



RAL MCDh™ staining

Because hematology labs are largely automated, traditional staining method has shown its limitations.

Discover the MCDh™ staining, a unique and innovative formulation created by CellaVision – RAL Diagnostics to help laboratories address their current challenges.

This is a new generation of stains, formulated without methanol and designed for Digital Image Analysis.

This set of 4 ready to use reagents will simplify the staining steps by enabling a fast and standardized staining method while working in a much safer lab environment.

Due to its innovative formulation, when MCDh™ is used on staining instruments, a drastic reduction of cleaning and maintenance is observed facilitating lab operations and streamlining the lab workflow.

KEY FEATURES

Digitalize your staining

Work safely

Improve your workflow

Give consistent results

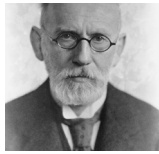
MCDh™

The story



1673

The 1st description of red blood cells is made by **Van Leeuwenhoek**



1879

Ehrlich describes the fundamental distinctions between cationic & anionic dyes



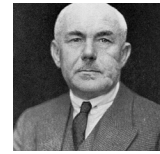
1891

Romanowsky develops an original blood cell staining



1902

May-Grünwald & Wright work in parallel on **Romanowsky type staining** by adding methanol



1904

Giemsa optimizes the staining of the cell nucleus



2010

RAL Diagnostics creates the **1st high definition biological stain** named **Micro Chromatic Detection for Hematology (MCDh™)**

From “Gold standards” to...

Since the last improvements brought to the **Romanowsky staining in the early 20th century** by the scientists named M. Giemsa and M. Wright, no breakthrough has been achieved in terms of routine stains for hematology. Still today, **May-Grünwald Giemsa or Wright- Giemsa stains are the gold standards** depending on the region of the world. But Hematology laboratories today are a very different environment and face more and more challenges such as: improving the safety of laboratory technicians by reducing exposure to toxic chemicals, fitting the specifications of digital image analysis or having stains that are adapted to automated slide stainers.

MCDh™, a significant breakthrough

These drastic changes were an opportunity for CellaVision - RAL Diagnostics to capitalize on more than 100 years of experience in biologic stains and to release in 2010 a patented formulation:

MCDh™ (Micro Chromatic Detection for Hematology).

The MCDh™ staining has been designed to address the current challenges in Hematology laboratories. They come as a combination of four reagents which, altogether, provide the typical purple shade of Romanowsky-Giemsa staining.

MCDh™ is Methanol-free, which will allow to work safely by eliminating the high toxicity of the traditional formulations. This set of 4 **ready to use reagents** will allow a **straightforward staining** without any tedious dilutions.

This will lead to a **higher reproducibility and standardized blood differential.**

Moreover, the product formulation reduces stain precipitation for cleaner results in both stained slides and staining instruments.

How does **MCDh™** work?

MCDh™ is a panoptic hematology staining method. It is made of a sequence of four specific, **methanol-free and ready to use reagents**. They ensure high stain quality and reproducibility to meet digital image analysis standards. The chemical properties of each reagent give a Romanowsky-type effect while gradually revealing blood and cellular elements.



MCDh™ 1 - Blend of neutral dyes

Ethanol based

- Fixes the smear preparation
- Induces the staining of water-soluble elements (ie Basophil granulations)
- Influences the overall intensity of the staining

MCDh™ 2 - Buffer solution

Water based

- Reveals the stain of the cell elements: nuclei, granulations (neutrophils, eosinophils), platelets and erythrocytes

MCDh™ 3 - Contains Methylene Blue

Water based

- Reveals basophilic & azure elements. Stains monocyte & lymphocyte cytoplasm
- Induces the Red metachromatic staining of azure granules. Finetunes the details of the staining

MCDh™ 4 - Rinsing solution

Water based - 6% ethanol

- Removes excess stain from cells for a better differentiation
- Eliminates the deposits of the staining
- Finalizes the staining

Digitalize YOUR STAINING

This set of 4 reagents is suitable for manual and automated staining instruments (both method).

The formulation of the MCDh™ reagents allows a perfect reproducibility slide after slide and facilitates the digitalization of your blood differential.

Work your ROUTINE SAFELY

MCDh™ is the only non-toxic Romanowsky staining formulation available on the market. It increases the safety of laboratory technicians by avoiding exposure to methanol.



