rapid mobilization of HSCs from niche spaces to peripheral blood. We hypothesize that AMD3100 creates space within the endogenous stem cell niche allowing for better engraftment of transplanted HSC donors.

We found that subcutaneous injections of AMD3100 (5mg/kg) into C57/BL6-Rag2 common gamma chain-deficient mice induced mobilization of HSCs from bone marrow and absolute numbers of HSC in bone marrow reached a nadir four hours post-AMD3100 injection (2013±553 vs. 3765±392, p = 0.02, n = 4-6). AMD3100 pre-treated immunodeficient recipients were transplanted with a bolus dose of 6300 MHC-mismatched AKR/j HSCs. We also performed daily rounds of AMD3100 injections followed by low dose injections of 450 HSCs over the course of 14 days for a total transplant of 6300 cells. HSC bone marrow donor chimerism 12-weeks post-transplant was not increased in the bolus-transplanted animals (1.9±0.6% vs. 1.4±0.3%, p = 0.7, n = 5-9). Repeat-transplanted animals exhibited a slight increase in engraftment; however, this increase was not found to be statically significant (2.1±0.2% vs. 2.5±0.8%, p = 0.4, n = 4-5). These data demonstrate that while AMD3100 is effective as a HSC mobilizer, it is not effective in increasing engraftment potential of transplant recipients.

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USE OF UMBILICAL CORD BLOOD IN TRANSPLANTATION FOR PATIENTS WITH MYELODYSPLASTIC SYNDROME

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Myelodysplastic Syndrome is a clonal hematological disorder characterized by peripheral cytopenias with significant risk for progression to acute myeloid leukemia (AML). It is the most common hematological malignancy in the elderly with 86% of all MDS diagnoses reported in individuals over 60 years of age, according to SEER data. While hypomethylating agents may delay disease progression and extend overall survival in low risk MDS patients, allogeneic hematopoietic stem cell transplant is the only potentially curative therapy for high risk MDS. The use of umbilical cord blood as a stem cell source for MDS patients is attractive because of rapidity of availability as well as the lower risk of GVHD with increasing HLA disparity. Outcomes data is limited, but encouraging results have been reported. This study seeks to examine transplant outcomes of MDS patients receiving umbilical cord blood units from the St. Louis Cord Blood Bank (SLCBB).

As of September 30, 2010, the SLCBB has shipped units for 95 MDS patients, of which outcomes data is available for 46. Summary data is provided in the table below for single and dual cord transplants: Umbilical cord blood is a viable source of stem cells for HSCT in MDS patients. More data will be required to examine a possible risk of increased graft vs. host disease with this population.

Table 1. Data Summary – Single and Dual Cord Blood Transplants

Variable	Single Cord Blood	Dual Cord Blood
N	24	22
Patient Age		
Mean	14.1	44.9
Conditioning Regimen		
Myeloablative	21	9
Non-Myeloablative	3	13
ANC Achieved		
Yes	24 (100%)	19 (86.4%)
No	0 (0%)	3 (13.6%)
Days to ANC Achieved		
Mean	23.3	24.0
Acute GVHD		
Yes	17 (70.8%)	4 (18.2%)
No	7 (29.2%)	6 (27.3%)
Unknown	0 (0%)	12 (54.5%)
Chronic GVHD		
Yes	6 (25%)	1 (4.5%)
No	16 (66.7%)	8 (36.4%)
Unknown	2 (8.3%)	13 (59.1%)
Survival		
Alive	17 (70.8%)	11 (50%)
Expired	7 (29.2%)	11 (50%)
Mean Survival (months)	23.1	11.2

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KILLER-IMMUNOGLOBULIN-LIKE RECEPTOR (KIR) GENE POLYMORPHISM AND BKV ASSOCIATED HEMORRHAGIC CYSTITIS IN HEMATOPOIETIC STEM CELL TRANSPLANT RECIPIENTS

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Hemorrhagic cystitis (HC) is the most prevalent complication of BK viruria after allogeneic hematopoietic stem cell transplantation (HSCT) and is associated with significant morbidity and mortality. However, why 40–50% of HSCT recipients with persistent viruria never develop HC remains unclear. Killer-immunoglobulin-like Receptor (KIR) gene polymorphism has been implicated in influencing clinical outcomes of a number of viruses such as CMV, Hepatitis C, and HIV.

Objective: To determine whether KIR gene polymorphisms has a potential role in the development of BKV associated HC after allogeneic HSCT.

Methods: We performed a retrospective 1:2 matched case-control study of allogeneic HSCT recipients who underwent transplant at our institution from 2000-2010. We performed KIR genotyping for 32 cases with BKV associated HC and 64 matched controls without HC. Two controls were selected for each case, and matched for disease, preparative regimen, and development of acute GvHD prior to HC. Recipient KIR genotyping was determined by PCR-rSSOP (Luminex, One Lambda). Recipient KIR genotype and haplotypes were assigned as described previously (Middleton and Gonzelez, Immunology, 2010). The donor's human leukocyte antigen (HLA) typing was reviewed from patient charts for determination of KIR ligands. Conditional logistic regression analysis was used to assess the association of KIR gene polymorphism and BKV associated HC. Stepwise analysis using a variable entry criterion of $P < 0.10$ and a variable retention criterion of $P < 0.05$ was used to assess multivariable risk factors.

Results: No significant association was identified at the 5% level of significance between the development of HC and KIR genotypes, Haplotypes (AA vs. Bx), number of activating receptors, presence of any particular activating or inhibitory KIRs, or presence of any cognate HLA ligands.

Conclusion: In contrast to the reported associations between KIR gene polymorphism and different outcomes of other viruses, our study does not support a role for KIR gene polymorphism in the development of BKV associated HC.

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WHY WORK-UP REQUESTS FOR HSCT DONORS FAIL – REASONS AND WAYS TO IMPROVE FROM A DONOR CENTER PERSPECTIVE

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Since 1992, DKMS German Bone Marrow Center has processed 28,672 work-up requests for hematopoietic stem cell donations. 4,328 requests (15.1%) were cancelled by the transplant centers for patient-related reasons. Of the remaining, 22,840 (93.8%) requests were successfully completed by collection and transplantation of a viable stem cell product.

Since every work-up is a time and resource intensive process, it is crucial to minimize the number of futile requests. Therefore, we have assessed medical and non-medical conditions leading to donor deferral or temporary unavailability, and identified donor subgroups more likely to cancel their willingness late in the donor search process. Due to the additional costs and loss of time, donors who did