BC-6800

Auto Hematology Analyzer

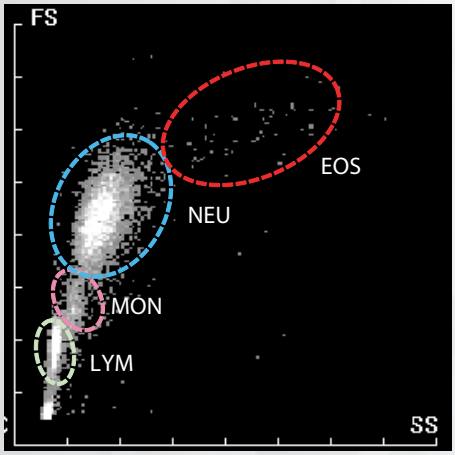
Small Cube, Big Difference

MEDVAL healthcare

mindray
healthcare within reach

Small Cube, Big Difference

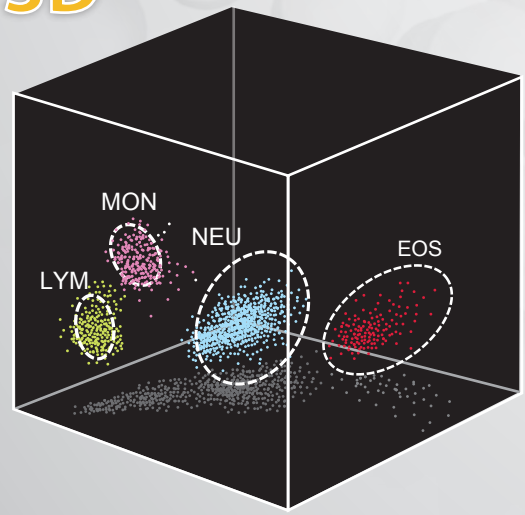
2D



Forward scatter

+ Side scatter

3D



Forward scatter

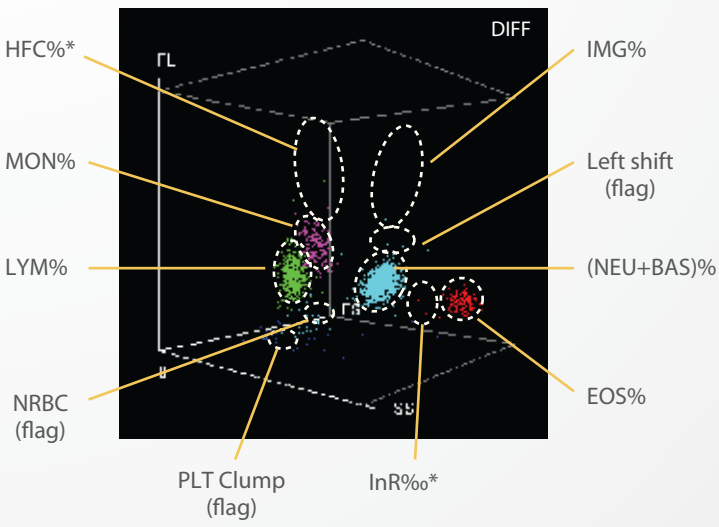
+ Side scatter

+ **Fluorescence**

In 2D scattergram, the cell clusters appear close to each other. Whereas with the 3D scattergram, clusters are well separated which helps in detecting abnormal cells, if any.

Small Cube, Big Difference

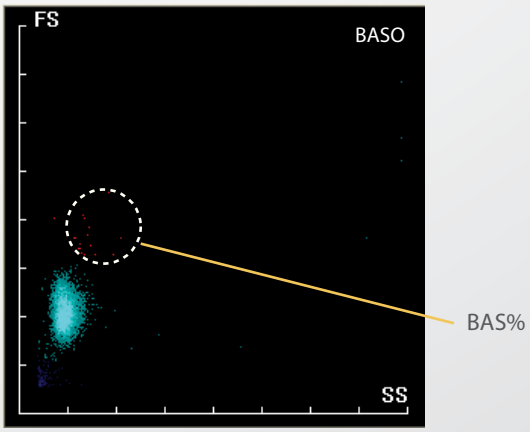
SF Cube
Cell Analysis Technology



DIFF scattergram of BC-6800 differentiates WBCs into 4 parts and also provides valuable parameters like HFC*, IMG* InR* and Abnormal Flags such as Left shift, NRBC, PLT Clump, Atypical Lymphocyte.

IMG(#, %) provide information about the presence of immature granulocytes, if any, including promyelocytes, myelocytes, metamyelocytes, immature eosinophils and immature basophils. BC-6800 extends WBC diff to 6-part, on every sample, by including immature granulocyte.

HFC*(#, %) parameters alert the user of the presence of high fluorescent cell population, if any, such as blasts and atypical lymphocytes.