Improve your WORKFLOW

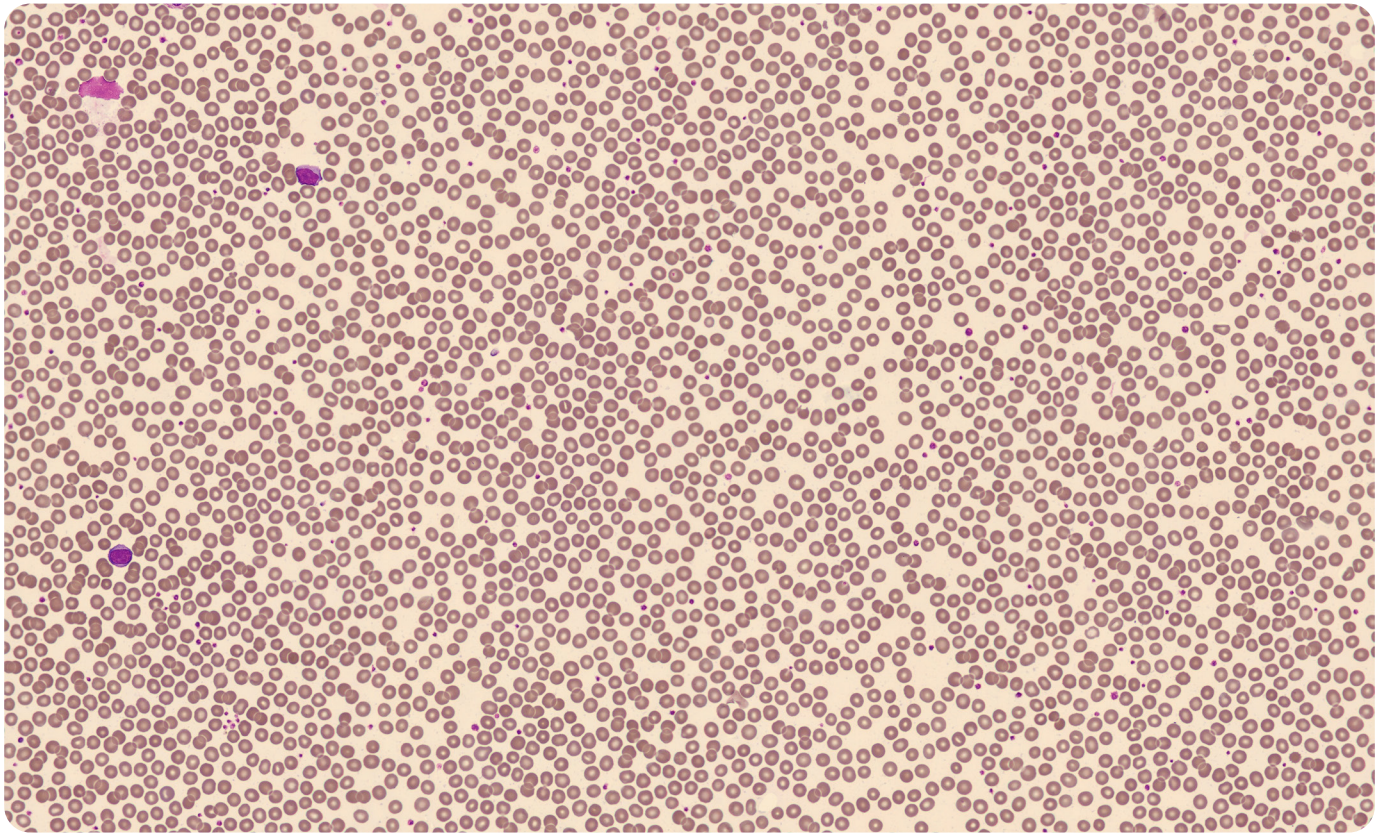
MCDh™ reagents are easily rinsed, reducing maintenance of automated staining instruments.

They are ready to use and facilitate daily operations and simplified blood differential.

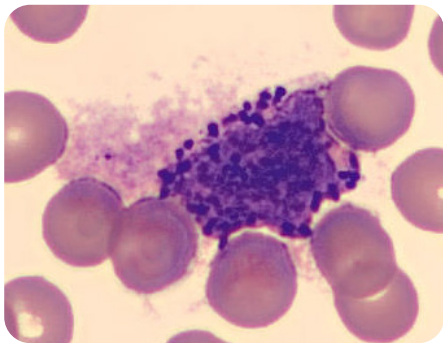
Give RELIABLE RESULTS

MCDh™ reagents provide high definition cell morphology with clean staining results and consistency with manual and / or digital morphology analysis.

