MACS Buffer

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Protocol ID: BUF-MACS-BUF **Version:** v1.0 **Author:** Dillon Corvino **Date:** 2026-09-18

Purpose

This buffer is used for washing, resuspending, and handling cells during **magnetic-activated cell sorting (MACS)** and general processing. It includes EDTA to prevent cell clumping and nonspecific aggregation during magnetic separation.

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Linked protocols

- `MUS-LIV-DIG`
- `MUS-LNG-DIG`
- `MUS-TMR-DIG`
- `MUS-SPL-NK-PROLIF`

Working buffer composition

Typical preparation for **500 mL**:

Component	Stock concentration	Volume for 500 mL	Final concentration	Notes
PBS 1x	—	488 mL	—	Base buffer
FCS	—	10 mL	2% (v/v)	Heat-inactivated if required
EDTA	0.5 M	2 mL	2 mM	Sterile stock

> **!** Important
>
> Do **not** use MACS Buffer for liver perfusion or for any step upstream of collagenase digestion. EDTA chelates the Ca2+/Zn2+ cofactors collagenases require, inhibiting digestion. Use FACS Buffer (`BUF-FACS-BUF`) or PBS for those steps.

Preparation

A. Preparation of stock (if applicable)

Not applicable — prepared directly as the working buffer.

B. Preparation of working buffer

1. Start with sterile **PBS 1x** in an appropriate bottle.
2. Add **FCS** to achieve **2% (v/v)**.
3. Add **EDTA** to a final concentration of **2 mM**.
4. Mix gently by inversion.
5. If sterility is required, filter through a **0.22 um filter** into a sterile storage bottle.
6. Label clearly with buffer name, date of preparation, initials, and sterile/non-sterile status.

Storage and stability

- Store at **4 °C**.
- Recommended use within **4–6 weeks**, subject to internal QC and sterility checks.
- Invert gently before use to resuspend any settled components.
- Avoid repeated temperature cycling; prepare smaller working aliquots if accessed frequently.

Reagent details

Component	Supplier	Cat#	Notes
PBS 1x	[TBD]	[TBD]	Sterile, Ca2+/Mg2+-free recommended
FCS	[TBD]	[TBD]	Heat-inactivated if required
EDTA 0.5 M	[TBD]	[TBD]	Sterile stock; pH ~8.0

Safety (brief)

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

Version history

Version	Date	Author	Change summary
v1.0	2026-09-18	Dillon Corvino	Split out of `BUF-FACS-MACS` (formerly `buf_facs_macs_buffer.qmd`) so each buffer_id maps to exactly one recipe.