TAG FLEX-LB™ (TFLB)

A stabilizing blood collection tube (BCT). For research use only (RUO).

TAG Truckee Applied Genomics

TAG R&D performance tests highlights



Seven-Day cfDNA and cfRNA Stability. One Less Extraction Step.

Protect Your Science. Perfect Your Signal.

The Pre-Analytical Challenge: A Tube for Samples That Wait or Travel

Sample degradation begins at collection. Lysing white cells add genomic DNA and red cells add RNA that bury the cell-free signal, causing irreproducible results and assay failure.

TAG FLEX-LB (TFLB BCT) stabilizes cell-free DNA and cell-free RNA in one 10 mL tube for up to 7 days at ambient temperature (20 to 21 °C). Total RNA remained suitable for RT-qPCR after 12 hours at 37 °C. On TAG's MagMAX cfDNA workflow, TFLB plasma needs no Proteinase K digestion. New for 2026: plasma protein, cellular gDNA and flow cytometry data from the same tube.

No Proteinase K	**< 5 ng/mL vs 180 ng/mL**	**12 h at 37 °C**	**1/7 the rise**
20-minute, 60 °C digestion removed per MagMAX run, compared with Streck Cell-Free DNA BCT	total plasma DNA at Day 7, TFLB vs K_2EDTA, ambient	total RNA still sufficient for RT-qPCR	plasma TGF-β1 by Day 4, TFLB vs K_2EDTA, ambient

Sample Integrity, From Collection to Analysis: 7 Days at Ambient Temperature

- **Skip the Proteinase K Step:** On TAG's workflow with the MagMAX Cell-Free DNA Isolation Kit, TFLB plasma needs no Proteinase K digestion. Compared with Streck Cell-Free DNA BCT, that removes one 20-minute, 60 °C incubation from every run and about $2.30 to $3.25 of enzyme per sample at US list price, for 3 to 4 mL of plasma.
- **Process on Your Schedule:** TFLB does not need the 2- to 4-hour processing window of K_2EDTA, so samples drawn late in the day or before a weekend can wait for the next scheduled run.
- **No Genomic DNA Rise Over 7 Days:** Total plasma DNA in TFLB stayed under 5 ng/mL through Day 7, against 180 ng/mL in K_2EDTA, where lysing white cells release genomic DNA. The cfDNA fraction held at 87% on Days 3 and 5, while K_2EDTA fell to 22% by Day 3. TFLB tracked PAXgene DNA and Streck tubes through Day 7 and returned 1.0 mL of plasma from 2 mL of blood at every timepoint.
- **A Steadier miRNA Ratio:** The miRNA share of small RNA in TFLB stayed within a 12-point band over 7 days at ambient temperature, the narrowest of the three tubes tested, with the tightest replicate spread.
- **Lowest Red-Cell Marker miR-16 Signal:** TFLB had the highest Ct, meaning the least miR-16, of the three tubes at every timepoint.

Measure	TAG FLEX-LB (TFLB)	Streck BCTs	K_2EDTA	Figure, n
Plasma volume, from 2 mL blood, ambient, 7 days	1.0 mL at every timepoint	1.0 mL at every timepoint (cfDNA BCT, Nucleic Acid BCT)	Not tested	Fig 1, n = 1
cfDNA fraction, ambient, 7 days	About 90% at draw; 87% Days 3 and 5; 74% Day 7	70 to 80% on Day 7 (cfDNA BCT, Nucleic Acid BCT)	22% by Day 3	Fig 2B, paired n = 2
miRNA share of small RNA, ambient, 7 days	34 to 46%	40 to 62% (RNA Complete); 32 to 48% (Nucleic Acid)	Not tested	Fig 3B, paired n = 2
Plasma appearance, 4 °C, Day 6	Slight color change	Red tint; held below the 6 °C label minimum	Not tested	Fig 4B, paired n = 2
Total RNA, 37 °C, 12 h	31 ng/uL; enough for RT-qPCR	6.5 and 7.2 ng/uL with a silica-column kit, without Proteinase K	Not tested	Fig 8B, paired n = 2
Spiked EGFR G719S, PIK3CA H1047R, 7 days	Detected through Day 7	Detected through Day 7	Not tested	Fig 11, paired n = 2
PIK3CA amplicon coverage, Day 7	13,000 to 18,000 reads	7,000 to 12,000 reads	Not tested	Fig 12, paired n = 2
Plasma TGF-β1, Day 4 (rise from Day 0)	About 5,000 pg/mL (+3,500)	About 7,600 pg/mL (+700), Nucleic Acid Plus BCT	About 28,600 pg/mL (+26,000)	Fig 13, paired n = 2
Cellular gDNA, ambient, Day 7	DIN 8.7 to 8.8; recoverable	About 90% less extractable after Day 3, same extraction	Not tested	Fig 17, paired n = 2
CD45+ live (% of events), 48 h, exploratory	About 12%	Under 1% (Nucleic Acid Plus BCT)	About 8%	Fig 16, paired n = 2
Proteinase K step, MagMAX cfDNA kit	Not required	Required for cfDNA BCT and Nucleic Acid BCT (20 min, 60 °C)	Not tested	MAN0014327

Adapted from Table 1 and Figures 1, 16 and 17 of the TFLB Technical Note, November 2026. TAG R&D feasibility comparisons; n = healthy donors; paired = each donor's blood drawn into every tube compared. All results on both pages come from these studies.