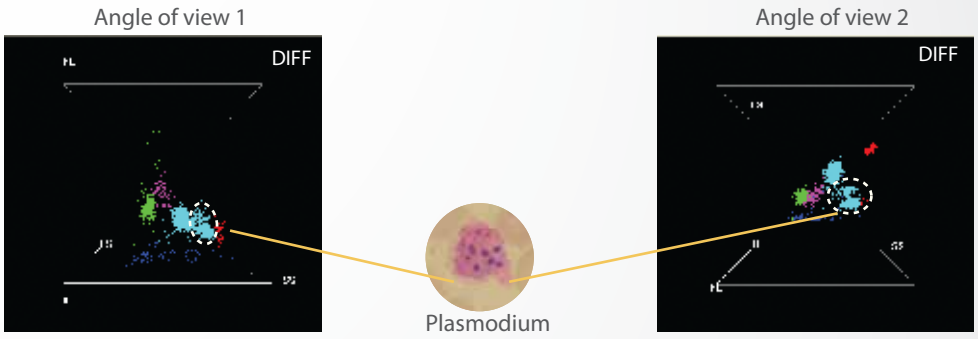
Basophils are counted in a dedicated channel that detects information about cell volume and cellular complexity. This provides more accurate and reliable basophil results.

* For research use only

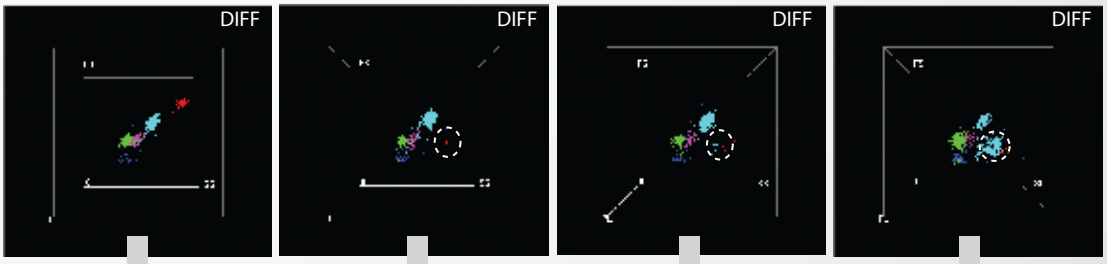
BC-6800

Auto Hematology Analyzer

Malaria screening



BC-6800 provides dedicated flags called “infected RBC?” and “InR*(#,‰)” parameters to represent the number and ratio of the infected red blood cells in the blood sample respectively. BC-6800 users can obtain information about the possible presence of plasmodium parasite, the causative agent of malaria infection.



Normal sample

Few
1-4 infected RBC per 4 microscopy view

Some
2-3 infected RBC per microscopy view

Many
>4 infected RBC per microscopy view

With the rising number of red cells infected with malaria parasites, the number of dots in the "InR" area increases proportionately. This creates the possibility to not only screen but also judge the severity of malarial infection.

Patients with fever → BC-6800“Infected RBC” flag and results → Confirm Malaria by microscopy and/or rapid immuno tests → Malaria treatment → Correct decision helps patient with early recovery

Since blood examination is almost always required for patients with fever, and given the increasingly wider use of automated hematology analyzers, an automated method with good sensitivity & specificity to screen for the presence of malaria parasites would be highly desirable and would prove to be practical and economical as it could lead to eventual detection of malaria even in unsuspected cases. BC-6800 increases the laboratory’s efficiency for malaria detection and facilitates an earlier therapeutic intervention leading to quicker recovery for the patient.

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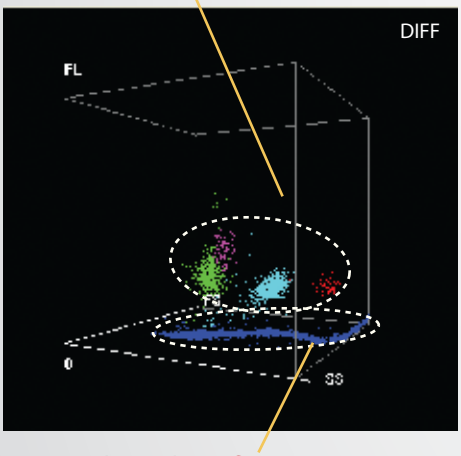
Interference prevention

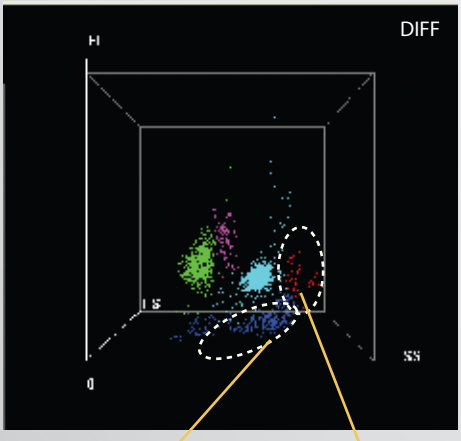
WBC: fluorescence



Lipid particle: no fluorescence

In DIFF scattergram, lipid particles are not stained by fluorescent dye while WBCs are. This difference prevents interference and ensures more accurate WBC results.

