University of California, Davis Medical Center
Department of Pathology, Hematology

Bone Marrow Transplant Spec Handling Technical Procedure #1549.t

Purpose

A standardized protocol for performing cell counts and differentials on donor bone marrow is required to ensure accurate and prompt testing and reporting of results.

Specimen

Specimens submitted to the hematology laboratory for cell counts and differential consist of liquid cell suspensions. For Progenitor Cell Specimens (HPC), see procedure 1548t.

Reagents

- Bovine Albumin- 22% Protein Concentration ph 7.2-Ortho Diagnostic Systems.

Equipment

- Coulter LH780 with reagents
- Wrights stainer
- Vortex
- Glass microscope slides
- Microscope

Quality Control

- Coulter LH780-refer to LH780 Procedure #1510.
- Stain quality is evaluated on a slide by slide basis by the CLS.

Specimen Requirements

- Send approximately 1 ml of specimen to the laboratory
    - For bone marrow harvests (usually from UCDMC operating room), the tube and requisition slip are labeled as:
        - Interim Bone Marrow Harvest #1, #2, #3. etc. or
        - Final filtered Bone Marrow

- The specimen and the accompanying requisition must be delivered directly to the Hematology Laboratory

- Specify callback name and phone or pager for STAT results.

Requisitioning

- Bone marrow harvest specimens are handled as Priority One specimens and are requisitioned in the LIS system.

    - Bone Marrow Harvests

        - Specimens labeled as Bone Marrow Harvest #1, #2, etc. are requisitioned as a nucleated cell count. The mnemonic is WBCO.

    - Final filtered Bone Marrow

        - Specimens labeled as Final Filtered Marrow are requisitioned as WBC, HGB, HCT, PLT, WBCO, and BMD.

Procedure

- Cell Counts

    - Mix specimen well – both by inversion and gentle vortexing.

    - Check specimen for clot using applicator sticks.

    - Run specimen on Coulter LH780 in the secondary mode, carefully observing the aspiration to ensure that it does not short sample.

- Reporting Results

    - Interim Bone Marrow Harvest

        - Report only the Total Nucleated Cell Count (uncorrected WBC count), using the canned text mnemonic HWBCO and identify the specimen as “Bone Marrow Harvest #_”

        - Call the automated cell count results to the callback number.

        - This is a preliminary count and must be verified by slide estimate or manual methods, if needed. If result is determined

to be lower than originally reported, re-notify via the callback number.

- Final Filtered Marrow

    - Report the WBC count (use the uncorrected WBC) with the canned text mnemonic BMC, to append the following comment: "THIS SPECIMEN IS NOT PERIPHERAL BLOOD, Specimen is Final Filtered Bone Marrow collected for transplant." Call the automated cell count results to the callback number.

    - This is a preliminary count and must be verified by slide estimate or manual methods, if needed. If result is determined to be lower than originally reported, re-notify via the callback number.

    - If the platelet count exceeds linearity, the instrument count should be reported with the comment "Result exceeds instrument linearity and had not been confirmed due to insufficient specimen."

 Slide Preparation and Staining

- Prepare two wedge smears from Final Filtered Bone Marrow.

- Stain slides using the Bone Marrow protocol

- Check smears for stain quality. Remake unacceptable smears, using one drop of albumin to 4-5 drops of specimen, if needed, due to cell fragility.

 Differential

- A qualified CLS will perform the differential. The Hemepath Fellow or Pathologist may be consulted if needed.

- Perform a 200 WBC cell differential; NRBC's are included in the differential. Report as percent %.

- Enter the results of the differential using the canned text BMD. Report the number of NRBC's at the bottom of the report (as they are not in the canned text).

- Completed smears are saved in the progenitor box.

Reference Range

Reference ranges are included in the BMD canned text.

References

- "Bone Marrow Procedure". Clinical Cryobiology Laboratory Fred Hutchinson Cancer Research Center Seattle, Washington.
- "Procedure For Processing Bone Marrow Harvest Specimens". Clinical Laboratory Services Rush Presbyterian St. Luke's Medical Center.
- Sacher, R et al; Marrow Transplantation: Practical and Technical Aspects of Stem Cell Reconstitution, pp133-135; AABB, 1992
- Sacher, R et al; Processing of Bone Marrow for Transplantation, pp.42-43; AABB, 1990

Procedure History

Date	Written/Revised By	Revision	Approved Date	Approved By
6/18/93	C. Sunset		9/17/93	Ed Larkin, MD
			10/12/93	Ed Larkin, MD
			12/2/94	Ed Larkin, MD
3/20/96	J. Cannon	Minor	11/95	Ed Larkin, MD
		Annual Review	11/96	Ed Larkin, MD
		Annual Review	11/97	Ed Larkin, MD
		Annual Review	10;98	Ed Larkin, MD
		Annual Review	11/99	Ed Larkin, MD
		Annual Review	11/00	Ed Larkin, MD
		Annual Review	10/17/01	Ed Larkin, MD
11/02	J Cannon	MS Word	11/5/02	Ed Larkin, MD
		Annual Review	10/17/03	Ed Larkin, MD
		Annual Review	11/27/04	Ed Larkin, MD
		New Director	02/24/05	Kim Janatpour, MD
11/06	J Cannon	Annual Review	11/18/06	Denis Dwyre MD
04/07	J Cannon	Minor updates		
		Annual Review	05/02/07	Denis Dwyre, MD
		Annual Review	11/05/07	Denis Dwyre MD
		Annual Review	07/03/08	Denis Dwyre MD
		Annual Review	10/27/09	D Dwyre MD
		Annual Review	10/15/10	D Dwyre MD
		Biannual Review	08/24/12	D Dwyre MD
		Biannual Review	10/1/14	D Dwyre MD
10/2015	L Gandy	Minor updates		