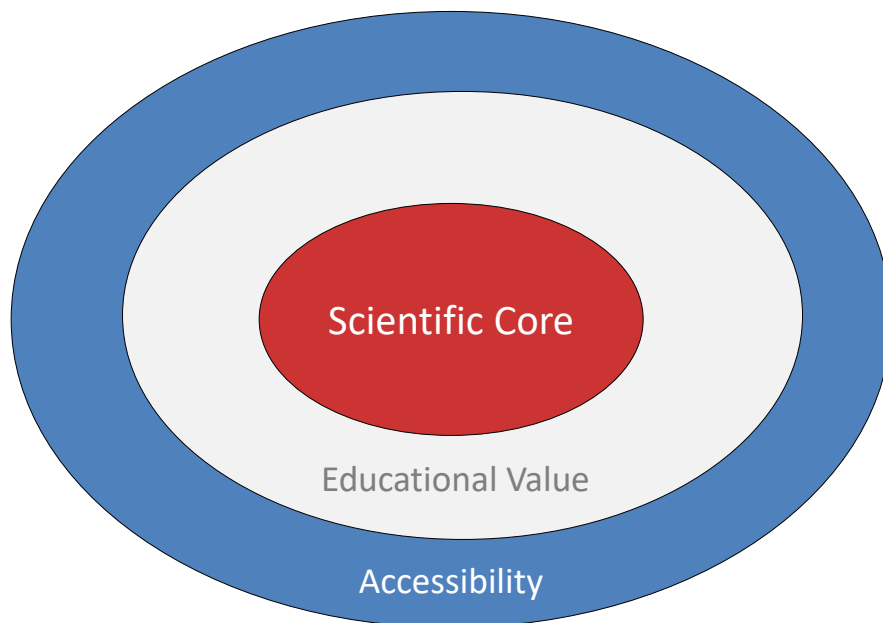


Clinical Chemistry Educational Initiatives

Nader Rifai
Boston Children's Hospital
Harvard Medical School

Reach of Clinical Chemistry



- *Clinical Chemistry* Trainee Council (CCTC)
- NEJM Knowledge+/AACC Learning Lab



Welcome to the **CCTC** | **AACC**
 Clinical Chemistry Trainees Council

The Clinical Chemistry Trainees Council serves as a unique program for residents and fellows in laboratory medicine by providing them with free educational materials and interactive tools to help and guide them to a successful career.

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Clinical Chemistry Trainees Council Question Bank assists trainees in preparation for board examinations in both the United States and United Kingdom. The program is also useful to those wishing to assess their knowledge, progress, and competency.

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Challenges in Blood Group Alloantibody Detection: The Antibody Screen (0013/0238)

Christopher A. Tormey, MD
 Yale University School of Medicine, VA Connecticut Healthcare System

[Index](#) [Thumbnail](#) [Search](#) [Transcript](#)

1. Introduction
2. Non-ABO Alloimmunization: Clinical Significance
3. Transfusion Fatalities Reported to the FDA
4. Morbidity & Mortality Related to Challenges
5. Alloantibody Evanescence
6. Alloantibody Evanescence (cont'd)
7. Evanescence: A Function of Assay Sensitivity
8. Evanescence: A Function of Assay Sensitivity
9. Transfusion Record Fragmentation
10. How Often Do Patients Seek Transfusion a
11. Alloantibody Discrepancies
12. Mixed Alloimmunization
13. Mixed Alloimmunization (cont'd)
14. Conclusions About Challenges to Alloantib
15. How to Overcome Antibody Detection Chal
16. References
17. Disclosures/Potential Conflicts of Interest
18. Thank You



PEARS OF LABORATORY MEDICINE

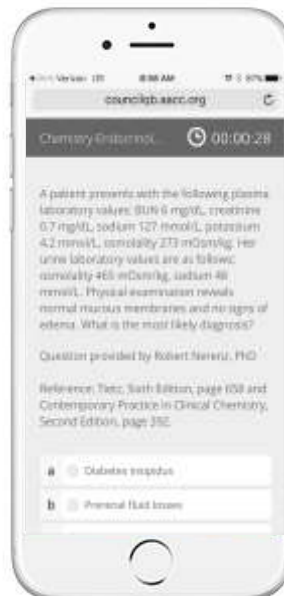
Challenges in Blood Group Alloantibody Detection: The Antibody Screen