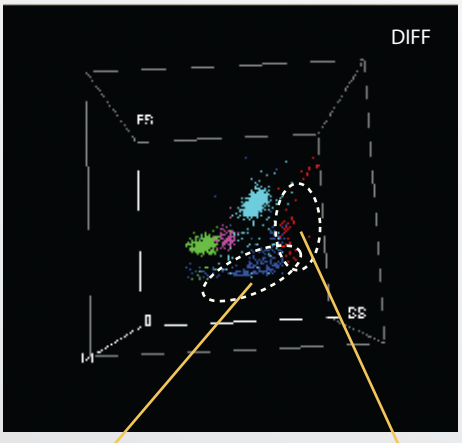
Angle of view 1



The PLT clump seems mixed up with Neutrophil

The PLT clump seems mixed up with Eosinophil

Angle of view 2

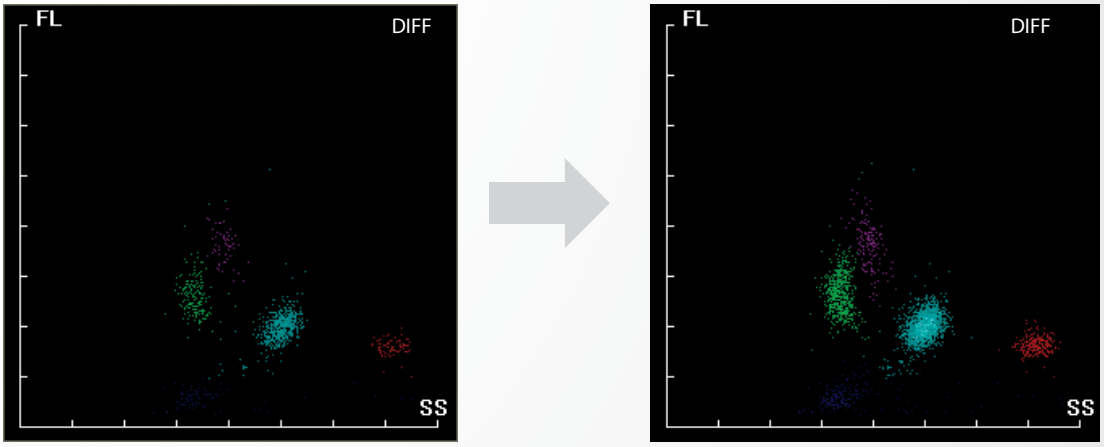


The PLT clump is well separated from Neutrophil

The PLT clump is well separated from Eosinophil

The combination of 3D information helps in the separation of PLT clumps from clusters of WBCs.

Extended count time



Regular count time

Extended count time

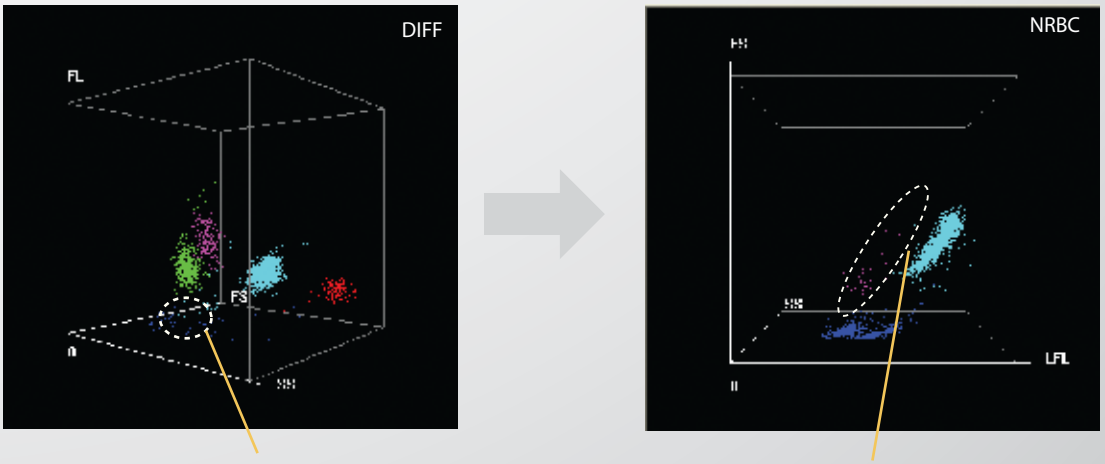
For leucopenic samples (WBC<1.5 x 10^9/ L) or capillary blood samples, BC-6800 is designed to automatically extend count time to 3 folds. This increases the number of cells counted and significantly improves the accuracy and reliability of WBC counts and WBC 5-part differential results.

NRBC flag & detection

In routine CBC test, BC-6800 can flag "NRBC", if they are present in the sample. The actual number of NRBCs can then be measured in a dedicated counting channel to obtain accurate quantitive NRBC#. This helps reduce the cost of counting NRBCs in the samples without the “NRBC” flag.

