

INSTAND

Promoting Quality in Medical Laboratories



Volume 2, April 2025

INSTAND NEWSLETTER

Dear Colleagues,

The **IGLD-INSTAND Symposium** in March 2025 was a complete success. We want to take this opportunity to thank all participants and visitors once again for the lively interaction. Greetings from the **ESCMID** - Congress of the European Society of Clinical Microbiology and Infectious Diseases - in Vienna. We will be at our booth at H10 all day today (April 15) and look forward to your visit and conversation.

Our highlights in this issue:

- News about INSTAND EQA Schemes
 - EQA Scheme 7100: Clinical Chemistry - High Frequency
 - Pilot EQA Scheme 752: ctDNA Tumor panel
- Contribution from our EQA Scheme Expert, Dr. Lohr: "The Heterogeneity and Complexity in the Determination of Hemoglobin Concentration in some Hematology EQA schemes of INSTAND e.V."
- INSTAND Calibration Laboratory - COMET EU Project
- INSTAND Academy: Register now for new on-site dates
- Future Events
- New INSTAND employees.

Happy reading!

With kind regards
Your INSTAND Team

Prof. Dr. med. Michael Spannagl
Prof. Dr. rer. nat. Ingo Schellenberg
Prof. Dr. med. Klaus-Peter Hunfeld



The INSTAND TEAM at the IGLD-INSTAND Symposium 2025

INSTAND EQA Schemes

EQA Scheme Clinical Chemistry - High Frequency (7100)

We are pleased to inform you that we have now extended our High Frequency Program EQA scheme 7100 to **40 clinical chemistry measurands**. In the April 2024 issue of our newsletter, we already reported on the new introduction of our EQA scheme based on a monthly external quality control with evaluation against the reference method value for 18 measurands. As before, registration is for a period of 6 months and 12 samples of 5 ml each (6 sample sets with 2 samples each) are sent per registration for monthly participation in the EQA scheme. With the additionally offered measurands in EQAS 7100, which are evaluated at the consensus value, you now have a broad spectrum of clinical-chemical measurands at your disposal, which you can use every month for external quality control. Here is an overview of all the measurements offered in the High-Frequency program:

Measurements:

Calcium	Phosphat	Harnstoff	GGT	IgM
Chlorid	Eiweiss	Kreatinin	GLDH	Osmolalität
Kalium	Albumin	Triglyceride	GOT (ASAT)	Lactat
Natrium	Albumin (Elpho)	Cholesterin	GPT (ALAT)	Pankreas Amylase
Eisen	Gamma-Globuline (Elpho)	Aldolase	HBDH	
Transferrin	Bilirubin	AP	LDH	
Kupfer	Bilirubin konj./dir.	Alpha-Amylase	Lipase	
Lithium	Glucose	Cholinesterase	IgA	
Magnesium	Harnsäure	CK	IgG	

Schedule:

- Registration deadline: 5.30.2025
- Dispatch of Samples: 6.17.2025
- Submission Deadline: from July 2025 on the 7th calendar day of each month
- Evaluation:
 - 2 working days after the closing date
 - 6 monthly certificates and 1 semi-annual certificate

Pilot EQA Scheme 752: ctDNA Tumor Panel

We are pleased to offer you our new EQA scheme 752 (ctDNA tumor panel) on a regular six-monthly basis. The EQA scheme 752 covers the molecular genetic analysis of various genes such as BRAF, EGFR, KRAS, NRAS, ESR1 and PIK3CA.

The pilot EQA scheme is free of charge, and a discount will be applied upon invoicing. Due to limited sample material, we reserve the right to close orders early. You can find more information [here](#).

The corresponding dates are as follows:

- **Registration Deadline:** 4.25.2025
- **Shipping Date:** 6.10.2025
- **Closing Date:** 7.11.2025

THE HETEROGENEITY AND COMPLEXITY IN THE DETERMINATION OF HEMOGLOBIN CONCENTRATION IN SOME HEMATOLOGY EQA SCHEMES OF INSTAND e.V.