Christopher A. Tormey, MD

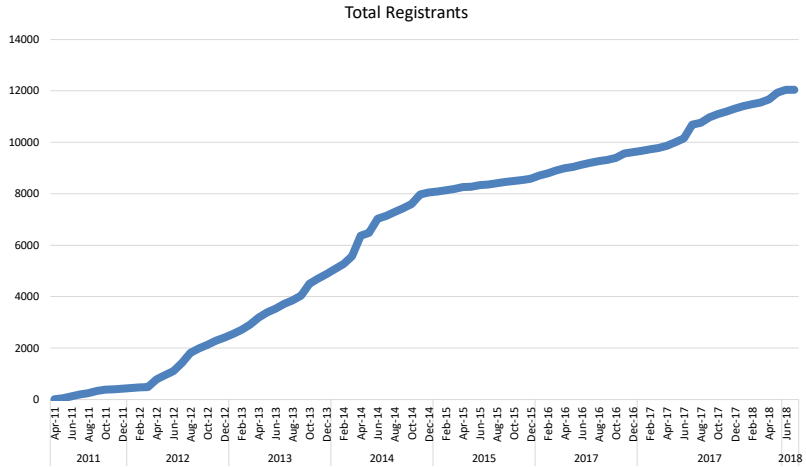
Yale University School of Medicine
 VA Connecticut Healthcare System

DOI: 10.15428/CCTC.2015.256370

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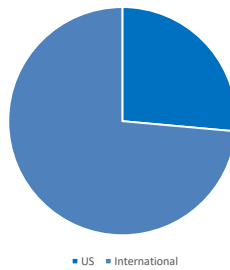
CCTC Registrants Growth



9

CCTC Registrants*

Country	Members
United States	2590
India	926
Egypt	798
United Kingdom	671
Brazil	571
China	373
Philippines	330
Spain	275
Pakistan	193
Mexico	167



*Top 10 Country Membership

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To register:

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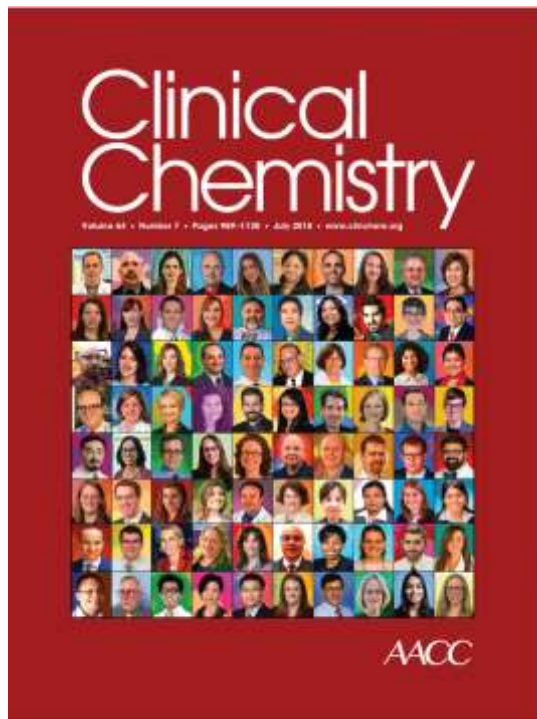
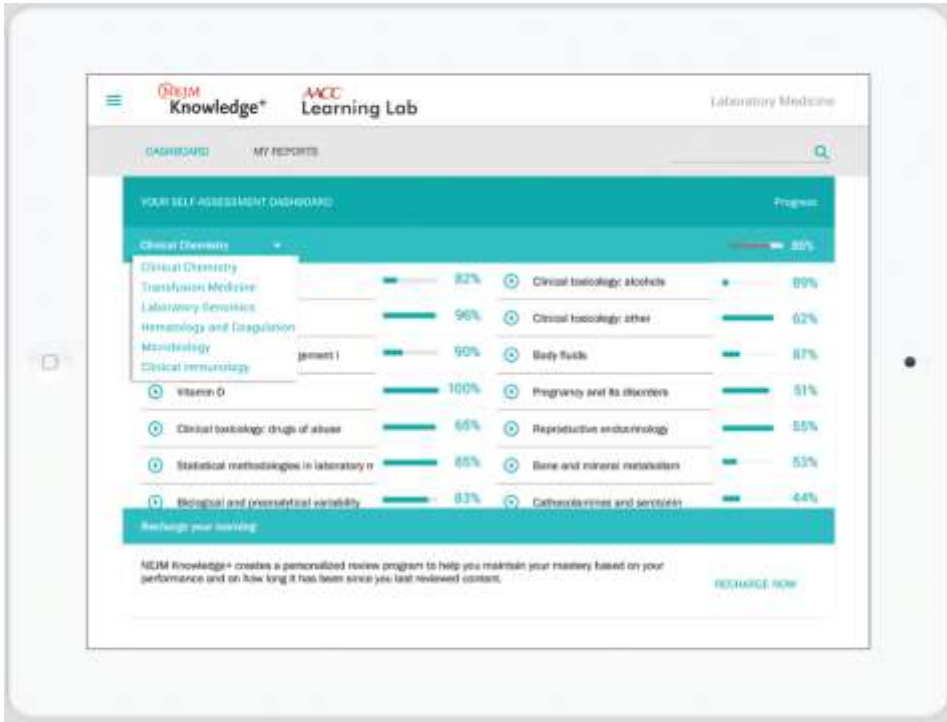
Clinical
Chemistry

13

Traditional Learning

Versus

Adaptive Learning








- ⊕ Structure of the Thyroid Gland and Thyroid Hormones
- ⊕ Regulation of Thyroid Hormone Synthesis
- ⊕ Transport and Action of Thyroid Hormones
- ⊕ Initial Evaluation of Thyroid Disease
- ⊕ Hypothyroidism
- ⊕ Thyrotoxicosis
- ⊕ Thyroid Cancer
- ⊕ Thyroid Hormones in Nonthyroidal Illness
- ⊕ Normal Physiological Changes in Thyroid Function During Pregnancy
- ⊕ Thyroid Disease During Pregnancy
- ⊕ Thyroid Hormone and Autoantibody Measurement Methods



- ⊖ Structure of the Thyroid Gland and Thyroid Hormones
 - Recall the Shape of the Thyroid Gland
 - Identify the Location of the Thyroid Gland
 - Define Heterotopic Thyroid Tissue
 - Describe the Prevalence of Individuals With Heterotopic Thyroid Tissue
 - Recall the Population in Which Heterotopic Thyroid Tissue is Most Common
 - Rank Selected Organs in Terms of Blood Supply
 - List the Two Main Thyroid Cell Types
 - List the Principal Hormones Secreted by the Thyroid Gland
 - Describe the Primary Role of Thyroid Follicular cells
 - Describe the Primary Role of Thyroid Parafollicular Cells
 - Identify the Functional Unit of the Thyroid Gland
 - Recognize the Cellular Composition of Thyroid Follicles
 - Define the Location of Parafollicular Cells Within the Thyroid Follicle
 - Describe the Colloid
 - List the Steps in Thyroid Hormone Synthesis
 - List the Amino Acid That Composes the Backbone of Thyroid Hormones
 - Recognize the Structure of T₄
 - Summarize the Structure of T₃




Laboratory Medicine

Which set of laboratory values is consistent with subclinical hyperthyroidism?

Click the answer you think is right.

FT4 within the reference interval and decreased TSH

TSH within the reference interval and elevated FT4

TSH within the reference interval and decreased FT4

FT4 within the reference interval and elevated TSH

Do you know the answer?