1st step

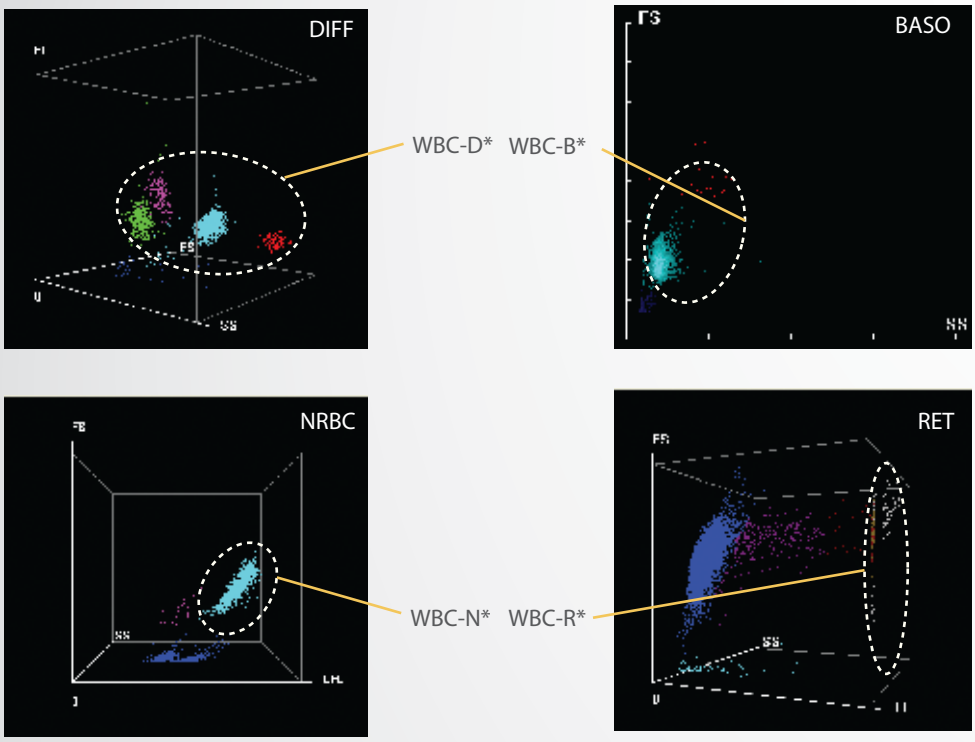
2nd step

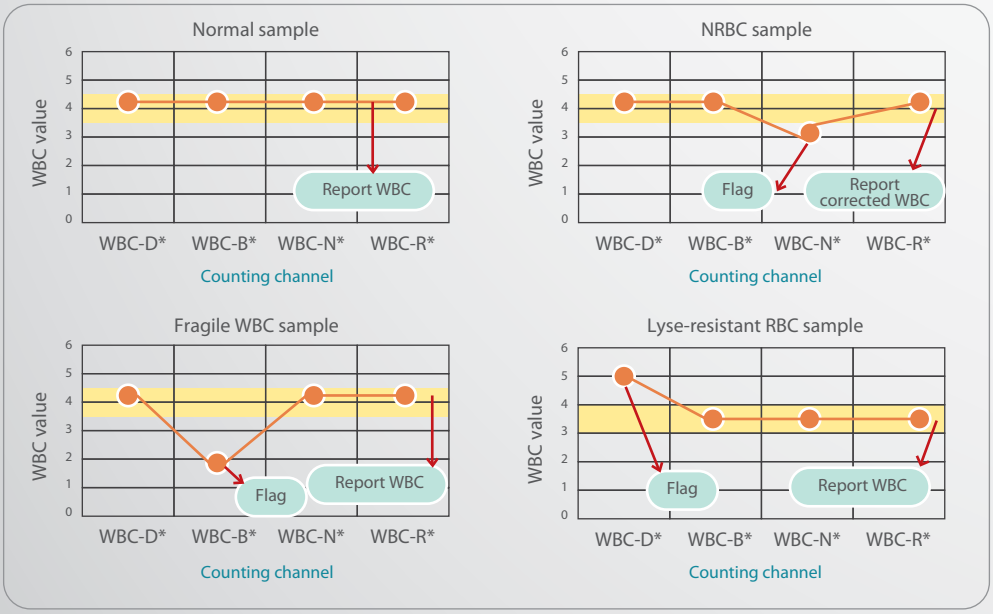


NRBC flag

NRBC counting

4 WBC counting channels





BC-6800 has 4 dedicated counting channels for the WBC measurement to prevent interference caused by the presence of lipid particles, lyse-resistant RBCs, PLT clumps and NRBCs. This increases the reliability of WBC data.

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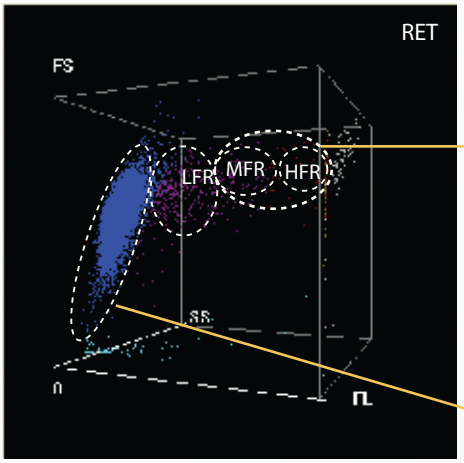
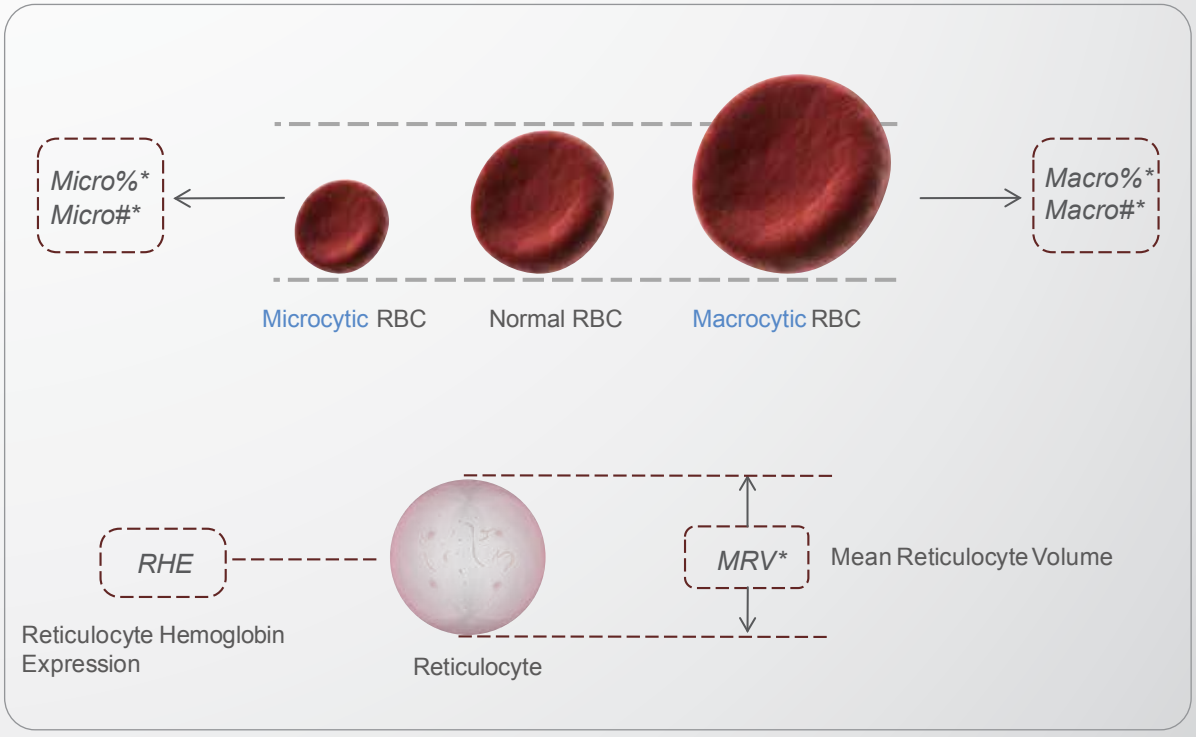
Reticulocyte detection