An article by our INSTAND EQAS Expert, Dr. Med. Benedikt Lohr,
MVZ for Laboratory Medicine and Microbiology Koblenz-Mittelrhein

The determination of the CBC is one of the most common laboratory medical examinations. The Hb concentration included in the CBC is the product of the erythrocyte count and the Hb content of the erythrocytes. The hemoglobin content per unit of blood volume is measured, so the result depends on the plasma volume.

There are countless invasive and non-invasive methods for determining the Hb concentration, both historical and current, and those under development. Review articles such as Karakochuk et al. contain a non-exhaustive overview.

In the context of the Instand e.V. EQA Schemes 162, 209, 211 and 612/912, the methods briefly described below are particularly worth mentioning:

HiCN method (Cyanhaemoglobin Method)

A defined sample volume is mixed with a defined volume of conversion solution: after hemolysis of the erythrocytes, potassium ferricyanide and potassium cyanide oxidize hemoglobin via hemoglobin (synonym: methemoglobin) to form stable cyanhaemoglobin (HiCN), the absorbance of which is measured photometrically at 540 nm. The method detects almost all Hb variants (except sulphaemoglobin, a rarely occurring dyshaemoglobin). The HiCN method is the reference method. Due to the use of toxic cyanide, among other things, it is usually replaced by cyanide-free alternatives in routine practice.

SLS (Sodium Lauryl Sulphate) Detection Method

In this example of a cyanide-free method, sodium lauryl sulfate first lyses the erythrocytes. After a conformational change in the hemoglobin molecule, oxidation of the divalent iron, and thus the formation of methemoglobin, SLS binds the resulting trivalent iron and forms a stable SLS-Hb color complex with maximum absorption at 555 nm. The absorption level is proportional to the hemoglobin concentration of the sample.

QBC - Quantitative Buffy Coat

In this method, EDTA blood is centrifuged in fluorescence-coated capillaries, whereby cell layers are separated by density. The Hb concentration is calculated via the immersion depth of a float. The method is fast, comparatively simple, requires manageable equipment, and is therefore suitable for field use on ships or military bases. (There are also numerous publications on using the QBC method for diagnosing blood parasites, particularly malaria).

Spectrophotometry in BGA Analyzers

Blood gas analyzers use oximetry, which measures Hb over multiple wavelengths in the visible spectrum and thus distinguishes between different Hb derivatives. After chemical or mechanical lysis of the erythrocytes to avoid scattering processes, the spectrophotometric measurement is carried out, the physical basis of which is the Lambert-Beer law. There is no chemical conversion of the hemoglobin or its derivatives. The concentration of total hemoglobin (tHb) is the sum of oxyhemoglobin (O₂Hb), deoxyhemoglobin (HHb), and the dyshaemoglobins carboxyhemoglobin (COHb), methemoglobin (MetHb), and sulphaemoglobin (SulfHb), whereby most oximeters do not report the latter.

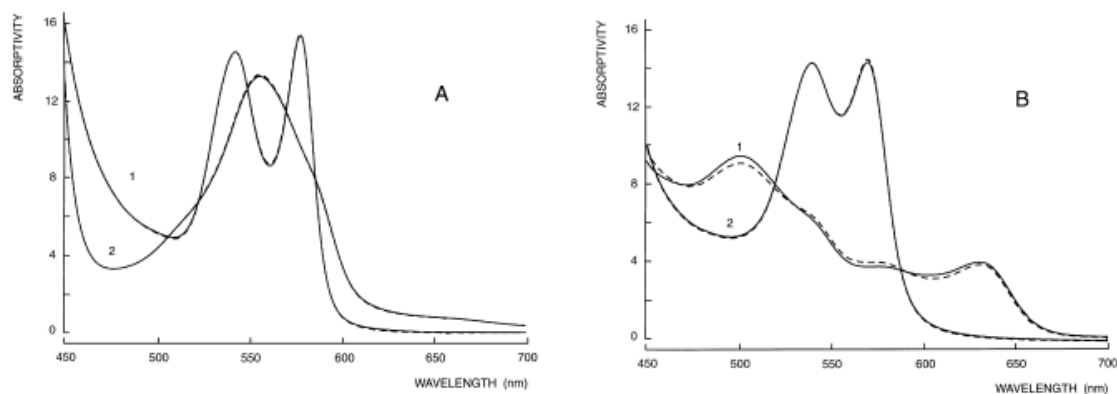


FIG. 1. Absorption spectra of the common derivatives of bovine (—) and human (----) hemoglobin in the visible range. (A) oxyhemoglobin (1) and deoxyhemoglobin (2); (B) methemoglobin (1) and carboxyhemoglobin (2). The absorptivity is expressed in $L \cdot mmol^{-1} \cdot cm^{-1}$.

