

HumaCount 5D^{CRP}

The 2-in-1 solution – 5-part diff and C-Reactive Protein

- › Distinct 5-part diff
- › Immunoturbidimetric detection of CRP
- › Direct capillary blood process with OptimalCount Technology

Hematology



Human

Diagnostics Worldwide

5-part Diff and CRP

White blood cell differential count in combination with CRP

Benefits of simultaneous 5-part diff and CRP measurement

- > CRP levels in the blood increase when there is inflammation
- > Simultaneous measurement of CRP and WBC parameters may be useful for a differential diagnosis between bacterial and viral infections
- > Better and more accurate assessment of the immune response allows targeted treatment and antibiotic prescription
- > Increased efficiency and faster reporting time: only one sample required and no additional workflow needed for the determination of CRP
- > Reduced number of manual blood smears

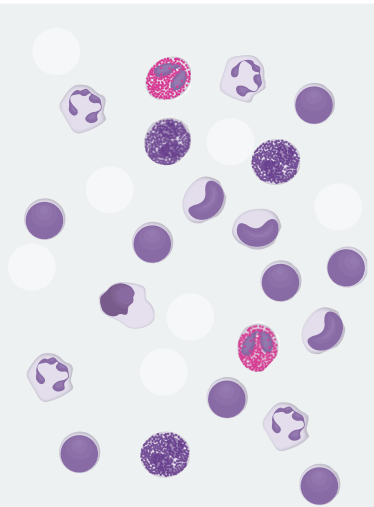





C-Reactive Protein

CRP detection is an aid to the diagnosis of inflammations or infections and can be used for disease and treatment monitoring. It is the preferred test for children since only few µl of blood are needed instead of ml for ESR tests.

«CRP in combination with the WBC parameters can be helpful to distinguish bacterial infection from viral infection.»¹

5-part diff provides a clear picture of the immune status

The WBC differential divides the white blood cells into the 5 major sub-populations. Each cell type provides information about an immune response or a disease type. The measurement of CRP can support a statement regarding viral or bacterial infection.

Leucocytes	Parameter	
	 LYM – Lymphocytes	Viral infections
	 MON – Monocytes	Chronic infections, inflammations
	 NEU – Neutrophils	Stress, bacterial infections
	 EOS – Eosinophils	Parasitic diseases
	 BAS – Basophils	Leukemia, allergies

Importance of EOS and NEU separation for a targeted diagnosis

- > A high number of eosinophils (EOS) indicates a parasitic infection
- > A high number of neutrophils (NEU) indicates a bacterial infection

HumaCount 5D^{CRP}

Innovations you can count on

5-part diff hematology analyzer with CRP

- > Small footprint stand-alone system with integrated PC
- > 32 parameters including CRP
- > Sample volume: 20 µl
- > Up to 60 samples /hour
- > 2D barcode target value transfer

Immunoturbidimetric CRP detection

The reagent kit consists of two reagents for CRP detection. Optimized handling with onboard reagent cooling. Automated hematocrit correction guarantees accurate CRP results.

Distinct 5-part diff

Providing excellent differentiation of NEU, EOS, MON, LYM and BAS, based on 3D scatter technology. Quantitative count and percentage value of large immature cells (LIC), atypical lymphocytes (ALY) and nucleated red blood cells (NRBC).

5-part diff, CBC-count or CRP mode switch

One click option to select full 5-part diff, CBC count and CRP, individually or in combination for each sample. Choose among five testing combinations.

Direct capillary blood process using OptimalCount Technology

Same accuracy compared to venous blood. Total capillary blood volume of 20 µl.



CRP Measurement

Rapid and accurate diagnosis with proven technology

Reliable diagnosis and targeted treatment through CRP measurement

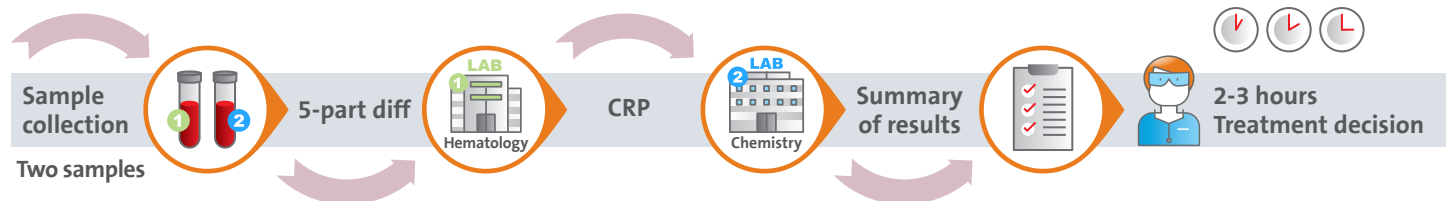
CRP has a fast kinetic and the levels in the blood increase rapidly when a condition causes inflammation. Together with clinical signs, CRP in combination with WBC-differentiation helps distinguish between viral and bacterial infections and avoid the overuse of antibiotics.

