



# QUALITY UPDATE

A monthly publication providing information and updates to CompuNet Clients  
Mission: Improving the health of our community through excellence in medical laboratory services.

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## In this Issue

Immune Cell Function Assay	1
Quality Specimen Handling	2
Communicating to You	3
2009 AMA Changes in CPT Coding	3
Specimen Handling in Cold Weather	4
New CPT Codes (Insert)	

## Immune Cell Function Assay

*by: Ike Northern, Microbiology/Serology Manager*

On November 10, 2008, CompuNet began performing the Immune Cell Function assay. In the past, this test has been sent to a reference lab for testing. **The assay is performed on Mondays and Wednesdays only.** All patients should have their blood drawn on these days and the sample should be transported to the laboratory by 2:00PM on the day it is collected. Results will be available the next day. Blood should be drawn in a sodium heparin tube (green-top) and kept at room temperature during transport to the laboratory.

The human immune system consists of two distinct types of immunity: humoral immunity and cell-mediated immunity (CMI). The humoral immune response results in the production of antibodies. T lymphocytes, working in conjunction with other cells in the immune system and chemical messengers known as cytokines, are responsible for CMI.

CMI is a key factor in rejection of transplanted organs. As a result, immunosuppressive drugs are given to transplant recipients to block this rejection. To avoid over suppression or under suppression of the immune system, the Immune Cell Function assay may be used to monitor the level of CMI.

The Immune Cell Function test detects CMI by measuring the concentration of adenosine triphosphate (ATP) from CD4+ T lymphocytes following stimulation. CD4+ cells are stimulated with phytohemagglutinin (PHA) and incubated for 15-18 hours. During the incubation, increased ATP synthesis occurs within the cells that respond to the PHA. Concurrently, whole blood is incubated in the absence of stimulant for the purpose of assessing basal ATP activity.

*Continued on page 2*

*Continued from page 1*

The CD4+ cells are then lysed to release intracellular ATP and the concentration of ATP (ng/mL) is measured.

The following ranges may be used to characterize the cellular immune function of the sample:

ATP Level (ng/mL)	Result
≤ 225	Low Immune Cell Response
226 – 524	Moderate Immune Cell Response
≥ 525	Strong Immune Cell Response

For questions about this assay, please contact Ike Northern, Microbiology/Serology Manager at (937) 297-8334 or [william.i.northern@questdiagnostics.com](mailto:william.i.northern@questdiagnostics.com).

## Quality Patient Result Series Quality Specimen Handling

*by: Lisa Barnhart, Quality Assurance*

CompuNet Clinical Laboratory utilizes a variety of Quality Assurance mechanisms to ensure and maintain the quality of every specimen - from receipt in the lab until the results report to our client. In this “Quality Patient Results Series” article, we continue to pursue techniques which will provide a quality specimen for optimum testing. In addition to quality specimen collection techniques, there are several steps involved in the specimen handling process that could affect the patient’s results in varying degrees depending on the test ordered.

### 1. Order of Draw

Cross contamination of tube additives can occur when multiple tubes are drawn from a single venipuncture. Collecting tubes in a specific order avoids cross contamination. Order of Draw Reference Cards are available through your marketing representative.

The following order of draw is recommended from Clinical and Laboratory Standards Institute (formerly NCCLS).

#### ORDER OF DRAW:

- BLOOD CULTURES
- LIGHT BLUE
- SST/TIGER TOP TUBES
- RED TOP
- GREEN TOP TUBES
- PST TUBES (LIGHT GREEN)
- LAVENDER TOP TUBES
- GRAY TOP TUBES
- ANY OTHER TUBES

The information is also found inside the front cover of the pocket size **Directory of Service**; or at [www.compunetlab.com](http://www.compunetlab.com) under “Test Literature/ Miscellaneous Information/ Order of Draw.”

### 2. Full Draw and Proper Mixing

Studies have found that less than a full draw with any tube type may affect certain analytes. It is preferred to always collect full draws. (Blue top sodium citrate tubes are not acceptable unless they are completely full). As each tube is filled with blood it is important to gently invert it immediately to ensure uniform mixing of the blood with tube additives.

The recommendations are as follows:

- Serum Tubes – invert specimen five times
- Light Blue Sodium Citrate Tubes – invert specimen 3-4 times
- Other Anti-coagulant Tubes - invert specimen 8-10 times

Mixing or pouring-over of blood from one collection tube to another (even the same color) is **strictly prohibited** and will cause erroneous test results and compromise patient safety. The additive in the tubes is specific to the volume of blood that can be drawn into the tube. The blood/additive ratio will not be appropriate if two tubes are pored together.

*Continued on page 3*

*Continued from page 2*

### 3. Specimen Labeling

Another specimen handling step that is extremely important in quality results is accurate specimen labeling. And by using a standard procedure when labeling patient specimens – it will help prevent human errors.

