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🌐 Preparation of the Cytotflex SRT for Fluorescence-Activated Cell Sorting (FACS) of Microbes and Submicron (Small Particle) Samples such as Virus-like Particles (VLPs), Extracellular Vesicles, and more



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Jamie Tijerina¹

¹California Institute of Technology

Flow Cytometry



Jamie C Tijerina

Universidade de Lisboa, California Institute of Technology

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Protocol status: Working

We use this protocol and it's working

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Keywords: FACS, fluorescence-activated cell sorting, FACS, submicron, small particle, sorting, extracellular vesicles, EVs, exosomes, Microparticles, nanoparticles, nanoFACS, nanoscale, microbes, microbiome, flow virometry, microbiology, genomics, viruses, EV sorting, small particles, marine biology, aquatic microbiology, geomicrobiology, therapeutics, genomic sequencing, microbiome analysis, cleaning, flow cytometry, decontamination, uncultivated, uncultured, culture-independent, sorting submicron microbial cell, decontamination protocols for cell sorter, sorting of microbial sample, beckman coulter cytoflex srt cell sorter, submicron microbial cell, preparation of the cytoflex srt, cytoflex srt, decontamination protocol, microbial sample, laboratory, biological sample, activated cell sorting, samples such as virus, shared resource laboratory, cytometer, small particle sample type, cell sorter, individual research lab, genomic sequencing, suitable for submicron, cell sorting, free preparation for whole genome amplification,

Abstract

This protocol is specific to the Beckman Coulter Cytoflex SRT cell sorter to prevent long-term contamination and disrupt potential formation of unwanted biofilms following the sorting of microbial samples and/or to clean the flow cell and system in preparation for running submicron (small particle) samples. This is suitable for submicron/small particle sample types including, but not limited to microbes, virus-like particles (VLPs), extracellular vesicles, organelles, and more. Instructions are included to prepare the instrument for running samples that will require DNA-free preparation for whole genome amplification prior to genomic sequencing. Decontamination protocols for cell sorters and cytometers are instrument specific; while best practices always apply, protocols for one instrument make/model must be thoughtfully adapted for other instruments. This protocol is suitable for use in Shared Resource Laboratory (SRL) settings as well as individual research labs.

This is a protocol that accompanies the following article: Tijerina, J.C., Martinez-Hernandez, F., Beilinson, V., Finney, O., Orphan, V.J., & Diamond, R. A. (2025). Preparation of cuvette-based sorters for sorting submicron microbial cells and viruses from environmental and biological samples. *Current Protocols*, 5, e70176.doi: 10.1002/cpz1.70176 . Additional necessary background and associated protocols are found in that protocol article.



Attachments



Cytoflex SRT_Submicr...

242KB

Guidelines

Wear a lab coat and gloves throughout the process.

Perform as many tasks as possible within a biosafety cabinet.

In the United States, the variety that should be used is Clorox Germicidal Bleach, cat no 30966. Internationally, another brand will need to be identified without additives and with a minimum sodium hypochlorite concentration of 8%

Materials

See Tijerina et al., 2025

Additional materials:

FlowClean, Beckman Coulter Product No: C48093

Cytoflex SRT Cell Sorter, Product No: C71883

Cytoflex SRT Capsule Filter, Product No: C64209

Cytoflex SRT Sheath Tank Assembly, Product No: C64206

Cytoflex SRT Sample Line, Product No: 64203



Protocol references

Tijerina, J.C., Martinez-Hernandez, F., Beilinson, V., Finney, O., Orphan, V.J., & Diamond, R. A. (2025). Preparation of cuvette-based sorters for sorting submicron microbial cells and viruses from environmental and biological samples. *Current Protocols*, 5, e70176. doi: 10.1002/cpz1.70176

FlowClean Cleaning Agent, 500ml (REACH Compliant) Fact Sheet <https://www.beckman.com/reagents/coulter-flow-cytometry/qc-and-support-reagents/c48093>

Cytoflex SRT Instructions for Use <https://www.beckman.com/techdocs/C37808AD/wsr-335892>