



GX | G8 | G11

PERFORMANCE ON ALL FRONTS
TOTAL PEACE OF MIND



Tosoh Automated Glycohemoglobin Analysers **Better diagnostics for better living**

TOSOH BIOSCIENCE



BETTER DIAGNOSTICS FOR BETTER LIVING



RELIABILITY IS IN OUR BLOOD

Ever since it was founded in Japan in 1935, the Tosoh Corporation has built a reputation for quality and performance in the chemical industry. With our Tosoh Bioscience division, we have positioned ourselves in medical diagnostics with a twofold ambition: provide healthcare professionals with the most reliable and accurate glycosylated haemoglobin instruments on the market, so that patients live serenely with their diabetes. Quite simply.

Better diagnostics for better living is a strong promise that we deliver through stringent demands in terms of quality, precision and service. Because when life is at stake, only excellence counts.

PROBLEM

DIABETES IS SPREADING, GLOBAL HEALTH AND HEALTHCARE COSTS ARE SUFFERING

Undiagnosed cases embody the undetected but clinically significant burden of diabetes, with significant concurrent metabolic derangements and a long-term impact on health care.³

TOSOH- BETTER DIAGNOSTICS FOR BETTER LIVING

04

HbA_{1c} TESTING AND MONITORING USING HPLC

Diabetic Population in 2017



424.9 M¹

Quality of Life



Every 30''

A LOWER LIMB IS AMPUTATED
AS A CONSEQUENCE
OF DIABETES¹

Quality of Life

A DIABETIC IS
2 TO 3 TIMES MORE LIKELY TO SUFFER
FROM CARDIOVASCULAR DISEASES
AND 10 TIMES MORE LIKELY TO HAVE
END-STAGE RENAL DISEASE

Projected cases by 2045

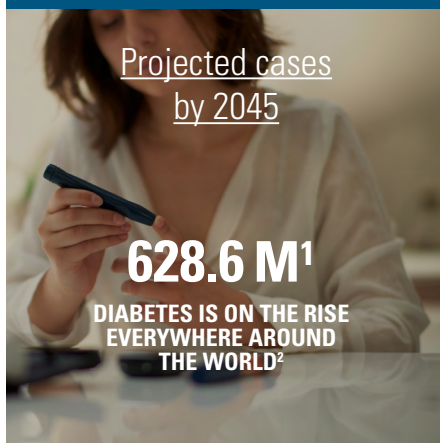
628.6 M¹

DIABETES IS ON THE RISE
EVERYWHERE AROUND
THE WORLD²

Undiagnosed cases

212 M¹

CASES WORLDWIDE OF UNDIAGNOSED
DIABETES (ESTIMATED)
1 OUT OF EVERY 2 DIABETIC ADULTS
IS UNDIAGNOSED



| 1 - International Diabetes Federation. IDF Diabetes Atlas, 8th edn. Brussels, Belgium | 2 - Global Report on Diabetes, World Health Organisation 2016
| 3 - T. Kue Young and Cameron A. Mustard, Undiagnosed Diabetes: Does it Matter? | CMAJ 2001; 164(1) : 24-8

Mortality



3.7 M deaths²

**DUE TO DIABETES AND HIGH
BLOOD GLUCOSE**

SOLUTION

ACCURATE GLYCATED HAEMOGLOBIN MONITORING IS VITAL TO REDUCING COMPLICATIONS



Measuring Glycated haemoglobin using high performance liquid chromatography (HPLC) provides the most effective mechanism for monitoring the effectiveness of diabetes therapy.

HbA_{1c} REVEALS THERAPY EFFICACY

Consulting a patient's haemoglobin level is the best way to monitor diabetes therapy.

- According to the European Society of Cardiology and the European Association for the Study of Diabetes Guidelines: Glycated haemoglobin (HbA_{1c}), a useful measure of the efficacy of glucose-lowering treatment, is an integrated summary of circadian blood glucose during the preceding 6-8 weeks, equivalent to the lifespan of erythrocytes.
- The test can be performed at any time of the day. No fasting required.

HPLC PROVIDES THE COMPLETE PICTURE

Several hundred abnormal forms of haemoglobin exist. They are mostly uncommon and clinically insignificant, but they can interfere with HbA_{1c} measurement.

- HPLC technology separates the different haemoglobins fractions. Knowing the haemoglobin status of patients is important for making appropriate clinical decisions.
- Laboratories using HPLC therefore provide valuable additional information to clinicians for adjusting therapy safely.
- More complete information leads to better patient care.

