we know how
immunostep

ToBoScan™

Most accurate detection and definition of blood monocyte & TiMa subset.

EuroFlow
Standardize

Consensus markers and independent of the stage of monocyte maturation.

PRODUCT
ToboScan

REFERENCE
Scan-0101

FORMAT
Dried

SIZE
25 test

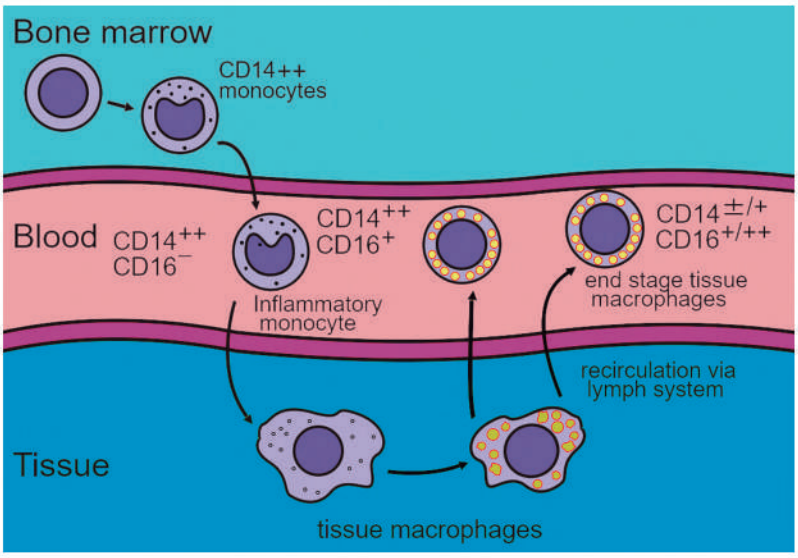
CF-Blue anti-Human HLA-DR	PerCP-Cyanine5.5 anti-Human CD14	FITC anti-Human CD64
OC-515 anti-Human CD45	PE-Cyanine7 anti-Human CD300e	APC-C750 anti-Human CD16

ToBoScan consists of **single-use tubes** containing the following fluorochrome-conjugated antibodies in an **optimized dried formulation,** including backbone markers for the **screening of different stages of monocytes and macrophages in blood.**

ADVANTAGES

1. Easy, fast reliable and disruptive tool
2. Most informative and relevant markers included
3. Single use tube avoiding pipetting erros
4. Dried combination ready to use an extended stability
5. Minimally invasive tool for Macrophage detection
6. Potential aplications in cáncer screening and tissue homeostasis studies

Characteristics of blood monocytes and tissue macrophages



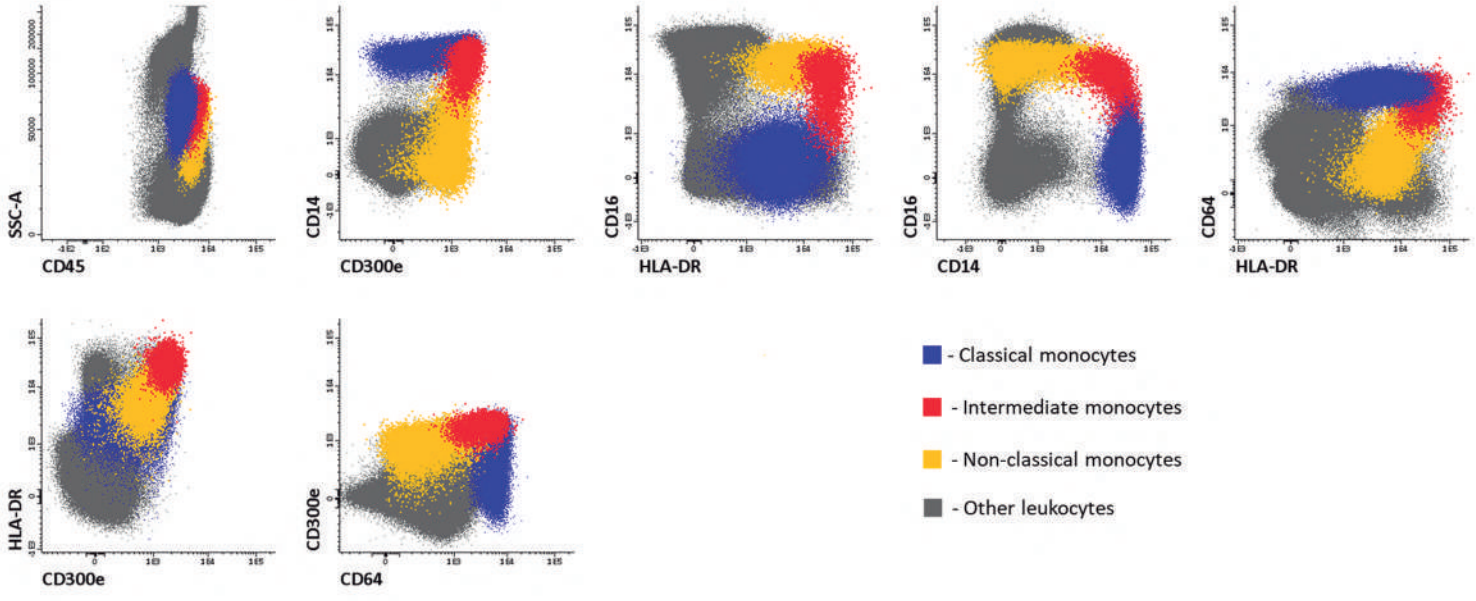
**Hypothesis by Van Dongen and Orfao*

Monocytes are produced by the bone marrow from precursors. Monocytes circulate in the bloodstream for about one to three days and then typically migrate into tissues throughout the body where they differentiate into macrophages which have the function of phagocytosing bacteria and damaged tissue.