from Zijlstra and Buursma. 1997. spectrophotometry of hemoglobin: absorption spectra of oxyhemoglobin, deoxyhemoglobin, carboxyhemoglobin and methemoglobin from cattle. *Comp. Biochem. Physiol.*

[Continue reading on the Homepage](#)

INSTAND CALIBRATION LABORATORY - COMET EU PROJECT

We are pleased to be scientifically involved in a major EU project. As a funded partner in the project „Manufacturing of commutable calibrators and quality control materials for standardization and post-market surveillance of IVD tests“ (COMET for short), we are responsible for a variety of tasks in which we will contribute our expertise in the field of EQA schemes and calibration work.

For the EU-funded joint research project under the auspices of the European Association of National Metrology Institutes (EURAMET), European National Metrology Institutes, Designated Institutes, and partners from medicine, science, and industry have joined forces for the COMET project. The 3-year project started in September 2024 and aims to establish and provide the necessary metrological infrastructure, knowledge, and services for in vitro diagnostic (IVD) manufacturers to meet the European requirements of the In Vitro Diagnostic Medical Devices Regulation (IVDR) EU/2017/746.

This year, we will determine target values using reference measurement methods in our calibration laboratory in numerous control materials developed as part of this COMET project. The POCT model we developed to provide commutable EQA material for glucose determination in whole blood using glucose beads (see the newsletter **from July 2024** will also be used in the COMET project.

INSTAND ACADEMY

Spring Awakening at the INSTAND Academy

Easter is approaching, and the INSTAND Academy is awakening from hibernation: All 'standard training courses' are now available to order.

[The dates of the Online Training Pre-Analytics have been set](#)

We would like to thank Dr. Falck, who has passionately supervised the online-training over the past six years, for the great cooperation and wish you all the best and good health. Our new training manager will be Dr. Kappert, whom we warmly welcome to the team.

The training course comprises 20 questions and solutions from various areas of pre-analytics in medical laboratories. It is an in-depth training course for interested persons with prior knowledge in the field of pre-analytics. The solution is presented immediately after each question. This contains detailed expert comments to increase the learning effect.

The training will take place from **05.12.2025 - 05.23.2025** (registration deadline **04.28.2025**) and from **10.27.2025 - 11.07.2025** (registration deadline **10.13.2025**).

For further information and registration, please use this [link](#).

The Online Training on Urine Sediment will take place again

The training comprises at least 8 questions and solutions from various areas of urine sediment analysis and consists of two parts: Part 1 deals with particle identification, as well as pre- and post-analytical questions on urine sediment. Part 2 deals with further diagnoses based on additional medical data provided. You can complete only one or both parts. Each part is evaluated separately. In-depth training for interested persons with previous knowledge in the field of urine sediment.

The training will take place from **06.30.2025 to 07.11.2025** (registration deadline **06.13.2025**) and from **11.10.2025 to 11.21.2025** (registration deadline **10.24.2025**).

Further information can be found [here](#).

FUTURE EVENTS



ESCMID
April 11-15, 2025
Vienna, Austria

Read more [here](#).



Euromedlab
May 18-22, 2025
Brussels, Belgium

Current information can be found [here](#).

WHX Labs Kuala Lumpur
Formerly MedLab Asia

Medlab Asia
July 16-18, 2025
Kuala Lumpur, Malaysia

Read more about it [here](#).

You can find all INSTAND events [here](#).

WE INTRODUCE: NEW INSTAND EMPLOYEES

Please join us in welcoming our new employees:

M.Sc. Jason Benson – Project Management Location Expansion as of February 1st, 2025

M.Sc. Luisa Toll – EQA Evaluation & Development as of March 1st, 2025

The complete INSTAND team can be found [here](#).



INSTAND e.V., Ubierstr. 20, 40223 Duesseldorf, Germany



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