Services	UI	User Interface
HIPAA	Health Insurance Portability and Accountability Act	UML	Unified Modeling Language
HIS	Hispanic	URD	Unrelated Donor
HLA	Human Leukocyte Antigen	WGA	Whole Genome Amplification
HML	Histoimmunogenetics Mark-up Language	WMDA	World Marrow Donor Association
HR	High Resolution	WU	Work-up