

1. Technical Data Sheet

Summary

T Cell Memory Mimic™ (SSB-32-A) is a lyophilized precision-engineered cell mimic designed for laboratories performing T cell immunophenotyping. These lymphocyte-sized mimics represent key CD4+ and CD8+ memory subsets, including naïve, central memory, effector memory, and terminal effector/exhausted populations. Each subset is defined by physiologically-relevant frequencies of CD3, CD4, CD8, and memory-associated markers such as CCR7, CD45RA, CD45RO, and CD95, enabling confident positive and negative detection across diverse assay panels. To support viability gating and quality control, the control includes dedicated dead-cell populations reactive to both amine- and DNA-binding dyes. The combined stability, reproducibility, and well-defined population structure support accurate experimental performance assessment and instrument verification across daily QC, assay validation, and longitudinal performance monitoring.

Application

The product is intended for use as a flow cytometry assay development, antibody qualification and daily execution control for the detection of memory populations using CD45RA or CD45RO, CCR7 (CD197), and FAS (CD95) for populations defined by CD3 with CD4 or CD8. Additionally, this product is compatible with DNA-intercalating or amine-reactive viability dyes.

A table outlining the included cell mimic populations is below:

Population	Biomarkers
CD4 T _{naive}	CD3, CD4, CD45RA, CCR7
CD4 T _{SCM}	CD3, CD4, CD45RA, CCR7, FAS
CD4 T _{CM}	CD3, CD4, CD45RO, CCR7, FAS
CD4 T _{EM}	CD3, CD4, CD45RO, FAS
CD4 T _{Effector}	CD3, CD4, CD45RA, FAS
CD8 T _{naive}	CD3, CD8, CD45RA, CCR7
CD8 T _{SCM}	CD3, CD8, CD45RA, CCR7, FAS
CD8 T _{CM}	CD3, CD8, CD45RO, CCR7, FAS
CD8 T _{EM}	CD3, CD8, CD45RO, FAS

CD8 T _{Effector}	CD3, CD8, CD45RA, FAS
Dead	Compatible with DNA-based and fixable amine-based viability dyes

This product is intended to provide positive signals for specified biomarkers, with established compatibility with antibody clones listed in the table below:

Biomarker	Compatible clones or dyes
CD3	SK7, UCHT1, REA613
CD4	SK3, OKT4, RPA-T4
CD8	SK1, HIT8-a, RPA-T8
CD45RA	HI100, L48, 5H9
CD45RO	UCHL1, REA611, S19021B
CCR7	150503, G043H7, 2L1-A
FAS	DX2, REA738
DNA (dead)	DAPI, 7-AAD, DRAQ-7
Amine (dead)	Live Dead Aqua, Zombie Red, eFluor780

Note: Antibody clones and viability reagents not listed above need to be tested independently. All antibody and viability reagents may require titration for optimal staining.

	For Research Use Only. Not for use in diagnostic or therapeutic procedures.
Materials	This product is lyophilized for stability and ease of use. Each vial contains 5×10^5 mimics.
Handling and Safety	No special handling or safety precautions are necessary.
Storage	Store lyophilized products at -20°C upon receipt.
Expiration	24 months from the date of manufacturing when stored at -20 °C. Use the entire vial immediately upon reconstitution of lyophilized product or store cell mimics in BSA containing stain buffer at 4°C in the dark for up to seven days.

**Instructions for Use:
Sample Preparation**

1. Remove the vial of T Cell Memory Mimic™ from -20 °C and let it sit at room temperature for 10-15 minutes.
2. Tap down the vial to ensure that all cell mimics are collected at the bottom of the vial.
3. Add 1000 µL of staining buffer to the vial.
4. Note: Avoid contacting or disturbing the pellet until it has been hydrated (~1 minute).
5. Gently pipette up and down ten times to resuspend the cell mimics. Avoid introducing bubbles. Transfer the contents to a 5mL FACS tube.
6. Add 1000 µL of flow staining buffer to the original vial, mix by gentle pipetting, and transfer the remaining of the mimics to the FACS tube prepared in the previous step for a final volume of 2000 µL.
7. Centrifuge at 600 x g for 5 minutes.
8. Decant the supernatant being careful not to disturb the cell pellet.
9. The cell mimics are ready for staining (see steps below).

