



STANDARDIZED TESTING / OPERATING PROTOCOL REQUEST/ANNOUNCEMENT

NEW LABORATORY TEST ORDER AND PROCEDURE FOR PATIENTS RECEIVING DARATUMUMAB

Description:	A new lab order and a new procedure have been developed to address serological testing complications caused by a drug called Daratumumab (Darzalex). The drug is used to treat some multiple myeloma patients.
Implementation Date:	May 9, 2018
Performing Locations:	Click on the boxes that apply: □ Annie Penn Hospital □ Moses Cone Hospital □ Med Center at High Point □ Wesley Long Hospital □ Women's Hospital □ Alamance Regional
Affected Locations:	Click on the boxes that apply: ☑ Annie Penn Hospital ☑ Moses Cone Hospital ☑ Med Center at High Point ☑ Wesley Long Hospital ☐ Women's Hospital ☑ Alamance Regional ☑ Mebane
Affected Departments:	Click on the boxes that apply: Blood Bank Cytology Flow Cytometry Histology Microbiology Phlebotomy Point of Care Rapid Response Lab Respiratory Therapy Specimen Processing

Specimen Type:	6cc Pink Top Tube for Blood Bank
Updated Clinical Lab Procedures:	Alamance Procedure: TRM-719 Daratumumab Greensboro/Reidsville: New Procedure for WL, MC and APH: 7891 CH - Guidelines for transfusing patients taking Daratumumab (Darzalex). (Final version available the week of May 13th)
Retired Clinical Lab Procedures:	NA
Notification to Client:	Click on the boxes that apply: Section Not Applicable Memo Needed Distribution of Memo: Medical Staff Oncologists Allied Health Professionals (PA, Nurse Practioners) Anesthesia Annie Penn (Primary Source Physicians) Dentist Emergency Department/Urgent Care Centers Family Practice Infectious Docs #ID Docs (John Campbell, Robert Comer, Jeffrey Hatcher, Cynthia Snider, Kees Van Dam) OB/GYN Pathology Pediatricians Psych Radiology Surgery #Nursing Leadership (Directors, Asst. Directors, Clinical Nurse Manager) Pharmacy - Send to DeAnne Brooks & Jim Hasspacher & Adam Peele #IM Residents Kim Helsabeck Phlebotomy Managers and Supervisors Point of Care: Sheila, Kim & Marty
Accreditation Section:	Click on the boxes that apply: ☐ Section Not Applicable ☐ CAP Test menu change needed

	☐CMS Analyte form change needed
	□ Proficiency Testing surveys changes needed or ordered
Laboratory IT section:	Click box and type needed changes/additions: □ Section Not Applicable □ LIS changes 05/08/2018: PTTYP (Pre-treatment Phenotype) The test code has been moved to Cone Health Link and SunQuest Production. □ Reference range change/addition □ Technical Failure change/addition □ Critical Value change/add □ Text comments needed □ Specimen collection instructions □ Need to monitor TAT □ CPT code for tests(s)
Technical Staff Update:	Daratumumab (Darzalex) is a drug used to treat multiple myeloma. After a patient receives Daratumumab by infusion, the drug binds to CD 38 on RBCs (both patient and reagent) causing positive indirect antiglobulin tests. The Daratumumab-mediated positive indirect antiglobulin tests may persist for up to 6 months after the last Daratumumab infusion. If a Type and Screen is performed after infusion of Daratumumab blood bank techs may see a positive antibody screen, panagglutination with reagent panel cells, and incompatible AHG crossmatches. The patient's auto control and DAT may or may not be positive. The Daratumumab that is bound to reagent RBCs interferes with the detection of alloantibodies in the patient's plasma. Given these testing complications, current laboratory recommendations include performing a baseline Type and Screen and RBC Phenotype prior to the initiation of Daratumumab treatment. A new laboratory order was developed in CHL and SunQuest. It is called Daratumumab Pretreatment RBC Phenotype (PTTYP). The order includes a Type and Screen and a Pre Treatment RBC Phenotype. Testing should be ordered and completed prior to initiation of treatment with the drug to minimize compatibility testing delays and provision of phenotypically matched or crossmatch compatible blood.