A recommended specimen labeling procedure includes the following steps:

- a. All tubes must be labeled at the time of collection in front of the patient.
- b. Ask patient to spell their full name as you label the tubes (please include full name).
- c. Compare name on tubes with spelling on orders.
- d. Write the date and time of collection on tubes. (Every month CompuNet receives 75 - 100 specimen lab orders with a collection date other than the date received in the lab. Having the collection date on the specimens is an effective specimen integrity check to determine the actual collection date and specimen quality).

### 4. Centrifugation & Specimen Storage Temp

The CompuNet **Directory of Services** provides the proper specimen handling instructions for each test within the [Alphabetical Listing of Tests](#). This includes: centrifugation; pour-offs (labeled with patient identification and specimen type); and maintaining temperature requirements for specimen stability. Keep in mind with the cold weather approaching, it is especially important to be aware of temperature conditions and protect specimens placed in a lock box for courier pick-up. (See the Handling of Specimens in Cold Weather reminder at the end of this issue).

Our Directory of Service and our website [www.compunetlab.com](http://www.compunetlab.com) are good resources. Remember that laboratory results that best reflect the clinical picture of the patient are a direct result of the partnership of quality specimen collection, quality specimen identification, quality specimen handling, and quality specimen testing.

## Communicating to You

The purpose of the Quality Update is to provide you – our customer - with current information about our laboratory. However, the Quality Update is only one method. Our Sales Representatives, Technical Staff, Client Services, Information Resources, Billing, Couriers and a plethora of other departments and individuals are all willing to talk with you and answer any of your questions.

Another great source of information is our website: [www.compunetlab.com](http://www.compunetlab.com). Our site contains great links to assist your office practice and also your patients. Directory of Service changes, Testing updates, Billing changes, Patient Service Center hours, Search site, etc. etc. are available on-line. Set up our website link [www.compunetlab.com](http://www.compunetlab.com) as a shortcut on each of your desktops and your staff will be able to easily find the most current updates. Be sure to check it out – you'll also see the latest Quality Update posted.

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## 2009 CPT Code Changes

The American Medical Association (AMA) has made CPT code changes in the 2009 edition of the AMA Current Procedural Terminology (CPT) coding manual.

CompuNet Clinical Laboratories will be implementing these changes effective January 1, 2009. Overall, the changes for 2009 affect the way we bill some of our tests. The chart attached lists the tests affected and the appropriate CPT code changes.

Please do not hesitate to call your CompuNet Clinical Laboratories Sales Representative with any questions or concerns you may have regarding CPT code changes. Thank you very much for using CompuNet Clinical Laboratories for your laboratory testing needs.

*(See insert)*

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<b>CompuNet Clinical Laboratories Test Name</b>	<b>CompuNet Clinical Laboratories Order Code</b>	<b>2008 CPT Codes</b>	<b>NEW CPT Codes Effective 1/1/2009</b>
Cytochrome P450 2D6 Genotype	10490	83891, 83900, 83892 x2, 83909, 83914 x8, 83912	83891, 83900, 83892 x3, 83909, 83914 x8, 83912
Familial Adenomatous Polyposis FAP Screen	10623	83891, 83892 x4, 83894 x4, 83898, 83900, 83901 x8, 83909 x30, 83912	83891, 83892 x4, 83894, 83898, 83900, 83901 x8, 83909, 83912
Human Platelet Antigen 1 Genotype	10707	83891, 83894 x2, 83898 x2, 83912	83891, 83894, 83898 x2, 83912
Cytochrome P450 2C9 Genotype	11294	83891, 83900, 83892 x2, 83909, 83914 x2, 83912	83891, 83900, 83892 x3, 83909, 83914 x2, 83912
Plasminogen Activator Inhibitor-1 (PAI-1) 4G/5G Polymorphism	11368	83891, 83898, 83892 x2, 83909, 83914, 83912	83891, 83898, 83892 x3, 83909, 83914, 83912
Prader-Willi/Angelman Syndrome, DNA Methylation Analysis	11369	83891, 83892, 83894 x2, 83900, 83912	83891, 83892, 83894, 83900, 83912
von Willebrand Factor Protease Activity with Reflex to Protease Inhibitor	14532	85247	85397
CAH (21-Hydroxylase Deficiency) Common Mutations	14755	83891, 83900, 83901 x2, 83894, 83892 x2, 83909, 83914 x11, 83912	83891, 83900, 83901 x2, 83894, 83892 x3, 83909, 83914 x11, 83912
MSH2 Mutation, One Exon, HNPCC	14981	83891, 83892, 83898, 83909, 83904, 83912	83891, 83892 x2, 83898, 83909, 83904, 83912
MSH6 Mutation, HNPCC	14982	83891, 83892, 83898 x18, 83909 x18, 83904 x18, 83912	83891, 83892 x2, 83898 x18, 83909, 83904 x18, 83912
MSH6 Mutation, One Exon, HNPCC	14983	83891, 83892, 83898, 83909, 83904, 83912	83891, 83892 x2, 83898, 83909, 83904, 83912
MLH1 Mutation, One Exon, HNPCC	14984	83891, 83892, 83898, 83909, 83904, 83912	83891, 83892 x2, 83898, 83909, 83904, 83912
MLH1 and MSH2 Mutations, HNPCC	14986	83891, 83892, 83898 x40, 83909 x40, 83904 x40, 83912	83891, 83892 x2, 83898 x40, 83909, 83904 x40, 83912
Cystic Fibrosis D1152H Mutation Analysis	15335	83891, 83898, 83892 x2, 83909, 83914, 83912	83891, 83898, 83892 x3, 83909, 83914, 83912
Alpha-1 Antitrypsin (AAT) Mutation Analysis	15340	83891, 83900, 83892, 83909, 83912	83891, 83900, 83892 x2, 83909, 83912
Hereditary Pancreatitis, Mutation Screen	15383	83890, 83892 x2, 83898 x2, 83904 x4, 83909 x4, 83912	83890, 83892 x2, 83898 x2, 83904 x4, 83909, 83912