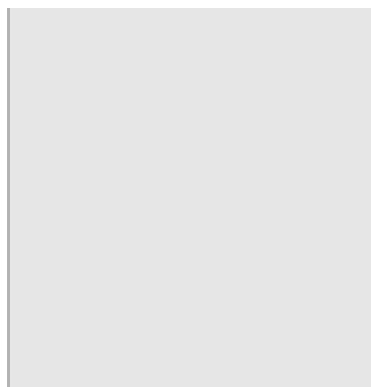
**Instructions for Use:
Staining Protocol for
DNA-binding viability
dyes**

1. Prepare your preferred staining antibody cocktail in flow staining buffer and add to washed cell mimics from step 9 of sample preparation.*
2. Incubate the mixture at room temperature in the dark as per your specific antibody panel requirements. Generally, we recommend 15 +/- 3 min at RT or 30 +/- 5 min at 4 °C .
3. Add 1000 µL of flow staining buffer.
4. Centrifuge at 600 x g for 5 minutes.
5. Decant the supernatant being careful not to disturb the cell pellet.
6. Repeat the wash step one additional time.
7. Add 100 µL of flow staining buffer.
8. Add desired volume of DNA-binding viability dye and mix thoroughly by pipetting or vortex mixing.
9. Incubate in the dark for at least 10-15 mins.
10. Add additional buffer if desired.
11. The sample is ready for acquisition - acquire cell mimics using the same flow cytometer instrument settings as your biological samples. For best results, we recommend acquiring your sample within 30 minutes of adding viability dye using low or medium flow rate.

*If desired, mimics may be pre-treated with Fc block for 10-15 minutes at RT prior to initiating antibody cocktail staining.