THE BENEFITS OF EFFECTIVE MONITORING

Reduced
Healthcare
Costs

Receding
health
complications

Better
Patient
follow up

Excelling
clinical
decisions

Improved
results
consistency

Upgraded
laboratory
efficiency



Choose the best solution to keep KPIs under control and guarantee cost efficiency and quality



Keeping HbA_{1c} under control reduces the insurgence of diabetes related complications as cardiovascular disease among others



Certainty of reported values for coherent follow up



Accurate laboratory results enable healthcare professionals to make knowledgeable choices

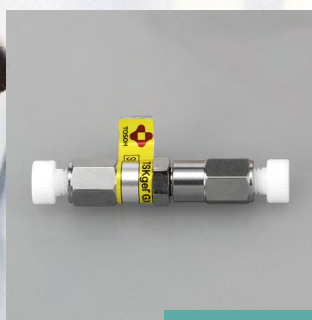


Choosing the best technology prevents result incongruity and reduces confirmation testing



Accurate results, flexible workflow, increased throughput, less errors, advanced staff management

TRUST THE PIONEER IN CHEMICAL SEPARATION



1983 • TSKgel®



1997 • G5

At Tosoh Corporation, we applied our long experience in chemical separation to pioneering a resilient and reliable HPLC solution for your laboratory.

AN ESTABLISHED COMPANY WITH CHEMICAL EXPERTISE

- Founded in Japan in 1935. Over 12,000 employees in 19 countries.
- Global chemical company: US\$7.7bn in sales across five groups. Tosoh chemicals are in manufactured items all around us.
- Our extensive knowledge in chemical separation led us to pioneer HPLC technology for in-vitro diagnostics.
- All our diagnostic instruments, chemical reagents and columns are produced in-house.

WORLD-LEADING HPLC EXPERIENCE

- Since 1983, Tosoh has been producing chromatograph columns, media and advanced HPLC automated systems.
- Our unique TSKgel® column is the market reference for haemoglobin fractions separation.
- Our ion-exchange chromatography makes it possible to separate different haemoglobin fractions (A1a, A1b, F, L-A1c, s-A1c and A0) and reveal the presence of possible anomalies that might affect A1c results.
- Our method is robust, reliable and efficient.



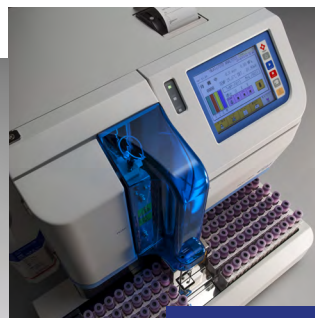
2002 • G7



2007 • G8



2011 • GX



2015 • G11

CHOOSE THE REFERENCE IN ACCURATE HPLC HbA_{1c} TESTING

By providing clinicians with the complete picture of a patient's Hb profile, your lab takes part in improving overall patient outcomes.

STANDARDISED, PRECISE, CONSISTENT RESULTS

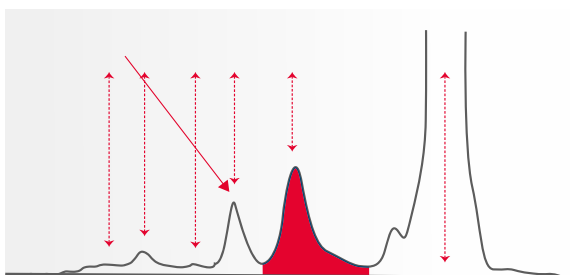
- Tosoh's HPLC gives a fully accurate result when compared to methods that provide measurements as a result of mathematical algorithms.
- TSKgel® provides high resolution at high flow rates, for excellent productivity.
- Your lab provides better quality results to clinicians.

SEE WHAT TRULY MATTERS

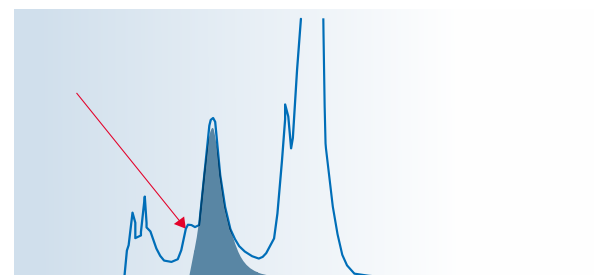
- The chromatogram displays the real status of a patient's blood sample and its Hb fractions, providing a full picture.
- It assists in identifying unknown profiles in new patients, offering further support to clinical decision-making.
- Clinicians have more complete information on which to base their decisions and adjust therapy accordingly.

