



Tosoh Inc

News and Information from Tosoh Bioscience, Inc.

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Update: Hemoglobin A1c as a Tool for Diagnosis

The ADA is recommending the addition of the Hemoglobin A1c (HbA1c) test for use in the diagnosis of diabetes and identifying pre-diabetes. It is estimated that 57 million people have pre-diabetes and 1.6 million new diagnoses are made every year. The test measures a person's average blood glucose levels over a period of up to three months, and until now, had been used only to determine how well people were controlling their diabetes over time. This has a significant benefit over current diagnostic tests, like FPG (Fasting Plasma Glucose) and the OGTT (Oral Glucose Tolerance Test). Both of these tests require overnight fasting which can be a burden for patients and only represents a short timeframe.

Under previous recommendations, a person without diabetes would have an HbA1c result of about 5%. Under the new recommendations, an HbA1c of 5.7-6.4% would indicate that blood glucose levels were in the pre-diabetic range, meaning higher than normal but not yet high enough for a diagnosis of diabetes. A diabetic diagnosis would occur once levels rose to an HbA1c measurement of 6.5% or higher. David Sacks, a leading diabetes expert, states that "accurate assays with minimal bias and low imprecision are essential to avoid misclassifying individuals" and "accuracy will be particularly important near the diagnostic thresholds of approximately 6%–7%." Clinicians recommend that diabetics maintain a goal of keeping HbA1c levels at or below 7%.



G8 HPLC Analyzer

The Tosoh G8 is ideally positioned to meet this new standard recommendation, based on the high quality measurement of HbA1c and Tosoh's high regard among diabetes testing thought leaders. Incorporating a high level of precision (coefficient of variance of <2%) with the Tosoh G8, a lab can be confident that the result produced is more accurate, which is critical when dealing with results in the 6-7% window. Using HbA1c analysis instead of traditional glucose testing, patients will be more

inclined to get tested without fasting, which in turn could reduce the number of new patients who convert from pre-diabetic to diabetic status.

Sacks, David B. "The Diagnosis of Diabetes Is Changing: How Implementation of Hemoglobin A1c Will Impact Clinical Laboratories." *Clinical Chemistry* 55:9 1612–1614 (2009)

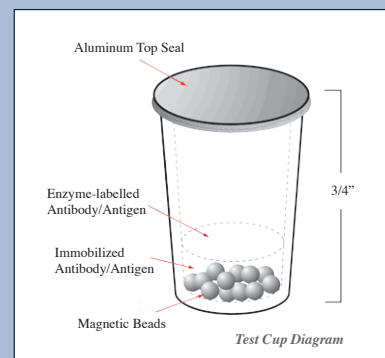
"ADA Recommends A1C as Diagnostic Test for Diabetes" *Clinical Lab Products, CLPrime* 2010 January 6 http://www.clpmag.com/clprime/2010-01-06_01.asp

News Brief: "ADA Endorses HbA1c for Diabetes Diagnosis" *Clinical Laboratory News*. February 2010, Vol. 36, No. 2. - <http://www.aacc.org/publications/clin/2010/February/Pages/newsbrief0210.aspx>

Calibration Curve Stability Extended on Most Tosoh Assays to 90 Days

Tosoh Bioscience, Inc. has announced that calibration curve stability for most Tosoh AIA assays has been extended to 90 days. Improved calibration curve stability is made possible through Tosoh's AIA-Pack Unit Dose Test Cup reagent technology.

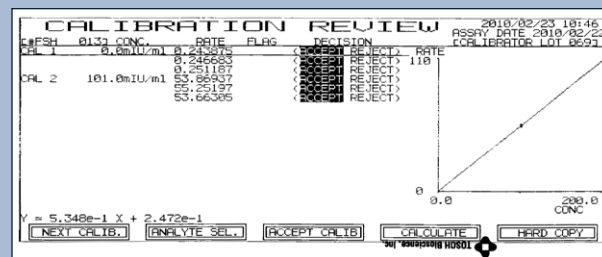
Tosoh's AIA-PACK test cups are single, unitized cups that utilize a dry reagent format which requires no pre-mixing, no pre-measuring, no on-board refrigeration and no waste. The test cup format is used on all Tosoh



AIA automated immunoassay analyzers, including the AIA-2000 (200 tests per hour), AIA-1800 (180 tests per hour), AIA-600 II (60 tests per hour), and AIA-360 (36 tests per hour).

