Tick Homogenization Using the Bullet Blender

RS18-0238C.ATIC

Materials

- Bullet Blender® for 1.5/2 mL tubes using 5 mL adapters
- Homogenization Buffer
- FoamBlocker (Optional)
- Lysis Kit or Lysis Beads
  - GREEN or NAVY Lysis Kit
  - 1.4 mm blend + 3.2 mm Stainless Steel Beads in Eppendorf, GATOR, or RINO tubes
- Sample — up to 10 Whole Ticks

Table 1. Proper sample, bead and buffer volume ratios for 1.5/2 mL tubes using 5 mL adapters.

Lysis Kit and Bead Choices	Sample Volume	Bead Volume	Buffer Volume
GREEN	6 Whole Ticks	Pre-filled	200 - 300 µL
NAVY	10 Whole Ticks	Pre-filled	300 - 600 µL
1.4 mm blend + 3.2 mm Stainless Steel Beads	10 Whole Ticks	100 - 200 µL	200 - 600 µL

Procedure

1. Use the pre-filled bead lysis kit tubes OR prepare a tube with the recommended volume of beads from the table above.
2. Add the appropriate volume of buffer according to the table above
3. Prepare the sample and then transfer it into the buffer-filled tubes.
4. (Optional) To avoid excess foaming, add FoamBlocker up to 1-2% of the total volume of the homogenization buffer.
5. Close the tubes tightly and place into the Bullet Blender sample chamber. If using the Gold or Gold^{+} models, pre-cool the chamber before adding sample tubes.
6. Set the controls to speed 16, time 4 minutes then press Start.
   Note: Using single-size beads instead of pre-filled lysis kits may require additional time.
7. After the run, remove the tubes from the instrument and visually inspect the samples. If homogenization is incomplete, homogenize for an additional 30 seconds, or repeat the homogenization step with a higher speed.
8. Using a pipette, transfer the homogenized samples into new tubes.
9. Proceed with downstream application.

Notes

This protocol does not specify a particular buffer – choose a buffer that is most appropriate for the downstream application.

The provided homogenization conditions serve as a general guideline. Homogenization times, speeds, or beads may need to be optimized based on sample characteristics and desired outcomes.

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