RBC analysis with SF Cube technology helps differentiation of Reticulocytes from mature red cells by their reaction with fluorescent stain. Besides the conventional parameters such as RET# and RET%, BC-6800 also provides additional data concerning immature reticulocytes (IRF), which assists in early diagnosis of anemia and monitoring the bone marrow response to hematinic therapy.



Micro* (#, %) parameters point to number & % of microcytic (small) RBCs while Macro* (#, %) parameters reflect the number & % of macrocytic (large) RBCs. MRV* parameter represents the mean volume of reticulocyte while RHE parameter indicates the hemoglobin content for reticulocytes.
These parameters provide clues and more clinical information on anemia type, especially while differentiating iron deficiency from other causes of anemia.

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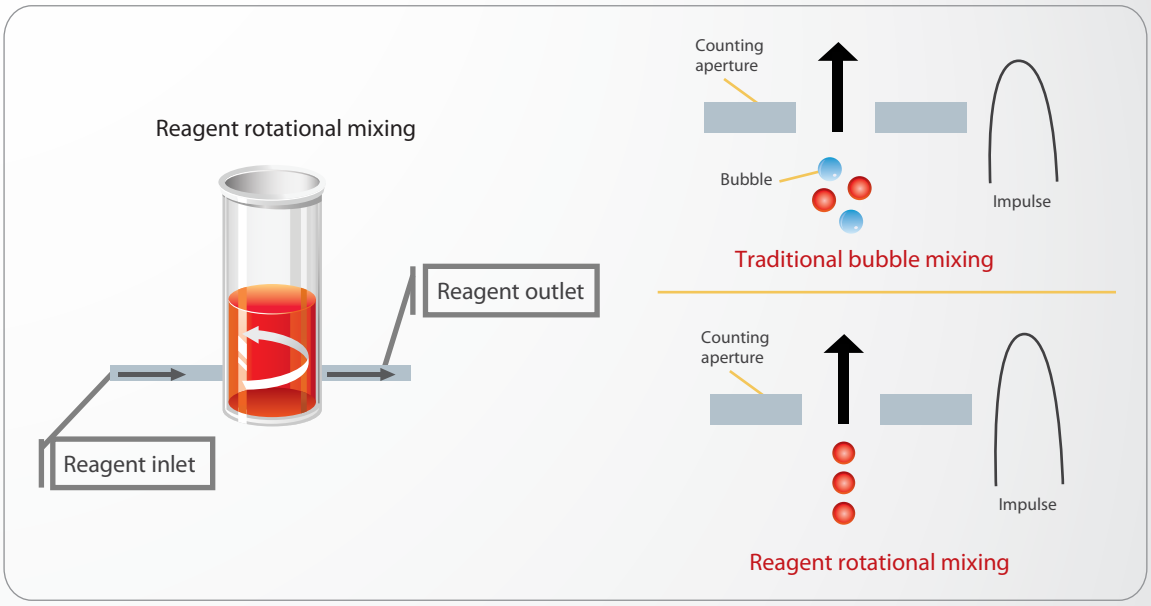
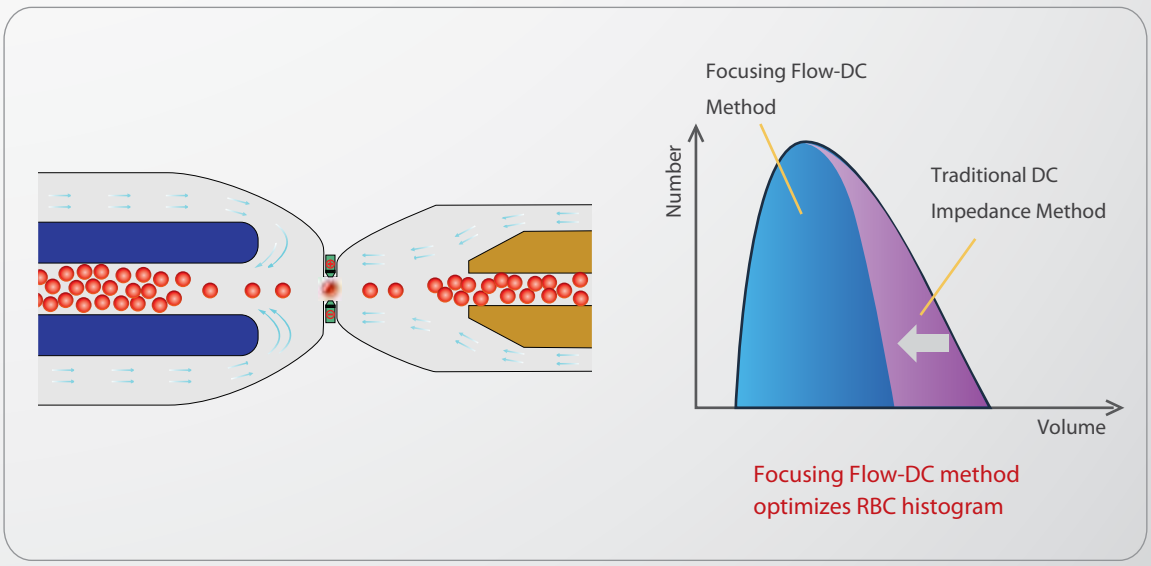
BC-6800