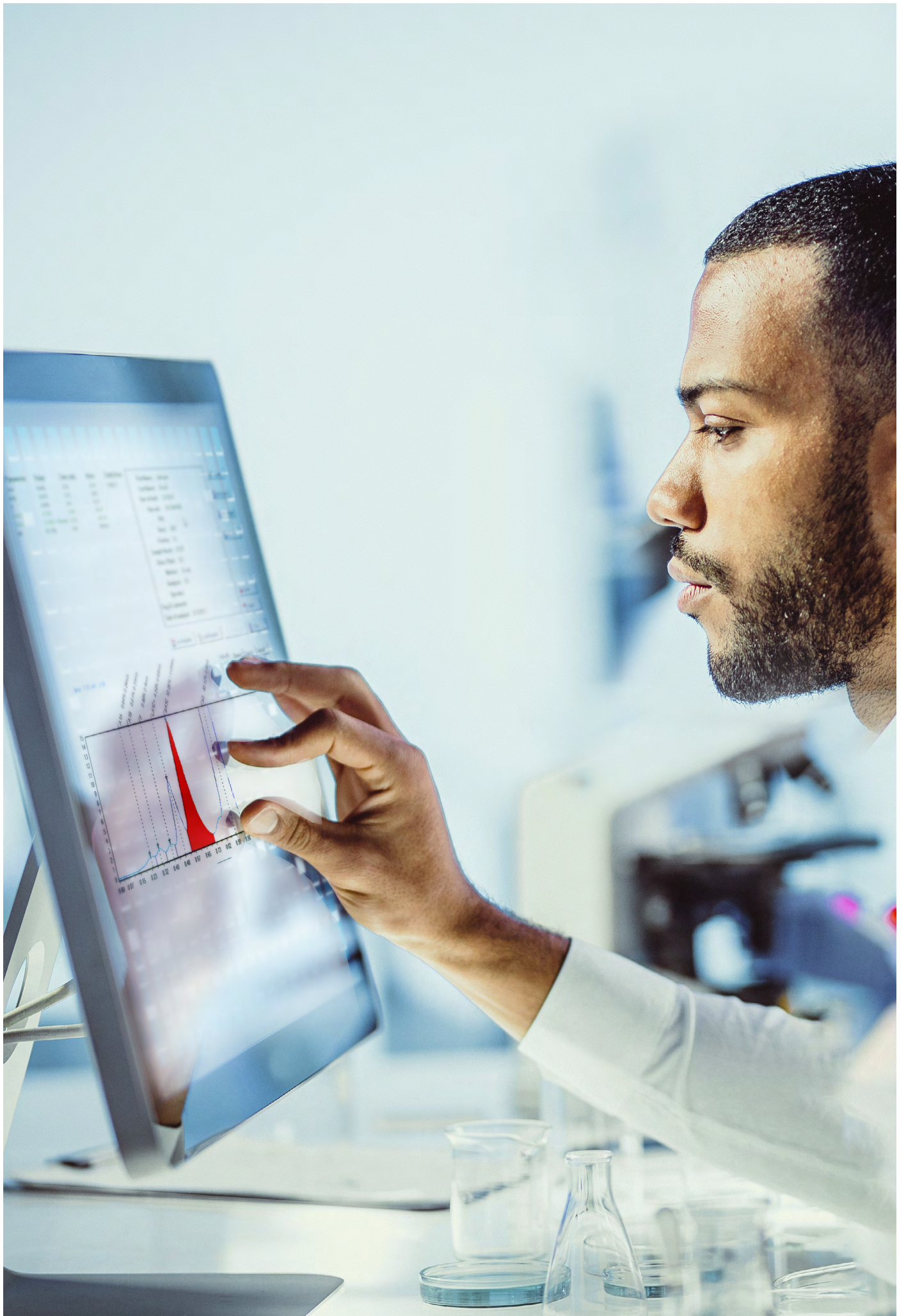
REAL HbA_{1c} FRACTION SEPARATION COMPARED TO MATHEMATICAL ALGORITHM CALCULATION

EXAMPLE OF TOSOH HbA_{1c} AREA CALCULATION



EXAMPLE OF COMPETITORS' HbA_{1c} CALCULATION
BASED ON A MATHEMATICAL ALGORITHM





A woman with dark, wavy hair, wearing a white lab coat, is smiling slightly and looking towards the camera. She is in a laboratory or clinical setting, with various pieces of equipment and shelves visible in the background. The lighting is bright and even.