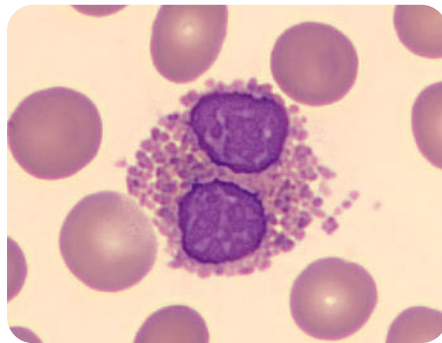
MCDh™ helps lab technicians to provide standardized, consistent and therefore reliable results.



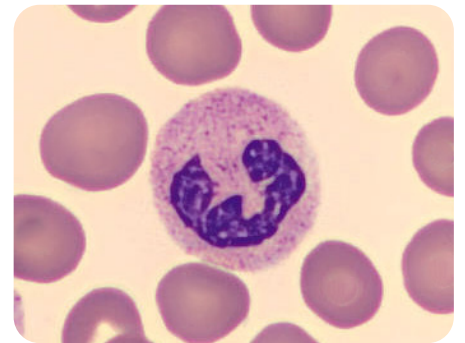
MCDh staining with DxH SMS of peripheral blood smear from patient with normal CBC, overview using CellaVision® DM1200