<b>CompuNet Clinical Laboratories Test Name</b>	<b>CompuNet Clinical Laboratories Order Code</b>	<b>2008 CPT Codes</b>	<b>NEW CPT Codes Effective 1/1/2009</b>
Dihydropyrimidine Dehydrogenase (DPD) Gene Mutation Analysis	15538	83891, 83898, 83892 x2, 83909, 83914, 83912	83891, 83898, 83892 x3, 83909, 83914, 83912
Achondroplasia Mutation Analysis	16061	83891, 83892 x2, 83909, 83914, 83900, 83912	83891, 83892 x3, 83909, 83914, 83900, 83912
Maple Syrup Disease (MSUD) Mutation Analysis (Ashkenazi Jewish)	16067	83891, 83892 x2, 83909, 83900, 83901, 83914 x3, 83912	83891, 83892 x3, 83909, 83900, 83901, 83914 x3, 83912
Glycogen Storage Disease Type Ia Mutation Analysis (Ashkenazi Jewish)	16069	83891, 83892 x2, 83909, 83900, 83914 x2, 83912	83891, 83892 x3, 83909, 83900, 83914 x2, 83912
Epidermal Growth Factor Receptor EGFR Mutation Analysis TK Domain	16091	83891, 83892, 83898 x7, 83909 x7, 83904 x7, 83912	83891, 83892, 83898 x7, 83909, 83904 x7, 83912
ras Mutation Analysis, Cell-based	16128	83891, 83898 x3, 83909 x6, 83904 x3, 83912	83891, 83898 x3, 83909, 83904 x3, 83912
KRAS Mutation Analysis	16510	83891, 83898 x2, 83892 x2, 83909 x4, 83904 x4, 83912	83891, 83898 x2, 83892 x2, 83909, 83904 x4, 83912
Xsense(TM), Fragile X with Reflex	19757	83891, 83900, 83909, 83894, 83912 If Capillary Electrophoresis performed: 83892 x2, 83909 x8, 83900 x4. If Southern Blot performed: 83891, 83892, 83894, 83897, 83896	83891, 83900, 83909, 83894, 83912 If Capillary Electrophoresis performed: 83892 x2, 83909 x4. If Southern Blot performed: 83891, 83892 x2, 83894, 83897, 83896
c-kit Mutation Analysis, Cell-based	19961	83891, 83898 x5, 83892 x5, 83904 x10, 83909 x10, 83912	83891, 83898 x5, 83892 x5, 83904 x10, 83909, 83912
Hereditary Hemochromatosis DNA Mutation Analysis	35079	83891, 83900, 83892, 83909, 83912	83891, 83900, 83892 x2, 83909, 83912
MEN2 and FMTC Mutations, Exons 10, 11, 13-16	36587	83891 x2, 83898 x6, 83892, 83909, 83904 x6, 83912	83891 x2, 83898 x6, 83892 x2, 83909, 83904 x6, 83912
T-Cell Receptor Gene Rearrangement, PCR/TTGE	37270	83890, 83894 x2, 83898, 83912	83890, 83894, 83898, 83912
TPMT Genotype	37742	83890, 83900, 83892, 83896 x4, 83912	83890, 83900, 83892 x2, 83896 x4, 83912



**Happy Holidays** from all of us at  
**CompuNet Clinical Laboratories!**



## **Reminder of Handling of Specimens in Cold Weather**

Winter is almost here so remember to take additional precautions for specimens that are placed in CompuNet lockboxes that are located on the exterior of buildings.

- Bring the lockbox in the building when not in use. Having the box at room temperature when placed outside will provide additional time before the specimens might be compromised.
- Wrap the samples in newspaper or other insulating material. Again this will keep the samples protected from the freezing temperatures for a long period of time.
- Place the lockbox outside at the very last minute - the less time samples are exposed to the cold the better.

We make every effort to pick samples up from the lockboxes as quickly as possible; however the snow, ice and cold weather can make it difficult to get around the Miami Valley as quickly as we might like. These simple precautions will go a long way to ensure the quality of the samples and thus the quality of the results obtained