MASTER
YOUR DIABETES
TESTING
WITH TOSOH'S
35 YEARS
OF EXPERTISE

TOSOH IS YOUR ROBUST AND EXPERT PARTNER

From productivity to connectivity, we are committed to providing added value to your laboratory.
With Tosoh, you make a direct impact on patient care.

- Tosoh is the HPLC instrument of choice in the UK, France and Belgium, and among the top three in Germany and Italy ⁴:
 - Wide range of instruments to make your HbA_{1c} testing reliable, simple and productive,
 - Series of scalable solutions from low to high throughput,
 - Efficient laboratory management, including digital tools for middleware, connectivity and interactive results management.
- A reliable partner for productivity needs: peace of mind thanks to proven performance and throughput.
- Improving patient care with a partner that provides complete and precise test results.
- Aligned to high quality standards, supporting your laboratory accreditation needs.

| 4 - EDMA data 2018



**MAKE
THE RIGHT
DECISION
WITH
THE RIGHT
INSTRUMENT**

SCALABLE SOLUTIONS TO MEET ALL YOUR LABORATORY REQUIREMENTS

All instruments are traceable to the National Glycohemoglobin Standardization Program (NGSP) and International Federation of Clinical Chemistry (IFCC).

TECHNOLOGY:

- State of the art HPLC separation of HbA_{1c} among other haemoglobin fractions.
- Tosoh's ability to separate variants allows better interpretation of DCCT/NGSP standardised and aligned results.

LOW COEFFICIENT OF VARIATION (CV):

- Direct determination of stable HbA_{1c} with CV < 2% (IFCC).
- A low CV is the result of lower variability among measurements. Small variability of HbA_{1c} values can impact a patient's journey through screening, diagnosis, therapeutic options assessment, disease management, treatment monitoring and disease progression.

NO INTERFERENCE:

- From HbD, HbS, HbC, HbE, HbF or haemoglobin derivatives such as labile HbA_{1c} and carbamylated or acetylated haemoglobin.

SIMPLE TO USE:

- User-friendly and guided software for a precise and easy-to-use system.
- Automated maintenance, cap piercing and positive sample identification are available as options to reduce hands-on time and increase efficiency.
- Customisable flags and error flag functions avoid risks when reviewing results.



GX

The concentrate
of performance

Compact HPLC expertise
for reliable HbA_{1c} results,
anytime, anywhere

PRODUCTIVITY:

Ideal for small to medium laboratories

SPEED:

Variant mode: 2.2 min/sample



G8

The benchmark of performance

Recognised Tosoh expertise for flexible HbA_{1c} diagnostic workflow

PRODUCTIVITY:

Ideal for medium-sized laboratory processing

SPEED:

- Standard mode: 1 min/sample
- Variant mode : 1.6 min/sample

SCALABLE WORKFLOW INTEGRATION:

Loader for 90 or 290 samples

ADDITIONAL SYSTEM OPTIONS:

STAT option for emergency samples, Buffer consumption customisable alarm and different sample sizes and types loading
Optional connection to Track lines | Possible to load different sample tube sizes

TOSOH CONNECTIVITY SOLUTIONS

501 RP+

5 instruments = 1 middleware

| EVOLINE Manager

Middleware for automation

| Hb Drive

Automated results expertise



G11

Tosoh's greatest performance

Automated HbA_{1c} expertise at the highest level of productivity

PRODUCTIVITY:

Ideal for high throughput laboratories

SPEED:

- Standard mode: 30 sec/sample
- Variant mode: 1 min/sample

SCALABLE WORKFLOW INTEGRATION:

Loader for 90 or 290 samples



THE REASONS TO CHOOSE TOSOH HPLC HbA_{1c} SOLUTIONS

1.

We pioneered automated HPLC testing systems.

All our instruments, reagents and columns are produced in-house.

2.

You deliver standardised, precise and consistent results that are recognised for their reliability.

From small laboratories to a fully automated workflow, you can scale our solutions to your requirements.

3.

You contribute directly in making a positive impact in patient outcomes.

By providing clinicians with the complete picture of a patient's Hb profile.

MONITOR DIABETES THE BETTER WAY.

Tosoh Automated Glycohemoglobin Analysers **Better diagnostics for better living**

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