

R10 Medium (RPMI + 10% FCS + Pen/Strep)

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Protocol ID: BUF-R10-MED-001

Version: v1.0

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Purpose

R10 is complete RPMI 1640 medium supplemented with 10% heat-inactivated FCS and Penicillin/Streptomycin. It is used for PBMC washing after Ficoll separation, for quenching CellTrace dyes, and as a general-purpose lymphocyte culture medium.

Working buffer composition

| Component | Final concentration | Notes |
|-------------------------|---------------------|-----------------------|
| RPMI 1640 | — | Base medium |
| Fetal calf serum | 10% (v/v) | Heat-inactivated |
| Penicillin/Streptomycin | 1% (v/v) | 100× stock → 1× final |

Preparation

Stock solutions required

| Reagent | Stock concentration | Notes |
|-------------------------|---------------------|-----------------------------|
| Fetal calf serum (FCS) | — | Heat-inactivate if required |
| Penicillin/Streptomycin | 100× | Add to 1× final |
| RPMI 1640 | — | Sterile-filtered |

Preparation of 500 mL R10

1. Aliquot **450 mL** sterile RPMI 1640 into a sterile bottle.
2. Add **50 mL** FCS (10% final).
3. Add **5 mL** Penicillin/Streptomycin (100× stock) → **1% final**.
4. Gently invert to mix; **do not vortex**.
5. Label with:
 - *R10 complete medium*
 - Date of preparation
 - Expiry (4 weeks after preparation)



Tip

Pre-warming R10 to 37 °C before use improves cell recovery following Ficoll separation or staining.

Storage and stability

- Store at **4 °C**, protected from light.
- Use within **4 weeks** after preparation.
- Do not freeze.

Reagent details

| Reagent | Supplier | Cat. # | Notes |
|------------------|----------|--------|------------------------|
| RPMI 1640 | Various | — | Base medium |
| Fetal calf serum | Various | — | Heat-inactivated |
| Pen/Strep (100×) | Various | — | Final 1× concentration |

Safety

- Handle medium aseptically in a biosafety cabinet.
- Dispose of contaminated or expired medium as biohazardous waste.
- Follow institutional guidelines for handling FCS-containing media.

Version history

| Version | Date | Author | Changes |
|---------|------------|----------------|------------------------------|
| v1.0 | 2025-11-21 | Dillon Corvino | Initial R10 buffer document. |