VisionSort QC Kit

rev.3/25

Cat# TCK004

I. INTRODUCTION

ThinkCyte's VisionSort platform combines the strengths of conventional flow cytometry fluorescence signals with a novel morphometric cellular analysis measure. The dual-mode analytical capability can be used to identify and sort phenotypically defined cell populations, label-free, using machine learning approaches. The Vision QC Kit provides all the essential items required for checking instrument performance.

II. MATERIALS PROVIDED

No	Item	Catalog Number	Volume/Units	Storage Temp	Handling Instructions
1	VS Wash Cartridge	TCC-CPW001-1	2 Cartridges	RT*	Do not drop; Light and Heat sensitive
2	VS Suspension Solution	TCR-SS001-100	100 mL	4°C	Heat sensitive
3	VS C-Beads	TCB-CB001-1	0.1 mL	4°C	Light sensitive
4	VS P-RBW Beads	TCB-RBW001-1	0.2 mL	4°C	Light sensitive
5	VisionBeads	TCB-VB001-1	1.2 mL	4°C	Light sensitive

* RT-Room Temperature

III. DESCRIPTIONS/INSTRUCTIONS FOR USE

1. VS Wash Cartridge

The VS Wash Cartridge is designed to deliver VS Clean to VisionSort as part of routine cleaning, typically performed at the end of an instrument run cycle. During instrument start-up, VS Sheath is run through the VS Wash Cartridge to prepare the instrument for sample runs. The VS Wash Cartridge does not require cartridge calibration, but can be used to calibrate instrument fluidics and prevent crystallization of sheath fluid within the instruments microfluidics system. The VS Wash Cartridge is easy to install and reusable, promoting longer instrument lifetimes and high-quality analysis and sorting.

To install the VS Wash Cartridge, select [Initial Wash] or [Shutdown] from the Fluidics Menu and follow the software dialog. This cartridge can be REUSED up to 10 times or 1 week, whichever is shorter. Store the Wash Cartridge back in its original plastic protective casing after use to prevent damage to the cartridge.

2. VS Suspension Solution

VS Suspension Solution is a protein-free buffer solution optimized for diluting VisionSort calibration and performance beads.

Sample dilution table for preparing working bead solutions:

	Beads	VS Suspension Solution	Final Volume
VS C-Beads	10 µL	500 µL	510 µL
VS P-RBW Beads	20 µL	500 µL	520 µL
VisionBeads	120 µL	120 µL	240 µL

3. VS C-Beads

VS C (Calibration)-Beads are used for calibrating the sample stream to the optical plane of focus and to check instrument stability during start-up procedures, ensuring reliable and reproducible data generation during instrument use.

Note: Beads should be stored at 4°C. Resuspend the particles by vortexing before use.

To set up automatic calibration

Fill the sample tube with **10 µL** of VS C-Beads and **500 µL** of VS Suspension Solution and mix well, then insert the tube into the tube holder. Place the tube holder into a sample inlet and close the door fully.

4. VS P-RBW Beads

VS P-RBW (Performance-Rainbow) Beads contain a mixture of fluorescent particles of 6 different intensities that are excited by the violet, blue, and red lasers (405, 488, 637nm)

Note: Beads should be stored at 4°C. Resuspend the particles by vortexing before use.

To use VS P-RBW Beads

Fill the sample tube with **20 µL** of VS P-RBW Beads and **500 µL** of VS Suspension Solution and mix well, then insert the tube into the tube holder. Place the tube holder into a sample inlet and close the door fully.

5. VisionBeads

VisionBeads serve as an essential control to evaluate the performance of the VisionSort instrument in morphometric analysis. It is recommended to run VisionBeads daily to assess the classification performance of supervised machine learning (SVM) and the appearance of uniform manifold approximation and projection (UMAP) plots.

To use VisionBeads

Vortex the vial to ensure even distribution of the beads.
Add **120 µL** of VS Suspension Solution to the FACS tube then add **120 µL** of the bead suspension. Vortex the sample before running the beads on VisonSort.

For VisionBeads data analysis, please refer to the VisionBeads User Guide

SDS AVAILABLE ON REQUEST AT https://thinkcyte.com/contact/