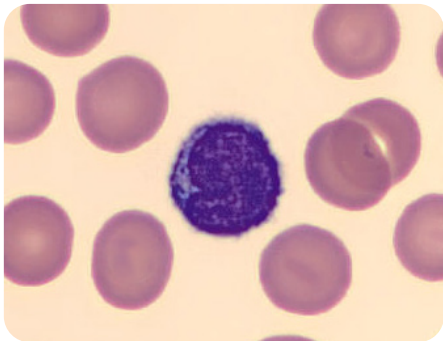
Basophile granulocyte



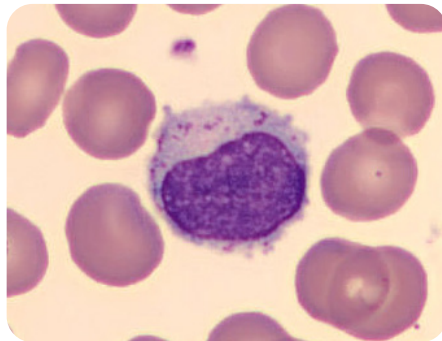
Eosinophil granulocyte



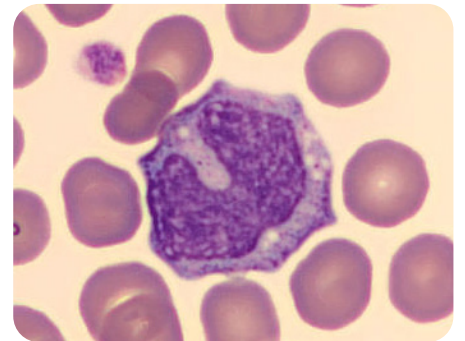
Neutrophil granulocyte



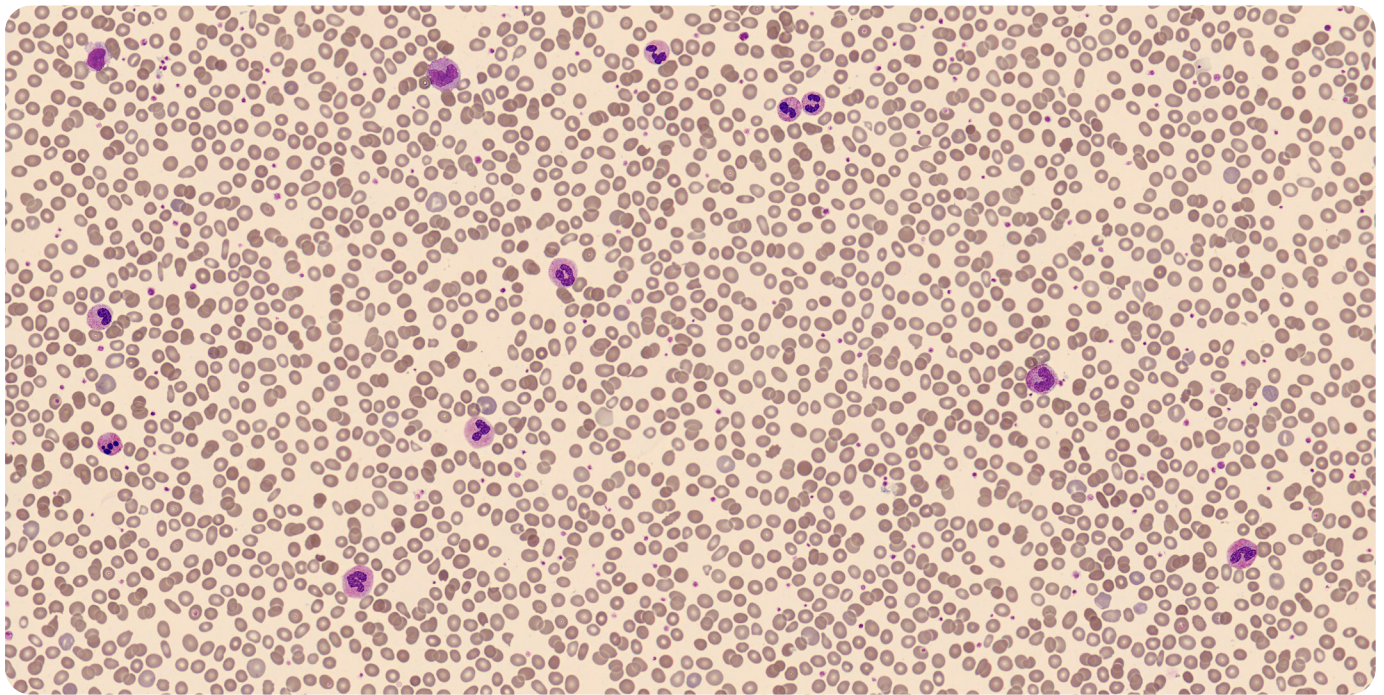
Small lymphocyte



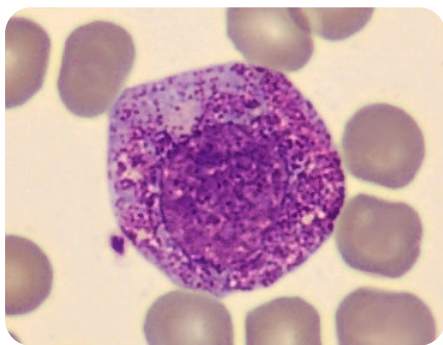
Large lymphocyte



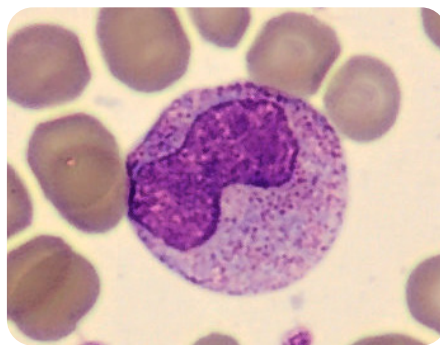
Monocyte



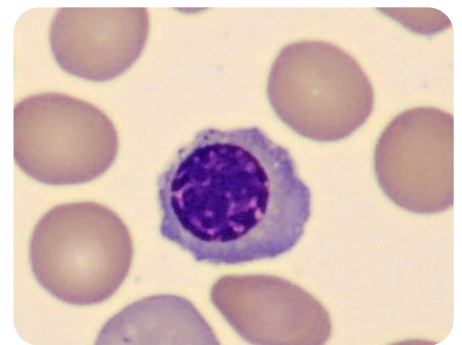
Manual MCDh staining of peripheral blood smear from patient suffering of myelemia, overview using CellaVision® DC-1



Promyelocyte



Metamyelocyte



Erythroblast

MCDh™ staining

AVAILABLE BOTTLES



MCDh™ 1 REF.: 313590-2500

MCDh™ 2 REF.: 313570-2500

MCDh™ 3 REF.: 313560-2500

MCDh™ 4 REF.: 313600-2500

TECHNICAL SPECIFICATION

APPLICATION AREAS

- Hematology
- Parasitology
- Cyto-bacteriology

PACKAGING

- 2.5 L bottles

PRODUCT DESCRIPTION

- MCDh™ 1: Clear dark blue solution
- MCDh™ 2: Clear colorless solution
- MCDh™ 3: Clear dark blue solution
- MCDh™ 4: Clear colorless solution

SUITABLE EQUIPMENTS

- Beckman Coulter DxH SMS
- Open automated systems using bath staining technique



Embrace the future of microscopy.
With CellaVision.

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RAL Diagnostics

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