Auto Hematology Analyzer

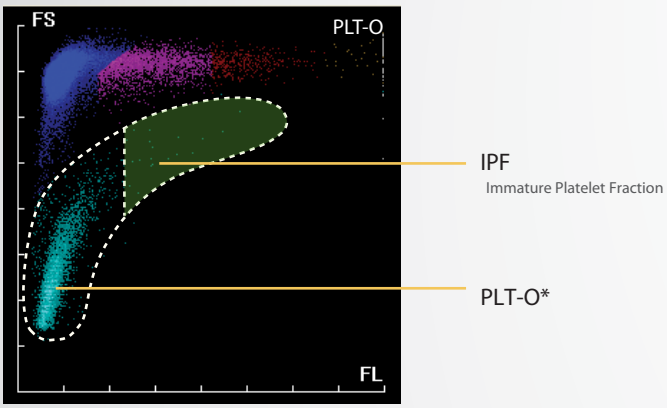
RBC/PLT detection



The rotational mixing avoids bubble formation, a persistent problem with traditional mixing, to ensure more accurate RBC result.



The Focusing Flow-DC process minimizes the interference traditionally encountered in DC technology and produces a near Gaussian histogram. Because of this, histogram related parameters like MCV, RDW-CV, RDW-SD are more accurate and provide clinically useful information.

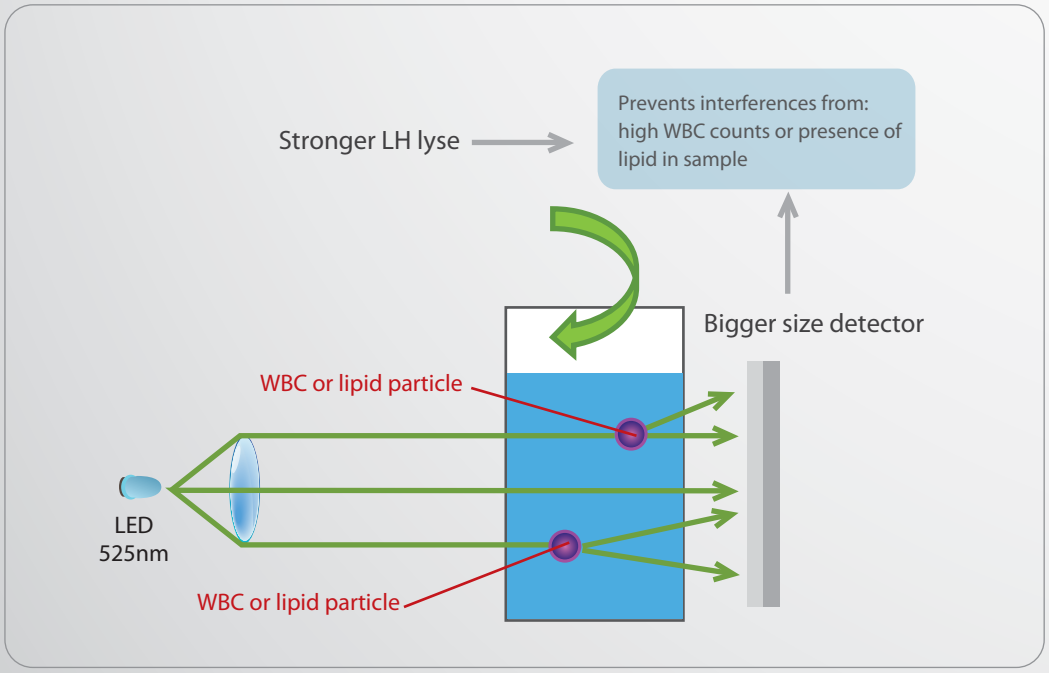


Optical + Fluorescence measurement

PLT-O* result is free from the interference from microcytic & fragmented RBCs, and large platelets because of fluorescent staining. This enhances data accuracy and sensitivity. PLT numeric result is corrected automatically when PLT-O* counting mode is employed.