«First test, then prescribe! Poor medical prescribing practices can contribute to antimicrobial resistance.»²

Results in less than 15 minutes - for an immediate treatment decision



Conventional time-consuming workflow

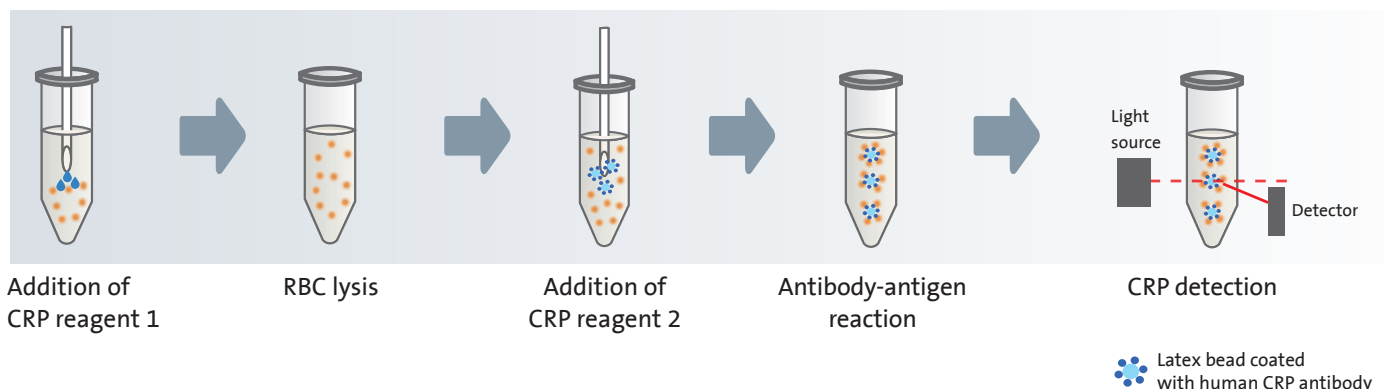


Accurate results with automatic hematocrit correction, efficient workflow with onboard reagent cooling

C-reactive protein whole blood tests must be calibrated so that whole blood CRP levels correlate with the corresponding serum/plasma level to avoid false results in the presence of abnormal hematocrit levels.

The integrated reagent cooling system guarantees maximum efficiency of the workflow, as the reagent flask with CRP antibodies can remain connected to the instrument during the entire open vial stability time.

CRP measurement process



Distinct 5-part Diff

Improved clinical utility

Target diagnosis and treatment with 5-part diff

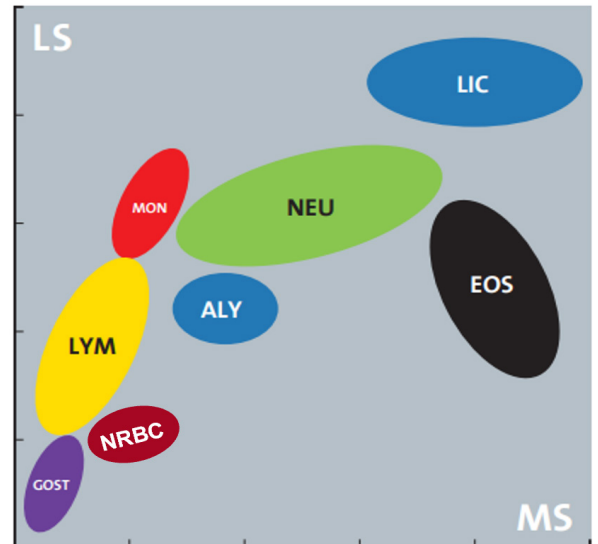
- > Absolute count and percentage of each parameter, NEU, EOS, MON, BAS, LYM with immediate clinical relevance
- > Ability to detect abnormal cells such as LIC and ALY
- > Overcomes the limitations of 3-part systems such as grouping of cell types like MID (MON/EOS) and GRA (NEU/EOS/BAS)