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TAG R&D performance tests highlights

Engineered for the Real World. Tested on Sensitive Assays.

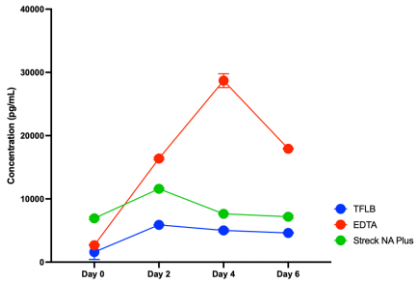
Performance Across Real-World Temperatures

Shipments do not stay at room temperature. TFLB was tested at both ends.

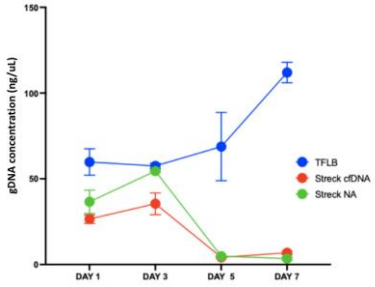
- **Heat Stress (37 °C):** After 12 hours at 37 °C, TFLB total RNA remained sufficient for RT-qPCR at 31 ng/uL, and supported HSP70 RT-qPCR through 12 hours.
- **Cold Excursions (4 °C):** Ice packs can cool tubes to about 4 °C, below the 6 °C minimum on Streck's cfDNA tube label. After 6 days at 4 °C, TFLB plasma showed a slight red tint and Streck plasma a strong one. Plasma DNA yield reached about 3.8 ng per mL of plasma in TFLB, against 6.5 and 8.0 in the Streck tubes.

New in 2026: Protein, Genomic DNA and Flow Cytometry

- **Plasma TGF-β1:** At 21 to 22 °C, TFLB limited the ex vivo rise of plasma TGF-β1 to about one seventh of the K_2EDTA rise by Day 4 and held it near 4,600 to 5,900 pg/mL from Day 2 to Day 6, the lowest of the three tubes at every timepoint.
- **Genomic DNA From the Same Tube:** Matched blood-cell DNA can support germline filtering and variant interpretation in ctDNA research. gDNA from the cell fraction of TFLB blood stayed recoverable and high molecular weight through Day 7 (DIN 8.5 to 9.4). With the same extraction, and no added decrosslinking step, extractable gDNA from Streck cfDNA and Nucleic Acid BCTs fell by about 90% between Day 3 and Day 5.
- **CD45+ Events at 48 Hours:** In exploratory flow cytometry after density-gradient isolation, CD45+ live events at 48 hours comprised about 12% of acquired events in TFLB, 8% in K_2EDTA and under 1% in Streck Nucleic Acid Plus BCT.



Plasma TGF-β1 over 6 days, ambient (Fig 13, paired n = 2)



Extractable gDNA over 7 days, ambient (Fig 17, paired n = 2)

Tested in Next-Generation Sequencing (NGS)

- **Variants Detected Through Day 7:** Spiked synthetic EGFR G719S and PIK3CA H1047R, from a reference standard with nominal 5% allele frequency, were detected in TFLB at every timepoint through Day 7 in both donors on the Illumina TruSight Tumor 15 panel.
- **More PIK3CA Coverage at Day 7:** TFLB held 13,000 to 18,000 reads over the PIK3CA H1047R amplicon at Day 7, against 7,000 to 12,000 in the Streck tubes. EGFR G719S coverage did not decline.

The TFLB Advantage for Your Laboratory

- **For Liquid Biopsy Researchers:** Collect at distributed sites and process on your schedule, with cfDNA, cfRNA and total RNA recoverable from one tube.
- **For Assay Developers:** You have the assay, we have the tubes. TAG draws and processes matched blood to your timepoints and you run it in your own lab, with the study scope and terms agreed in advance.
- **For CLIA Lab Directors:** Remove one 60 °C incubation per cfDNA run on the MagMAX kit and the Proteinase K reagent that goes with it. TFLB lists at $400.00 for 50 tubes ($8.00 per tube).

For Research Use Only. Not for use in diagnostic procedures. Results: TAG R&D feasibility comparisons in healthy donors, n and design as shown in Table 1. Sources: TAG FLEX-LB Technical Note, November 2026; Thermo Fisher MAN0014327; Leest et al., Clin Chem 2024, doi.org/10.1093/clinchem/hvad194. Proteinase K estimate: AM2548 US list prices recorded September 14, 2026.

Try TFLB Beside Your Current Tube

Request an evaluation kit or a call with TAG scientists: tflb@tagreagents.com | +1 775 237 8799

Scan for technical documents: tagreagents.com/docs

Meet TAG at AMP 2026 in Seattle: poster ST157, Saturday 14 November, 9:15 to 10:15