

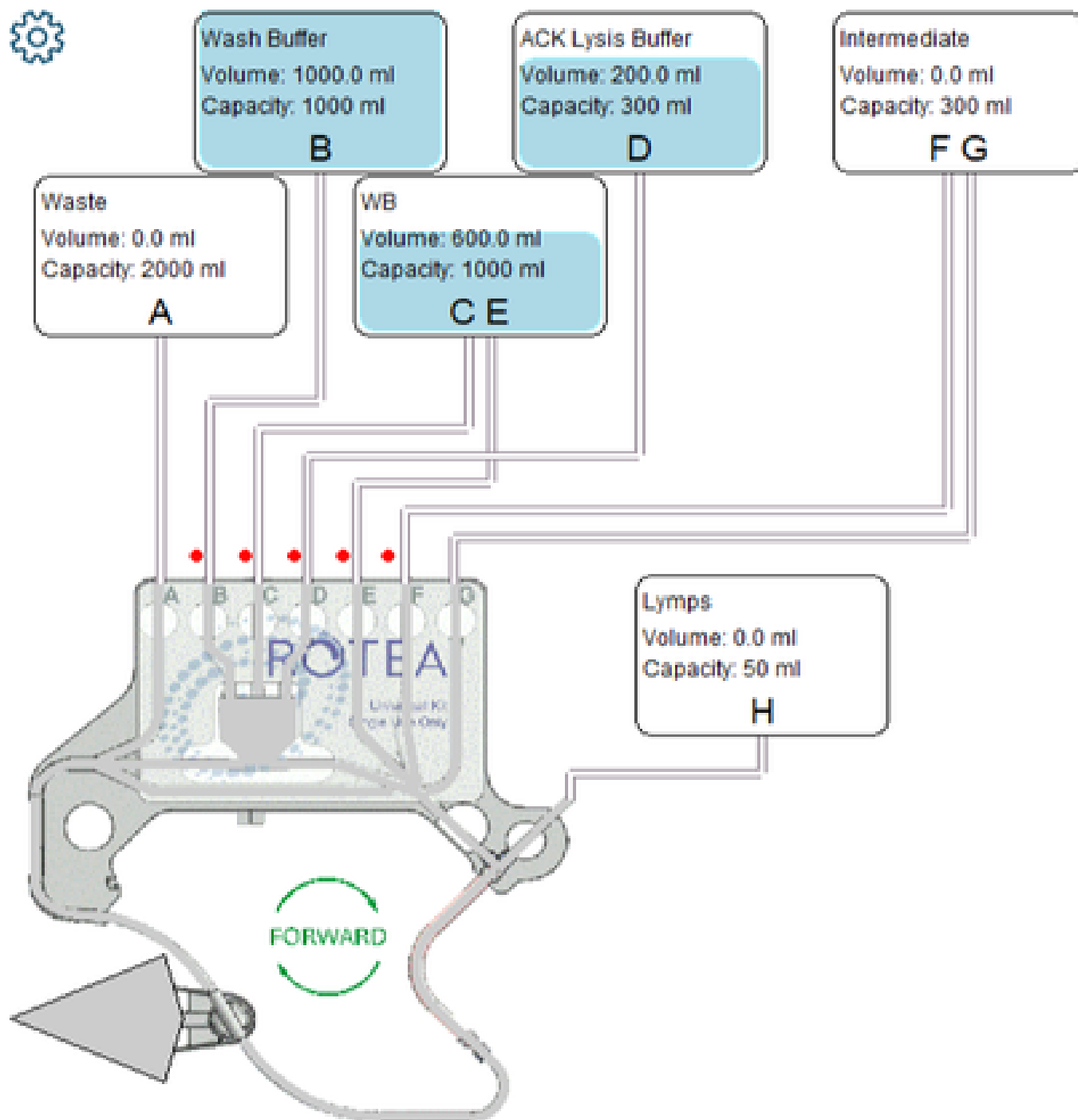
Priming Report — assessment and recommended sequence

Protocol: 'WholeBlo 8cba'

Date: 08 Jun 2026 10:20 Rotea Protocol Review version:0.1.2.0

Cell input bag: C (priming ends at line 13)

Kit configuration (current protocol bags and connections)



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Priming assessment (summary)

Bubble sensors active in protocol: C, F

Bubble sensors C, F not verified before cell processing — refer to Guideline Reports and hazard analysis.

Active bag lines assessed for priming: A, B, C, D, E, F, G, H

Bag lines Wet primed: A, B, C, D, E, F

Bag lines primed with recognised guarding: A

Bag lines primed without recognised guarding: B, C, D, E, F

Bag lines not primed before cell processing: G, H

Buffer on line B, staging on port A — recommendations follow protocol priming flow.

Recommended priming sequence

Buffer on line B, staging on port A — recommendations follow protocol priming flow.

Suggested priming sequence before cells loaded (current protocol step 13, cell input bag C):

Recommendation 1. [Dry prime]:

Dry-prime output line H at 0g: draw air from bag A at 40ml/min with Pressure Rising 20kPa pause on trigger, then return air from line H to bag A.

— Not covered in loaded protocol — implement before cell processing

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
1	Check line H clear	A to H	0g	40ml/min	Normal	Input Bubble Sensor, off Volume: 5 ml Pressure: Rising 20kPA, pause on trigger
2	Return air from line H to bag A	H to A	0g	40ml/min	Normal	Input Bubble Sensor, off Volume: 5 ml

Recommendation 2. [Bubble sensor test]:

Verify bubble sensor on line C (active in protocol, bag has starting fluid): draw to DtW with Timer pause on trigger, then return to WtD with Timer pause on trigger.

