FACS/MACS Buffer

Abdullah Lab, IMMEI, University Hospital Bonn

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Protocol ID: BUF-FACS-v1.0
Version: v1.0
Author: Dillon Corvino

Purpose

This buffer is used for washing and resuspending cells during flow cytometry staining, FACS sorting, and MACS-based enrichment. It helps maintain cell viability, prevents clumping, and minimises nonspecific binding.

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Linked protocols

This buffer is used in:

- **Mouse Liver Dissociation to Single-Cell Suspension** – `LIV-001` (v1.0)
- Additional protocols as needed.

Composition (1× FACS/MACS Buffer)

Typical preparation for **500 mL** of buffer:

Component	Stock concentration	Volume for 500 mL	Final concentration	Notes
PBS 1×	—	500 mL	—	Base buffer
FCS	—	10 mL	2% (v/v)	Heat-inactivated, if used
EDTA	0.5 M	2 mL	2 mM	Sterile stock

(Volumes above reflect the original SOP recipe: PBS 1× 500 mL, FCS 10 mL, EDTA (0.5 M) 2 mL.)

Preparation

1. Start with **500 mL PBS 1×** in a sterile bottle.
2. Add **10 mL FCS** (to achieve 2% v/v final).
3. Add **2 mL EDTA 0.5 M stock** (to achieve 2 mM final).
4. Mix gently by inversion.
5. If sterility is required, filter the buffer through a **0.22 µm filter** into a sterile storage bottle.
6. Label with:
    - "FACS/MACS Buffer (PBS + 2% FCS + 2 mM EDTA)"
    - Date of preparation
    - Version (`BUF-FACS-v1.0`)

> **Tip**
>
> For highly sensitive applications (e.g. scRNA-seq, FACS of rare populations), prepare fresh or use small aliquots to minimise repeated warming/cooling cycles and contamination risk.

Storage and stability

- Store at **4 °C**, protected from light if possible.
- Recommended to use within **4–6 weeks**, or according to internal lab validation and microbial QC.
- Before use, invert gently to resuspend any settled components.
- Avoid repeated temperature cycling; if frequent bench use is expected, consider preparing smaller working aliquots.

Reagent details

Component	Supplier	Cat#	Notes
PBS 1×	[TBD]	[TBD]	Sterile, Ca^{2} /Mg^{2} -free recommended
FCS	[TBD]	[TBD]	Heat-inactivated if required by downstream applications
EDTA 0.5 M	[TBD]	[TBD]	Sterile stock solution; pH ~8.0

Safety (brief)

- Handle biological samples in FACS buffer according to institutional biosafety rules.
- FCS is of animal origin; treat as a potential biohazard.
- EDTA is of low toxicity at working concentrations but should be handled with standard lab PPE.

Version history

Version	Date	Author	Change summary
v1.0	2025-11-20	Dillon Corvino	Initial buffer definition