

New automation-friendly, 96-well plate, ready-to-use 8-color dry reagent panel for immunophenotyping of human whole blood and PBMCs by flow cytometry

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Introduction: Laboratory automation in flow cytometry attempts to reduce laboratory intensive manual and tedious pipetting steps which could further lead to human error. Automation-friendly 96-well plate flow cytometry solutions are ideal for pharmaceutical, academic, and CRO laboratories that perform testing on large numbers of samples and/or various test conditions. Our ready-to-use, pre-formulated dry antibody panel in 96-well plate format provides researchers all the antibodies within the wells of the plate which could provide walkway solution for sample processing.

Methods: EDTA-anticoagulated whole blood and peripheral blood mononuclear cells (PBMCs) were used to study immunophenotyping by using DURAClone IM Phenotyping BASIC plate, part# C97741 (2 x 96 tests + Single color compensation control plate, 8 single stains in duplicate). Samples were collected as per Ethical guidelines and processed within 96-well plate, RBC's were lysed with FLEXLyse (RUO) and acquired in CytoFLEX LX flow cytometer. 7AAD was used as in drop in reagent to evaluate live/dead cell. The studies were conducted in Beckman Coulter Life Sciences (Bangalore, India and Miami, USA). Our experiments were performed using automation on the Biomek i7 liquid handling automated workstation integrated with a CytoFLEX LX flow cytometer and microplate centrifuge demonstrating a fully automated flow cytometry workflow.

Results: Our study show flow cytometry data for both whole blood and PBMC samples stained with the first ready-to-use DURAClone IM Phenotyping BASIC plate (RUO) in a shallow 96-well plate containing a dry reagent antibody panel to identify major lymphocyte and monocyte subpopulations for the following markers: CD45, CD16, CD56, CD19, CD14, CD3, CD4 and CD8.

Conclusion: The DURAClone IM Phenotyping BASIC plate (RUO) is the first ready-to-use flow cytometry solution available in automation-friendly dry reagent 96-well plate format that is compatible with whole blood and PBMC samples for both no-wash and wash staining protocols.