IPF parameter indicates the thrombopoiesis status in thrombocytopenia cases. It may also be used as an index of thrombopoietic activity in bone marrow, similar to the use of reticulocyte count in the evaluation of anemia.

HGB detection



The lens converts divergent rays of the incident light to parallel, which increases precision of HGB measurement. Combined with stronger LH lyse and bigger detector that minimizes the interference from high WBC and lipids, BC-6800 provides more reliable HGB result.

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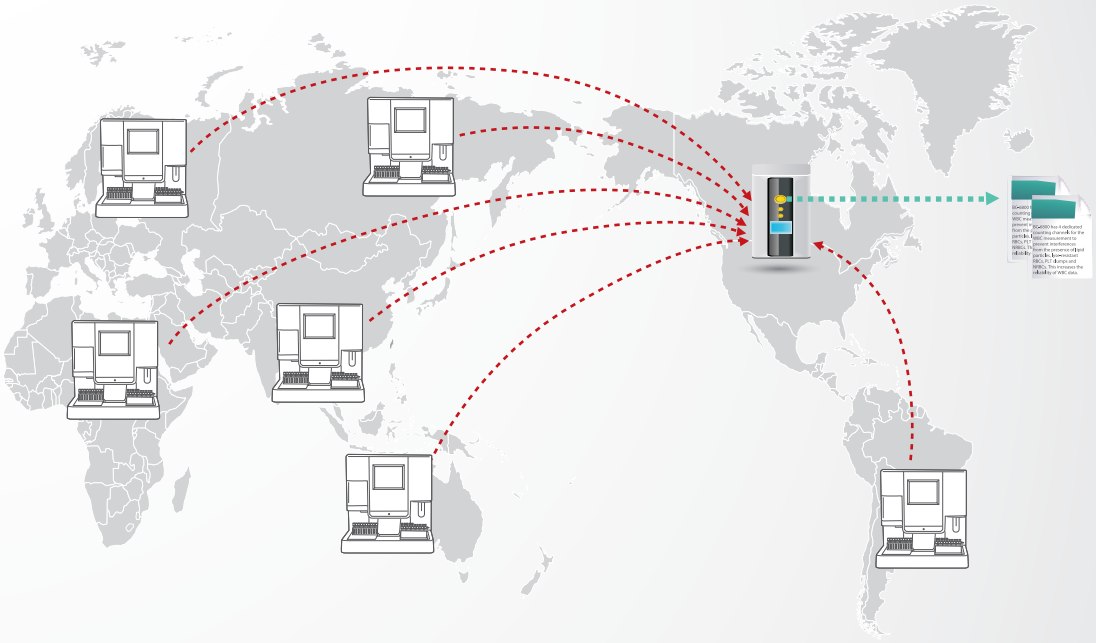
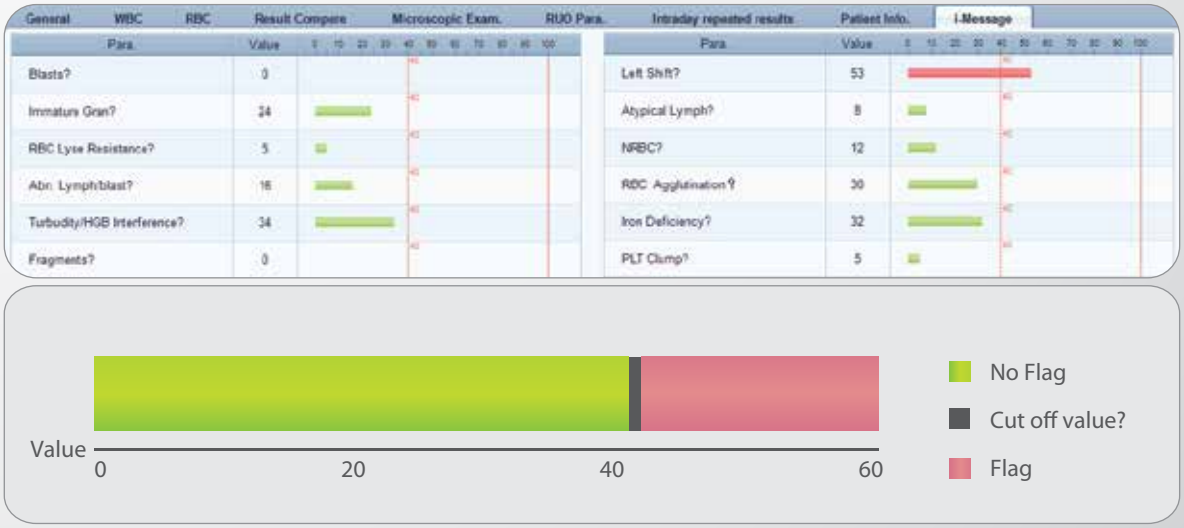
Interlaboratory quality control



CBC-Monitor™ is the inter-laboratory quality control process which is essential for higher lab quality assurance system.

CBC-Monitor™ can provide user labs with evaluations on its analytical performance and comparison with other peer labs using the same measurement instrument/process.