Therefore the vast majority of monocytes (90-95%) in human blood are CD14++/CD16-/dim "classical monocytes", whereas macrophages in human tissues are generally CD14dim/CD16+/++. Interestingly, in human lymph most monocytes/macrophages (65-95%) have the "non-classical" CD14dim/CD16++ phenotype. This suggests that the small population (5-10%) of CD14dim/CD16++ "non-classical monocytes" in blood are most likely Tissue macrophages (TiMas), which have returned from their patrolling and scavenger tasks in the body tissues.

Different studies have identified changes in the absolute and relative numbers of circulating monocytes and TiMas in clinical conditions with significant tissue disruption, such as in case of inflammation, sepsis, autoimmune disease, and cancer. Therefore, acurate detection and definition of blood monocyte & TiMa subset represent a novel tool for early diagnosis and treatment monitoring in oncology and tissue homeostasis.

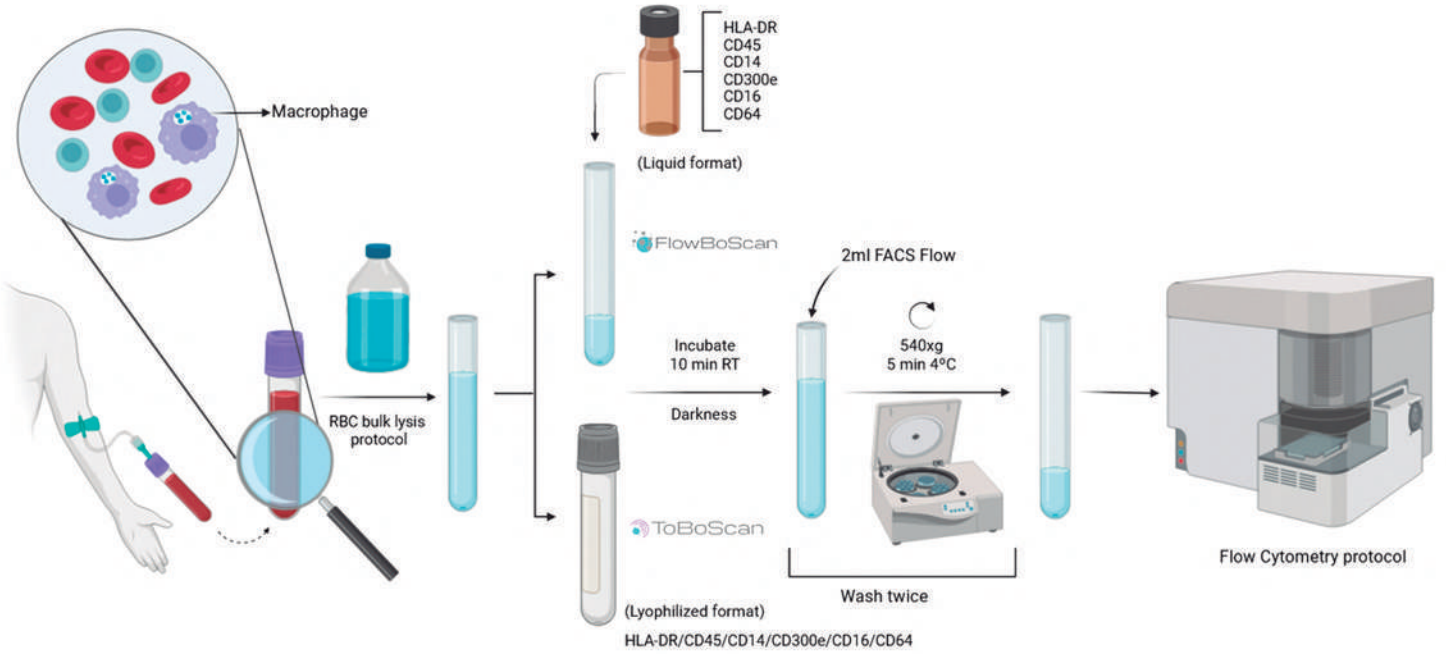
Strategy Analysis



Accurate flowcytometric gating on CD300e and HLA-DR allows to select for all monocytes/macrophage populations in blood.

Protocol

Bulk lysing or Lyse / Stain / Wash (LSW) protocol recommended to increase monocyte and TiMa subset concentration. In order to reach a high sensitivity > 10 million total events must be acquired.



References

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5. Talati, T, et all. Monocyte subset analysis accurately distinguishes CMML from MDS and is associated with a favorable MDS prognosis. Blood. 2017 Mar. 129(13): 1881-3.

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