Better differentiation with 3D scatter technology

3-channel laser detection (3D) for:

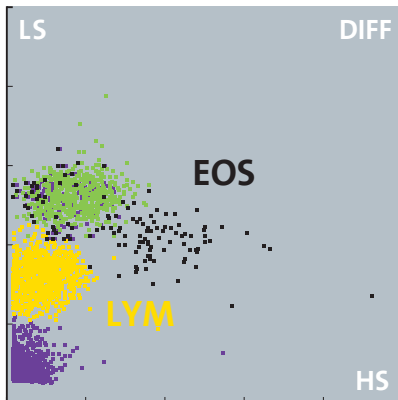
- > Eosinophils (EOS)
- > Neutrophils (NEU)
- > Monocytes (MON)
- > Lymphocytes (LYM)
- > Basophils (BAS)

Scatter diagram with all parameters

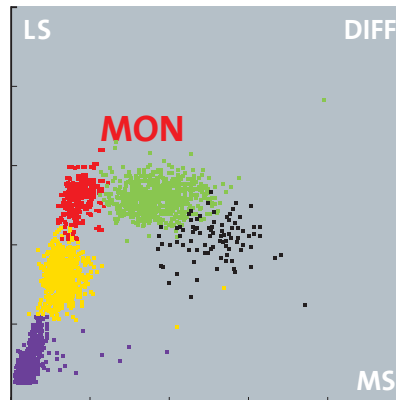


5-part diff and LIC, ALY parameters

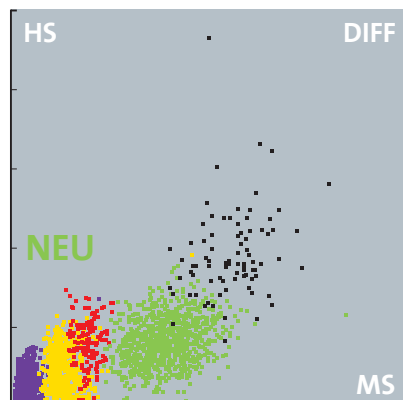
3-channel laser detection for EOS, NEU, MON, LYM



Scatter angle 1

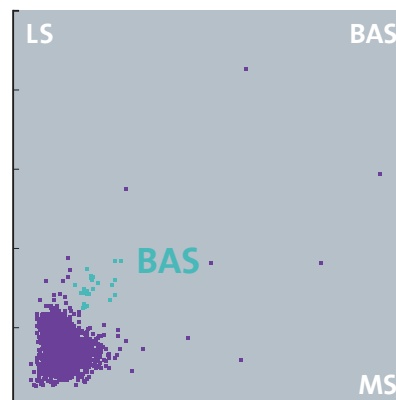


Scatter angle 2



Scatter angle 3

BAS detection channel



Dedicated BAS detection channel

Direct Capillary Blood Process

Easy, less painful results from one drop of blood

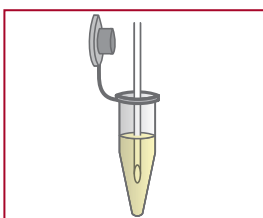
OptimalCount Technology for capillary samples

- > Accuracy as exact as for venous samples
- > Blood volume defined by capillary tube
- > Total sample volume 20 μl and almost no dead volume
- > Dilution defined by auto-diluent dispensing
- > No manual steps needed

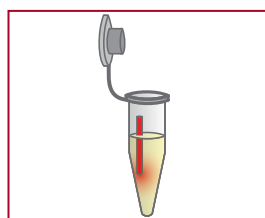


OptimalCount Technology guarantees accuracy as exact as with venous samples, 20 μl sample volume, almost no dead volume, and precise dilution – thanks to auto-dispensing.