STOP Initiator:	Teresa Wright, Esther Ingle, Shelley Lawson
Alamance Medical Director Signature:	Quality Department will obtain signature: JOSHAN B-Kilms 5/9/18
Greensboro/Reidsville Medical Director Signature	
Mebane Medical Director Signature	M alus 5/9/2018

STOP Initiator:	Teresa Wright, Esther Ingle, Shelley Lawson
Alamance Medical Director Signature:	Quality Department will obtain signature:
Greensboro/Reidsville Medical Director Signature	John Paturel, was 5/9/18
Mebane Medical Director Signature	



TO: CHCC Providers and Pharmacists

FROM: John Patrick, MD, Adam Peele, PharmD, Tara Rubinas MD

DATE: May 9, 2018

SUBJECT: Darzalex (daratumumab) Type and Screen & RBC phenotype testing

Per the FDA labeled prescribing information, "Daratumumab binds to CD38 on red blood cells and results in a positive Indirect Antiglobulin Test (Indirect Coombs test). Daratumumab-mediated positive indirect antiglobulin test may persist for up to 6 months after the last daratumumab infusion. Daratumumab bound to RBCs masks detection of antibodies to minor antigens in the patient's serum."

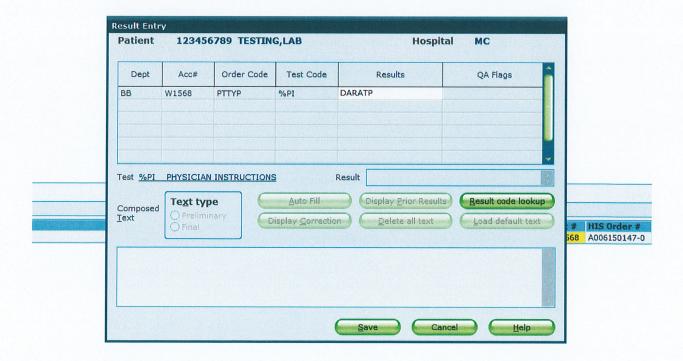
Current laboratory recommendations include performing a "type and screen" and "RBC phenotype" prior to the initiation of daratumumab treatment. This testing will better allow the blood bank to provide cross match compatible blood and minimize testing delays should your patient require red cell transfusion.

The oncologists will be able to place the lab orders for the "type and screen" and "RBC phenotype" within the daratumumab CHL pre-treatment cycle plan.

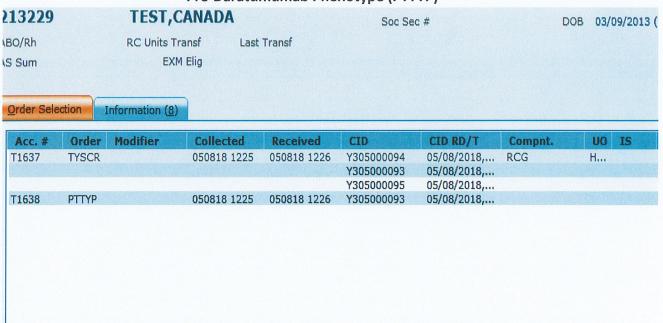
SunQuest Label Showing New PTTYP Test Code

1305000096 MAJO 123456789 35/09/201B 0630 TESTING, LAB 123456789 W1568 TESTING, LAB 1305000096 07/15/1986 M 35/09/2018 0630 MCBB. 05/09/2018 0630 L23456789 W1568 PINK-BB PTTYP × *TESTING.LAB*

PTTYP includes Ask at Order Entry test with DARATP auto answer = DARA treatment protocol



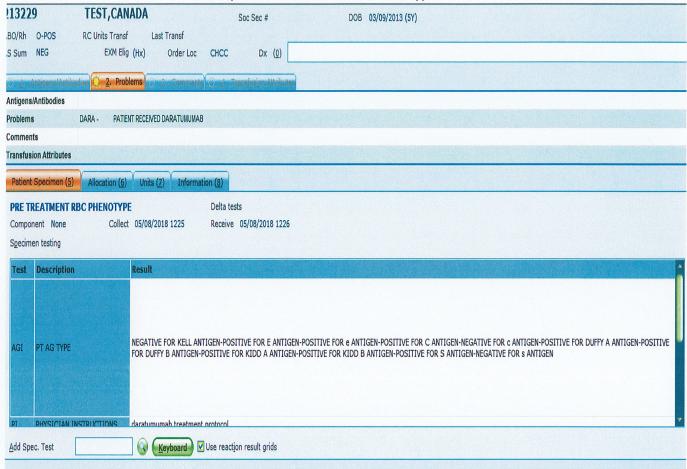
PTTYP Order in SQ Blood Order Processing (BOP) Shows Type and Screen (TYSCR) and Pre-Daratumumab Phenotype (PTTYP)