**Instructions for Use:
Staining Protocol for
Amine-reactive/ fixable
viability dyes**

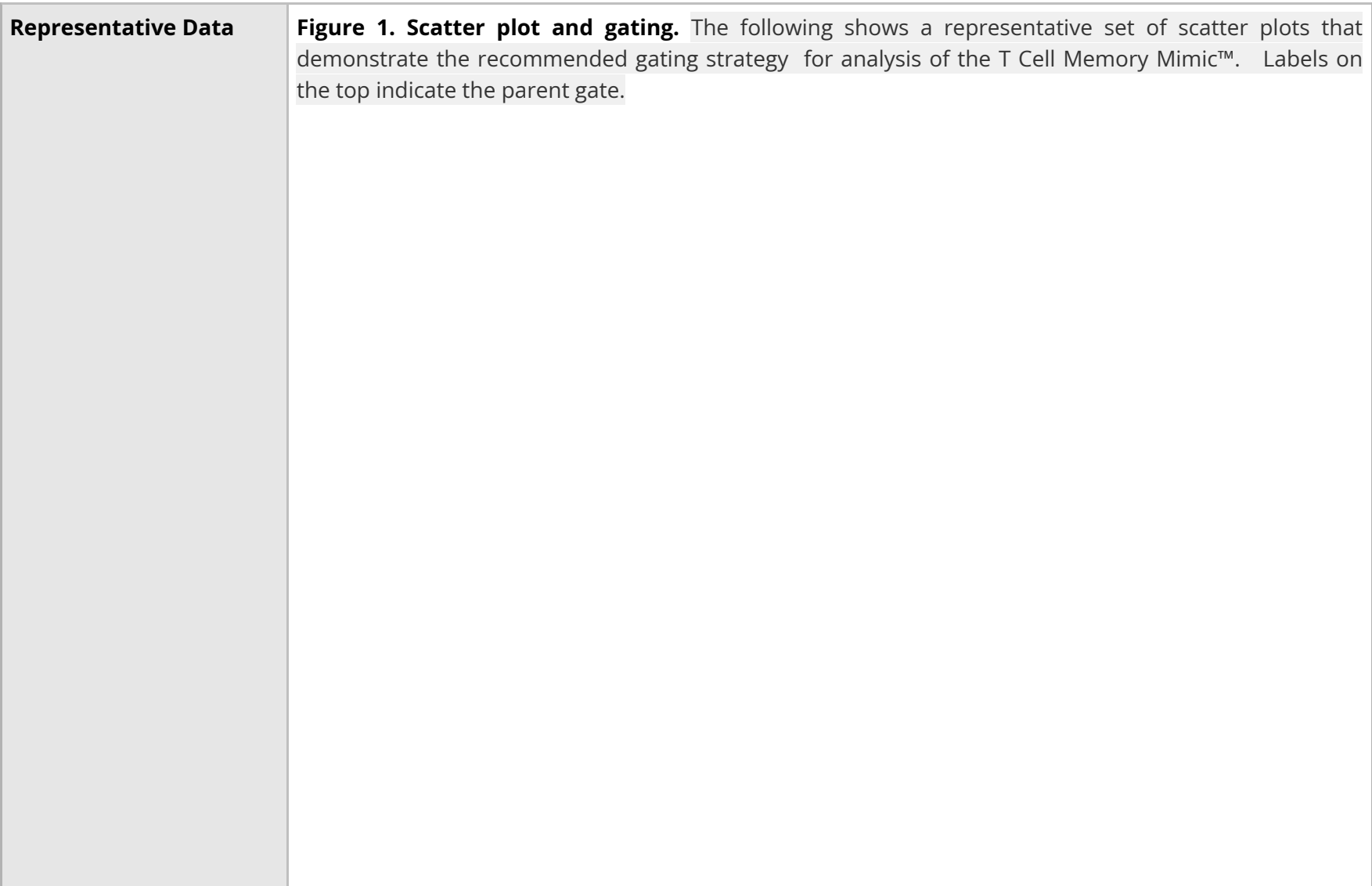
1. Add 2000 μ L of PBS to the cell mimics from step 9 of sample preparation.
2. Centrifuge at 600 x g for 5 minutes.
3. Decant the supernatant being careful not to disturb the cell pellet.
4. Repeat the wash step one additional time.
5. Add fixable live/dead dye diluted in PBS and mix thoroughly.
6. Incubate at room temperature in the dark (or according to manufacturer's instructions).
7. Wash with 2mL flow staining buffer.
8. Centrifuge at 600 x g for 5 minutes.
9. Decant the supernatant being careful not to disturb the cell pellet.
10. Repeat the wash step one additional time.
11. Prepare your preferred staining antibody cocktail in flow staining buffer and add to washed cell mimics.*
12. Incubate the mixture at room temperature in the dark as per your specific antibody panel requirements. Generally, we recommend 15 +/- 3 min at RT or or 30 +/- 5 min at 4 °C .
13. Add 1000 μ L of flow staining buffer.
14. Centrifuge at 600 x g for 5 minutes.
15. Decant the supernatant being careful not to disturb the cell pellet.
16. Repeat the wash step one additional time.