I know it

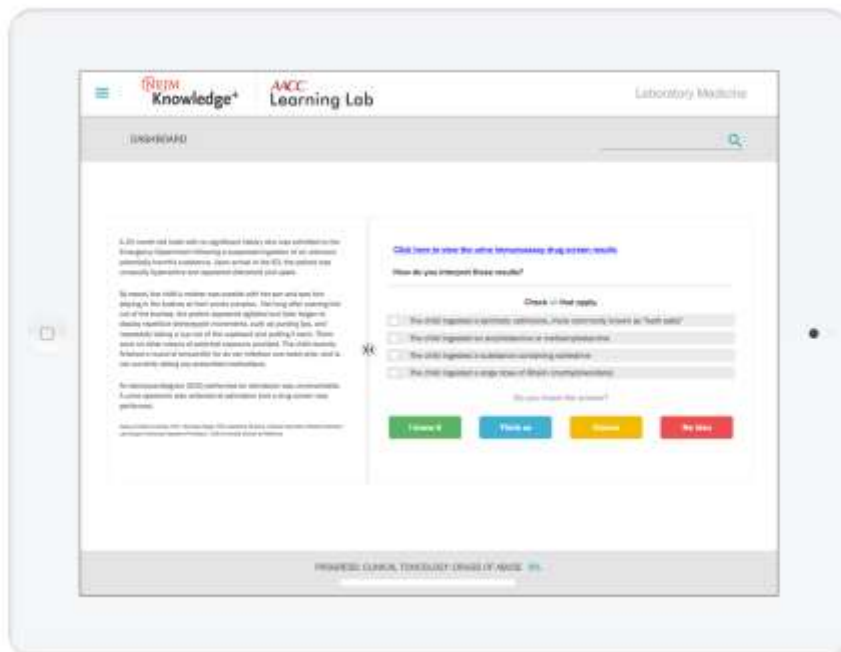
Think so

Unsure

No idea

[Skip questions](#)

PROGRESS: 100%



REIM Knowledge+ AACC Learning Lab Laboratory Medicine

88849HFD

You obtain the following Serum Protein Electrophoresis results. The specimen came from an elderly patient with a long history of rheumatoid arthritis.



Substrate: Immobilon, Total protein: 8.0, T 2 g/dL, Serum A 1.2, A 1.8 g/dL, Alpha 2 0.4, B 0.8 g/dL, Beta 0.8, G 1.0 g/dL, Gamma 0.4, T 2 g/dL

Based on further information than what is in the image, how would the result be interpreted?

Click the answer you think is right.

The pattern is abnormal.

Polymonal gammopathy is noted.

Normal results as clinical circumstances.

Multiple clones abnormally in noted.

Do you know the answer?

Know it Think so Unsure No idea

88849HFD SERUM PROTEIN ELECTROPHORESIS, Q4

REIM Knowledge+ AACC Learning Lab Laboratory Medicine

88849HFD

Match the pattern to the Serum Protein Electrophoresis fraction where it is usually found.

Drag each item into the appropriate category. Click on an item to send it to the back of the stack.