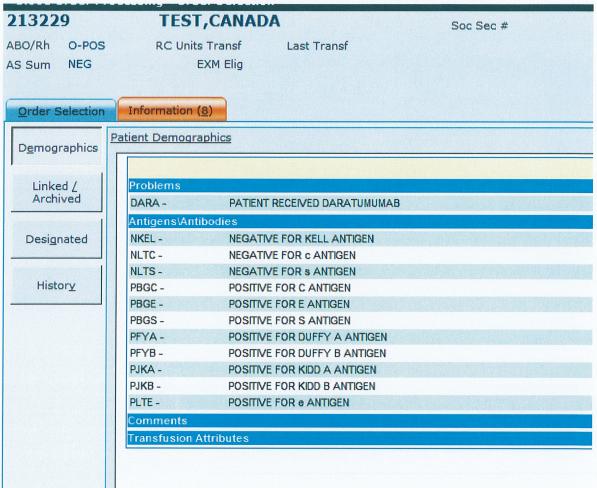
Type and Screen - Tech adds Problem (PB) test in BOP. Results with ;DARA and Tab



Example of Resulted Patient Phenotype



View of Daratumumab Patient BAD file information in BOP



Draft Greensboro/ Reidsville Procedure

TITLE: GUIDELINES FOR TRANSFUSING PATIENTS TAKING DARATUMUMAB (DARZALEX)

PRINCIPLE / PURPOSE: Daratumumab is used to treat some patients with multiple myeloma. This drug may interfere with routine blood bank serologic tests by directly binding to CD38 on RBCs. The binding of Daratumumab results in agglutination of erythrocytes which causes a positive indirect antiglobulin test, incompatible AHG crossmatch and panagglutinin in the antibody identification panel. The direct antiglobulin results are variable, may or may not be positive. Daratumumab induced agglutination can be seen up to 6 months after last dose.

SCOPE: This procedure applies to multiple myeloma patient receiving Daratumumab infusions.

COMPLEXITY LEVEL: High

SAFETY:

- The required personal protective equipment for this procedure:
 - Gloves
 - Disposable lab coat, worn closed
 - Safety shield
- Gloves and lab coats should be worn at all times during analysis of the samples.
- Samples must be opened and dispensed behind a safety shield.

PROCEDURE:

A. Blood bank sample is collected prior to administration of Daratumumab.

- 1. There is an order set in CHL requiring all patients starting Daratumumab to have a TYSCR and RBC phenotype ordered prior to infusion of the drug.
- 2. Enter problem code DARA (Patient received Daratumumab). Document date of infusion and facility given.
- 3. Perform Type and Screen
 - If the current antibody screen is negative and there is no history of clinically significant RBC antibodies, perform electronic crossmatch using phenotypically matched units.
 - If the current antibody screen is positive or there is a history of clinically significant RBC antibodies, perform IgG crossmatch
- 4. Perform a full RBC phenotype if patient has not been transfused in the past 3 months.
- Give phenotypically matched blood if time permits. If urgent transfusion is needed, give units negative for C, c, E, e, and K depending on patient's phenotype.

B. Post Administration of Daratumumab with or without a transfusion history and RBC phenotype

- 1. Perform Type and Screen.
- 2. If antibody screen is positive, perform Antibody workup. If panreactivity is detected, inquire if Daratumumab was administered. If the patient was seen at another hospital and time permits, consult the blood bank at the other hospital. Inquire if RBC phenotype is available and if there is a history of alloantibodies. Document findings in patient's BAD file.

Note: The patient's historical phenotype information (not ABO and Rh) is acceptable from other institutions, provided documentation is faxed to us. Enter the phenotype using the appropriate blood bank comment codes directly into the Blood Bank Administrative Data (BAD) file or order and result a Patient Problem (PB) in BOP. Include a comment identifying the institution that performed the phenotype.

- 3. If Daratumumab was administered more than 30 days from the current type and screen, send a specimen to The Blood Connection for a full antibody workup.
- 4. Fill out a Blood Connection Reference Form. Request a full antibody workup and a full RBC phenotype if not previously in patient's BAD file.
- When The Blood Connection completes testing and faxes a report, result the ABI as NSAR, Non-Specific Antibody Reactivity, and any other alloantibodies reported.
- 6. Add problem code, DARA (Patient received Daratumumab). Document date of infusion and facility given.
- 7. Enter problem code, GPB (Give phenotypically matched blood) if not already entered in the patient's BAD file.
- 8. Give phenotypically matched blood if time permits. If urgent transfusion is needed then give units negative for C, c, E, e, and K depending on patient's phenotype.
- 9. Perform AHG crossmatch using the method used for antibody screen and/ or panel.
- 10. If the crossmatch is incompatible in the IgG test phase, enter LICMP (Least Incompatible) for the crossmatch interpretation.
- 11. Contact the Medical Director and/or attending physician to get approval to transfuse least incompatible red cells.
- 12. Document the physician's approval as a blood bank comment (BBC). Add a VBO unit tag comment and document the approving physician's name.

PROCEDURAL NOTES:

N/A

REFERENCES:

<u>Technical Manual</u>, AABB, 19th Edition. <u>Standards for Blood Banks and Transfusion Services</u>, AABB, 30th Edition