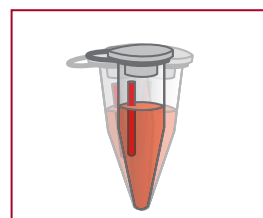
Direct capillary blood process with OptimalCount Technology



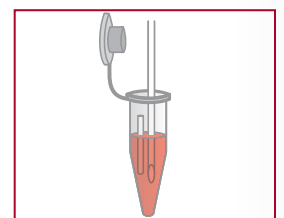
Exact diluent auto-dispensing by analyzer



Blood collection by capillary tube of exactly 20 μl volume

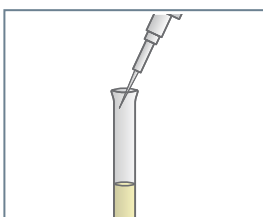


Mix sample

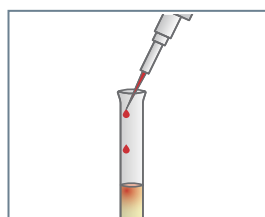


Defined dilution ratio. Automatic aspiration and analysis of the diluted sample

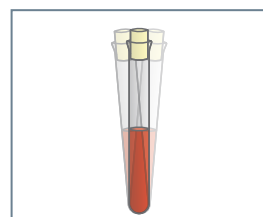
Conventional capillary mode – error prone manual method



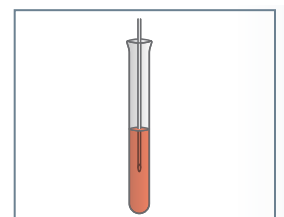
Manual preparation of NaCl solution



Manual suspension of blood sample



Risk of incorrect dilution ratios, insufficient volumes



Aspiration of a small fraction of the diluted sample, further dilution during analysis

Benefits of capillary blood samples

- > No physician needed to collect capillary blood
- > Quick, simple and less painful blood collection
- > Especially beneficial for infants and small children, elderly with fragile veins and severely burned patients
- > Equally suitable for use with children and adults

OptimalCount Technology

Correct dilution ratios due to auto-diluent suspension, blood volume defined by capillary tube, plus a count of ~3000 cells result in high accuracy, normally only possible with venous samples.

Conventional capillary mode

Many error-prone manual steps result in incorrect dilution ratios. A very low number of cells counted in a pre-diluted sample leads to very low accuracy with conventional analyzers.



5-part Diff, CBC-count or CRP Mode Switch

Flexible and efficient with one click

Be flexible with a wide range of testing options

Not every patient sample requires the analysis of all parameters

Increase your flexibility with our one-click option

- > Switch between five testing combinations
5-part diff, CRP and CBC-count for each sample
- > Optimize your costs by reducing your reagent consumption

	CRP	CBC	Diff
Mode 1	✓	✓	✓
Mode 2		✓	✓
Mode 3	✓	✓	
Mode 4	✓		
Mode 5		✓	

Different tube types supported

- > Small and large EDTA primary tubes
- > Bullet tubes / capillary tubes

One-click sample recording - STAT samples require fast action

A new sample is recorded with a one-hand operation. When the sample is positioned under the needle for aspiration, the recording of parameters is started with the same hand by depressing the large red switch.

Automated printout and data transfer via LIS are supported.

HumaCount 5D^{CRP} system reagents

Reagents*

	REF
HC5D-Diluent	16450/10
> Contains 20 l	
HC5D-CBC-Lyse	16450/20
> Contains 200 ml	
HC5D-Diff-Lyse	16450/30
> Contains 500 ml	
HC5D-Clean	16450/60
> Contains 50 ml	
CRP-Reagent Kit	16451/70
> Contains 75 ml R1, 25 ml R2	

* RF card required

Control

	REF
HC5D-Control	16450/40
> Target value upload via 2D barcode	
> 3 level, multi-parameter	
> Contains 2 x 3 x 3 ml	
CRP-Control	16451/40
> 3 level CRP Control	
> Contains 3 x 1.0 ml	

Calibrator

HC-Calibrator	17400/50
> For use on all HUMAN hematology systems	
> Contains 1 x 2 ml	
CRP-Calibrator	16451/50
> 6 level CRP-Calibrator	
> Contains 6 x 0.5 ml	

References

- Peltola V. et al. Comparison of total white blood cell count and serum C-reactive protein levels in confirmed bacterial and viral infections. The Journal of Pediatrics, 2006 Nov; 149(5): 721-724.
- Global Action Plan on Antimicrobial Resistance, WHO, 2015
- Althaus T. et al. Effect of point-of-care C-reactive protein testing on antibiotic prescription in febrile patients attending primary care in Thailand and Myanmar: an open-label, randomised, controlled trial; The Lancet, Vol 7, January 2019#
- M. Woodhead, et al: Guidelines for the management of adult lower respiratory tract infections - Full version; Clinical Microbiology and Infection, 2011 Nov; 17(Suppl 6): E1-E59.