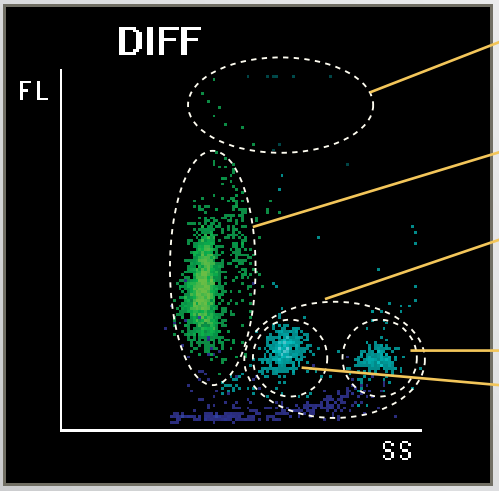
i-Message



"i-Message" provides more quantitive and comprehensive information about the severity of the abnormality for corresponding suspect flags. This helps the BC-6800 users, not only to identify the blood samples that are flagged, but also to judge the extent of abnormality.

Body fluid analysis

BC-6800 can analyze CSF and serous fluid samples to provide reportable parameters for RBC, WBC, WBC differential (polymorphonuclear & mononuclear) and total cell count (TC-BF).
Moreover, for research use only, BC-6800 provides differential results for eosinophils, neutrophils as well as high fluorescent cells (HF-BF*), which may include histiocytes, epithelial cells, spleen cells, ex-foliated cells etc. Such additional information improves the possibility of better clinical diagnosis.



HF-BF* (high fluorescent cells) TC-BF
HF-BF* may contain: histiocyte, epithelial cell, spleen cell, exfoliated cell, etc.

MN (Mononuclear cell) WBC

PMN (Polymorphonuclear cell)

Eos*(Eosinophil)

Nue-BF* (Neutrophils)

SF Cube
Cell Analysis Technology

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Easy to use

SPU with touch screen is used for sample processing, including QC, calibration & maintenance. DMU by PC is used for data management only. The PC software allows easier operation and wider application.

Easy to maintain

Replacement of the fluorescent reagents in BC-6800 is very convenient as the reagent compartment is located on the left front of the analyzer.

The only maintenance expected from the end user is either a daily shut down using Probe cleanser or using it once per day in case the instrument is not shut down. Moreover, in case of 'no shut down' the "auto-protect" program reminds the user when the maintenance is due.

BC-6800

Auto Hematology Analyzer

Technical Specifications:

Principles
SF Cube cell analysis technology for WBC, 5-Part diff, NRBC, RET and PLT-O
Focusing Flow-DC method for RBC and PLT
Cyanide free hemoglobin measurement

Parameters
37 reportable parameters (whole blood): WBC, Lym%, Mon%, Neu%, Bas%, Eos%, IMG%, Lym#, Mon#, Neu#, Eos#, Bas#, IMG#; RBC, HGB, HCT, MCV, MCH, MCHC, RDW-CV, RDW-SD, RET%, RET#, IRF, LFR, MFR, HFR, RHE, NRBC#, NRBC%; PLT, MPV, PDW, PCT, P-LCR, P-LCC, IPF
17 research parameters (whole blood): HFC#, HFC%, WBC-R, WBC-D, WBC-B, WBC-N, RBC-O, PLT-O, PLT-I, PDW-SD, InR#, InR‰, Micro%, Micro#, Macro%, Macro#, MRV
7 reportable parameters (body fluid): WBC-BF, TC-BF#, MN#, MN%, PMN#, PMN%, RBC-BF
7 research parameters (body fluid): Eos-BF#, Eos-BF%, Neu-BF#, Neu-BF%, HF-BF#, HF-BF%, RBC-BF

2 histograms for RBC and PLT
3 scattergrams (3D) for DIFF, NRBC and RET
6 scattergrams (2D) for DIFF, BASO, NRBC, RET, RET-EXT, PLT-O

Performance

Parameter	Linearity Range	Precision	Carryover
WBC	0-500×10^9/L	≤2.5% (≥4×10^9/L)	≤1.0%
RBC	0-8×10^{12}/L	≤1.5% (≥3.5×10^{12}/L)	≤1.0%
HGB	0-250g/L	≤1.0% (110-180g/L)	≤1.0%
HCT	0-75%	≤1.5% (30%-50%)	≤1.0%
PLT	0-5000×10^9/L	≤4.0% (≥100×10^9/L)	≤1.0%
RET#	0-0.8×10^{12}/L	≤15% (RBC≥3×10^{12}/L; 1%≤RET%≤4%)	/

Sample Volume

Predilute mode (capillary blood), Open vial	40μL
Manual mode (whole blood), Open vial	150μL
Autoloader mode (whole blood), Closed vial	200μL
Manual mode (body fluid), Open vial	150μL

Throughput
Up to 125 samples per hour (CBC+DIFF)
Up to 90 samples per hour (CBC+DIFF+RET)
Up to 40 samples per hour (body fluid)

Loading capacity
Up to 100 sample tubes

Mode
CBC, CBC+DIFF, CBC+RET, CBC+NRBC, CBC+DIFF+RET, CBC+DIFF+NRBC, CBC+DIFF+RET+NRBC, RET

Data storage capacity
Up to 100,000 patient results including all numeric and graphical information

Printout
Various printout formats and user-defined formats available

Operating environment
Temperature: 15°C~32°C
Humidity: 30%~85%

Weight (kg)≤125

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