— Not covered in loaded protocol — implement before cell processing

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
3	Test sensor C wet	C to A	10g	50ml/min	Normal	Input Bubble Sensor, dry to wet Timer: 3 Seconds, pause on trigger
4	Test sensor C dry	A to C	10g	50ml/min	Normal	Input Bubble Sensor, wet to dry Timer: 3 Seconds, pause on trigger

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Recommendation 3. [Stage priming volume]:

Draw buffer from bag B (line B) into staging bag A (~39.0 ml: pause loop + chamber + bubble trap + wet-prime line volumes + contingency) at high flow with Pressure Rising 40kPa pause on trigger.

— Protocol line(s) 1, 2, 3

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
5	Check path to bag A	B to A	10g	100ml/min	Normal	Input Bubble Sensor, off Volume: 39.0 ml Pressure: Rising 40kPa, pause on trigger

Recommendation 4. [Transfer dilution volume]:

Transfer parameter-controlled dilution volume into bag A using 'Dilution (lysis) volume' (Use Volume Register, ratio 1.05) immediately after staging volume is loaded. Register also referenced at line(s) 9.

— Not covered in loaded protocol — implement before cell processing

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
6	Transfer dilution volume to A	B to A	10g	100ml/min	Normal	Input Bubble Sensor, off Use Volume Register: Dilution (lysis) volume (ratio 1.05) Pressure: Rising 40kPa, pause on trigger

Recommendation 5. [Bubble trap prime]:

Reverse pump to prime the bubble trap from staging bag A back into buffer line B (paths serving B, C, D).

— Protocol line(s) 4

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
7	Check line B clear	A to B	10g	50ml/min	Normal	Input Bubble Sensor, off Volume: 6.0 ml Pressure: Rising 40kPa, pause on trigger

Recommendation 6. [Bubble sensor test]:

Verify bubble sensor on line F (active in protocol, draw fluid from staging hub): draw to DtW with Timer pause on trigger, then return to WtD with Timer pause on trigger.

— Not covered in loaded protocol — implement before cell processing

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
8	Test sensor F wet	F to A	10g	50ml/min	Normal	Input Bubble Sensor, dry to wet Timer: 3 Seconds, pause on trigger
9	Test sensor F dry	A to F	10g	50ml/min	Normal	Input Bubble Sensor, wet to dry Timer: 3 Seconds, pause on trigger

Recommendation 7. [Wet prime from staging]:

From staging bag A, wet-prime line C (~1.7 ml) with volume trigger only (bubble sensor already verified in step 2 — no pressure guard).

— Protocol line(s) 5

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
10	Wet prime line C from staging	A to C	10g	50ml/min	Normal	Input Bubble Sensor, off Volume: 1.7 ml

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Recommendation 8. [Wet prime from staging]:

From staging bag A, wet-prime line D (~1.7 ml) with volume trigger and Pressure Rising 40kPa pause on trigger (no active bubble sensor in protocol).

— Protocol line(s) 6

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
11	Check line D clear	A to D	10g	50ml/min	Normal	Input Bubble Sensor, off Volume: 1.7 ml Pressure: Rising 40kPa, pause on trigger

Recommendation 9. [Wet prime from staging]:

From buffer line B (reagent side, via bubble trap), wet-prime line E (~2.0 ml) with volume trigger and Pressure Rising 40kPa pause on trigger (no active bubble sensor in protocol).

— Not covered in loaded protocol — implement before cell processing

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
12	Check line E clear	B to E	10g	50ml/min	Normal	Input Bubble Sensor, off Volume: 2.0 ml Pressure: Rising 40kPa, pause on trigger

Recommendation 10. [Wet prime from staging]:

From staging bag A, wet-prime line F (~1.9 ml) with volume trigger only (bubble sensor already verified in step 2 — no pressure guard).

— Protocol line(s) 7

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
13	Wet prime line F from staging	A to F	10g	50ml/min	Normal	Input Bubble Sensor, off Volume: 1.9 ml

Recommendation 11. [Wet prime from staging]:

From buffer line B (reagent side, via bubble trap), wet-prime line G (~2.9 ml) with volume trigger and Pressure Rising 40kPa pause on trigger (no active bubble sensor in protocol).

— Not covered in loaded protocol — implement before cell processing

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
14	Check line G clear	B to G	10g	50ml/min	Normal	Input Bubble Sensor, off Volume: 2.9 ml Pressure: Rising 40kPa, pause on trigger

Recommendation 12. [Pause loop prime]:

Prime pause loop (Pause J to K, slow forward pump ~30 ml/min, wet detK, detL, detChB, detChamb, detChA, detJ); centrifuge ≥2000 G to bed-in seals.

— Protocol line(s) 8, 10, 11; line(s) 8, 10 below recommended 2000 G for seal bed-in

Action	Description	Flow Path	Speed	Flow Rate	Step Type	Triggers
15	Prime pause loop & bed-in seals	J to K	2000g	30ml/min	Pause	Time: 15 Seconds Centrifuge ≥2000 G during step

Hazard burden from existing priming design:

$\Sigma \text{base_rpn} \times \text{occurrences} = 252$ (9 event(s), 3 guideline type(s)).

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Residual burden (no change-plan commits): 252.

Largest contributors: BV1 (120), AP7 (96), AP1 (36).

See Hazard Analysis and Guideline Reports for detail.

Impact of changing to recommended priming:

Closing priming gaps (bag lines G, H; sensors C, F) by implementing the suggested sequence is expected to reduce priming-scope hazards tied to incomplete line wetting, dry prime, and bubble-sensor verification.

Priming-scope guidelines most likely affected: AP1, AP7, BV1.

Update the protocol, re-run Volume Sim Init, then review Hazard Analysis for revised totals.