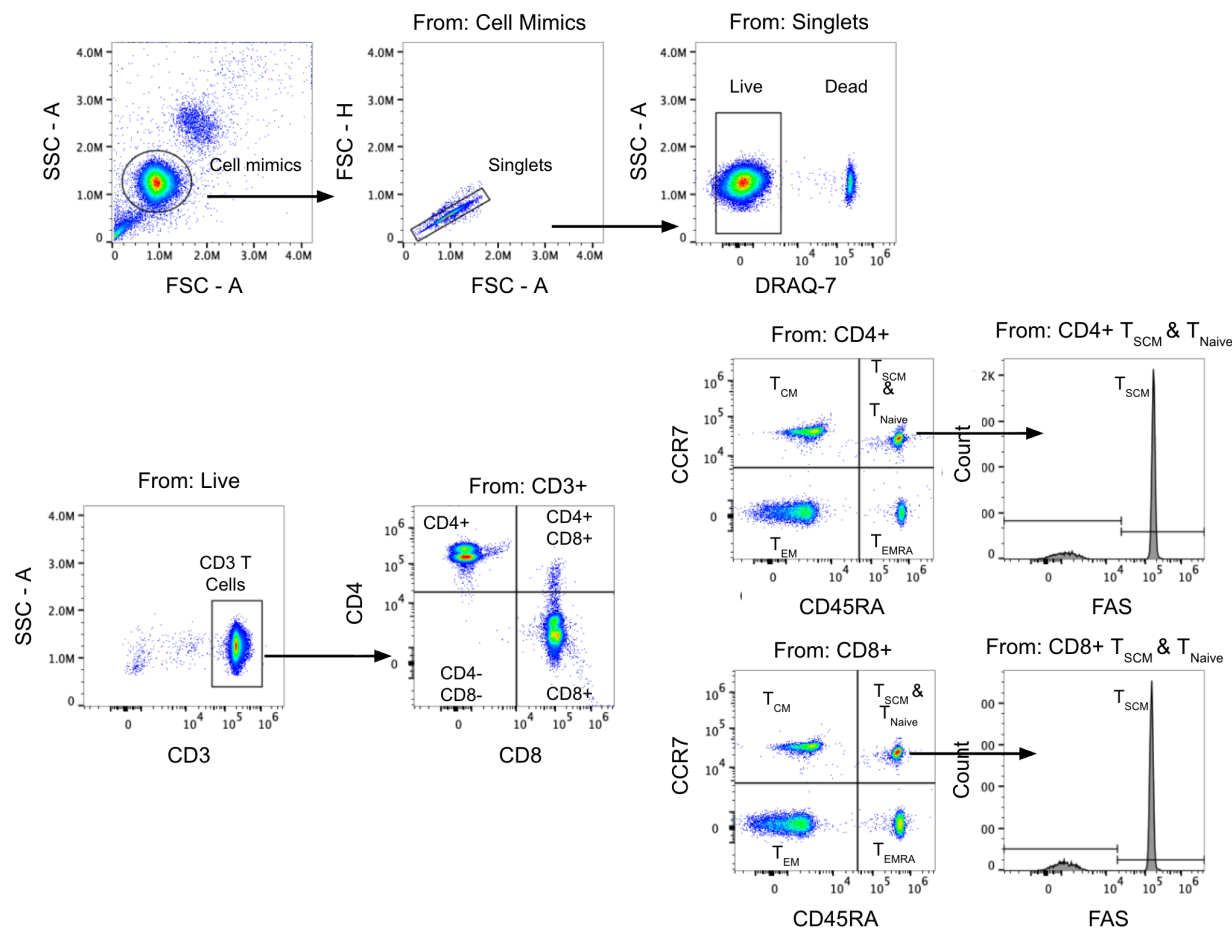


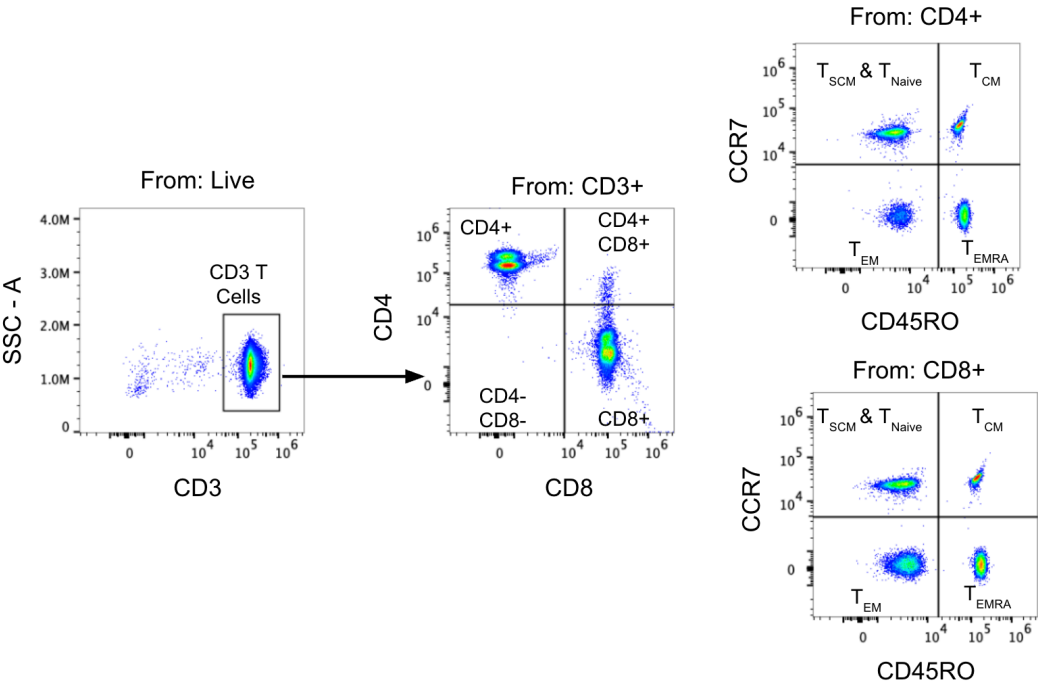
17. Resuspend in 200 μ L of flow staining buffer and vortex 2-3 seconds. Sample is ready for acquisition.

18. The sample is ready for acquisition - acquire cell mimics using the same flow cytometer instrument settings as your biological samples. For best results, we recommend acquiring your sample using low or medium flow rate.

*If desired, mimics may be pre-treated with Fc block for 10-15 minutes at RT prior to initiating antibody cocktail staining.







Technical Support

For technical support regarding this product, please contact: support@slingshotbio.com