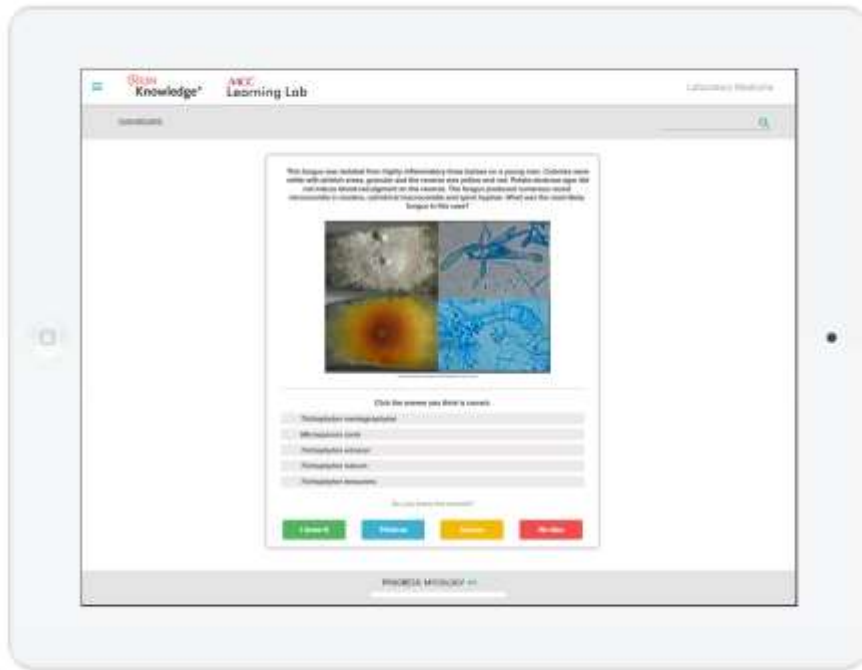
Intermittent

Alpha 1	Alpha 2	Beta	Gamma

Do you know the answer?

Know it Think so Unsure No idea

88849HFD SERUM PROTEIN ELECTROPHORESIS, Q4



DR003492

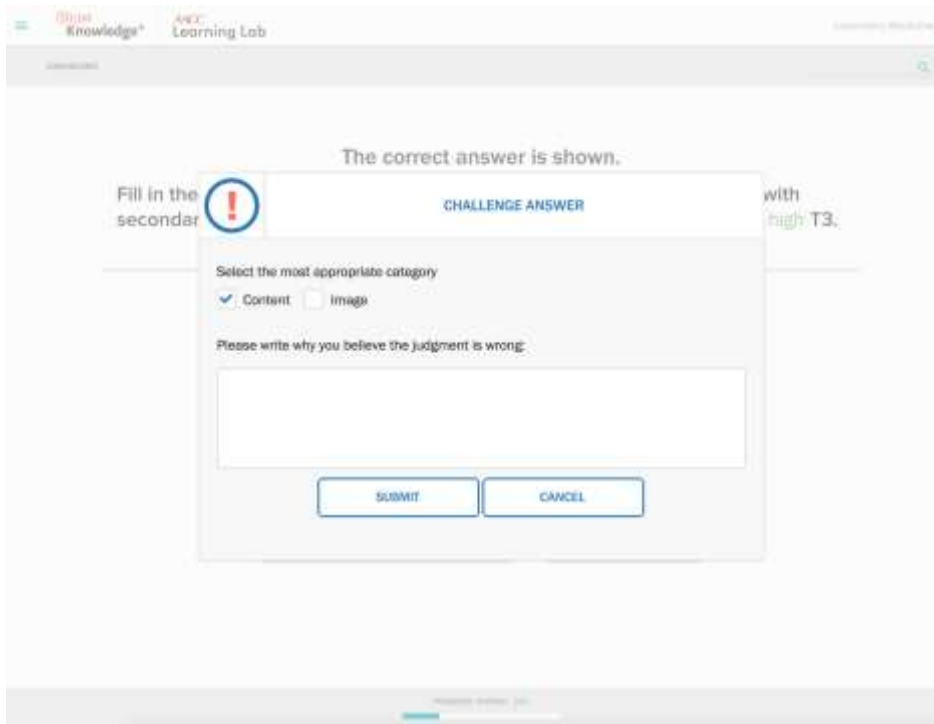


Reverse T3 (rT3) is formed by deiodination of T4 by Type 3 deiodinase (D3).

rT3 is typically considered an inert metabolite but it may have some nonclassical activity. As an adaptive response to illness, rT3 concentrations are increased in nonthyroidal illness in order to decrease the amount of T4 converted to T3.

Biological Role of rT3

GIVE FEEDBACK
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- Assess competency (Individual & institutional-based)
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- Multilingual

**As Representatives of National Societies
You Can Help by:**

- Disseminate information about these programs locally and regionally
- Encourage your trainees to take advantage of the CCTC, a free resource
- Incorporate these materials in your local training programs
- Publicize the IFCC Newsletter's articles describing these features among your members