One aim of extending calibration stability is to improve accuracy, as results are more consistent over time using the same calibration. In addition, reducing the frequency of calibration helps laboratories to reduce overall costs and the technologist's time. Using the new calibration curve stability

(see Calibration Curve Stability)



ST FSH Calibration Curve, AIA-600II

AIA Case Study: ST AIA-PACK Insulin

A customer called in with the case of a 7 month old female with confirmed type I diabetes and persistent hypoglycemia. The baby was admitted to the hospital and the doctors believed that it was due to an insulin overdose. This was proven with a high insulin serum level (33 uIU/mL) during a hypoglycemic event (BG = 29 mg/dL). The baby's C-peptide was undetectable, so her hyperinsulinemia was suspected as the result of an overdose.



The doctor wanted to know if the Tosoh ST AIA-PACK Insulin detected any of the insulin analogs like Glargine, Aspart or Lispro insulin. (Glargine insulin is Lantus® from Aventis Pharmaceuticals, Aspart Insulin is Novorapid® from Novo Nordisk Pharmaceuticals and Lispro is Humalog® from Eli Lilly.)

The ST AIA-PACK Insulin detected all 3 insulin analogs and the results were provided to the doctor. This information helped the doctors determine if this was a case of Munchausen syndrome by proxy. Munchausen by proxy is a syndrome that involves a parent abusing their child by deliberately making them sick and misleading medical professionals into providing unneeded medical treatment.

TBI Tech Talk

With your new Calibration stability, do I have to wait to re-calibrate to make the change?



Dr. John Murphy
Senior TBI Manager
Technical Support

It is not necessary to wait to change the specifications and the calibration will be extended to 90 days from the date of the initial calibration. Please note that expired calibrations will appear as void and the expiration cannot be extended once void. The expiration will occur at the very end of the 90th day. Please refer to the Technical Information sheet that accompanied your notification of calibration stability change.



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Tosoh Provides New A1c Control, Better Cost Savings and Higher Quality

Tosoh is pleased to announce a new Hemoglobin A1c control material (P/N 220232) which offers high quality chromatography, along with long term storage and stability. This item replaces the previous control material (P/N 992133). Here is a comparison chart showing the improved features of the new Hemoglobin A1c control:

A1c Control Comparison	Current Hemoglobin A1c control (P/N 99133)	New Hemoglobin A1c control (P/N 220232)
Number of vials	4 (of each level; 2 levels)	4 (of each level; 2 levels)
Reconstitution volume	0.5 mL (500 µL)	0.25 mL (250 µL)
Incubation period	5-10 minutes at room temperature	15 minutes at room temperature
Dilution	1:40	1:150
Uses per kit	80	200
Open vial stability	5 days	60 days
Shelf life stability	30 months	36 months
Aliquot stability	-20°C for 21 days	-15°C for 4-6 months

In addition to the improved stability, the control chromatography mimics patient samples. Most importantly, with this new control formulation, the amount required will be 2.5 times less than the previous Tosoh Hemoglobin A1c control. For example, if 10 kits/year of the previous control were purchased, now only 4 kits of the new control are needed. This translates into cost savings for the laboratory.

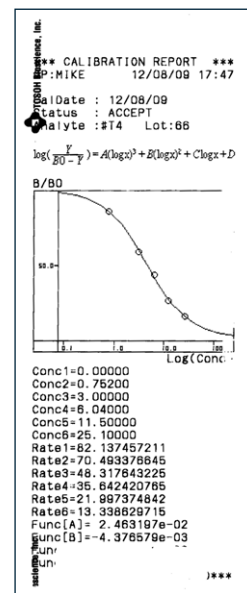
If you have questions please call your Tosoh Bioscience, Inc. System Sales Specialist or Tosoh Technical Support at 1-800-248-6764.

Calibration Curve Stability

(continued)

requirements, a lab running 12-16 AIA assays, which previously had 30 or 60 day calibrations, could now save between \$5,000-\$7,000 per year in reagent costs. This improvement to calibration stability gives Tosoh a strategic advantage over other immunoassay systems that still require calibration runs every 30 days or even every 2 weeks.

All of Tosoh's AIA-PACK assays now carry the 90 day calibration curve stability, **with the exception of Troponin I, B12 and Folate**. These three analytes will continue to have a 30 day calibration curve stability.



ST T4 Calibration Curve, AIA-360