Mammalian Cell Culture Homogenization Using the Bullet Blender

RS18-0238C.HMCC

Materials

- Bullet Blender® for 50 mL tubes
- Homogenization Buffer
- FoamBlocker (Optional)
- Lysis Beads
  - 0.15 mm Zirconium Oxide Beads in HIPPO tubes
- Sample — up to 3500 mg

Table 1. Proper sample, bead and buffer volume ratios for 50 mL tubes.

Beads	Sample Volume	Bead Volume	Buffer Volume
0.15 mm Zirconium Oxide Beads	up to 3500 µL pellet	4 - 5 mL	Up to 20 mL

Procedure

1. Prepare a tube with the recommended volume of beads from the table above.
2. If the sample has been grown on a plate or other solid surface, detach it by flooding the surface with PBS and scraping the material into a microcentrifuge tube. Centrifuge to obtain a cell pellet and resuspend in the specified volume of lysis buffer. Liquid cultures may be placed directly in the lysis tube as long as they are of sufficient density.
3. (Optional) To avoid excess foaming, add FoamBlocker up to 1-2% of the total volume of the homogenization buffer.
4. 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.
5. Set the controls to speed 8, time 12 minutes then press Start.
6. 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.
7. Using a pipette, transfer the homogenized samples into new tubes.
8. 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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