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New England Biolabs launches NEBNext low-bias small RNA library prep kit

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Presenting a new method for capturing the true diversity of RNA samples



US-based New England Biolabs (NEB) has announced the launch of the NEBNext Low-bias Small RNA Library Prep Kit, designed to minimise biased representation of small RNA species in sequencing data. This next generation small RNA preparation method is faster, less biased, and has a broader input range than other commercially available kits.

Protocol enhancements include the addition of a novel splint adaptor that increases the diversity of interactions, facilitating ligation and increasing sensitivity, with a streamlined, simplified protocol.

As a result, researchers can now confidently analyse all RNA species present in biologically relevant samples. Additional improvements include unprecedented speed (~3.5 hrs), shelf life (18 months), and input range. Standard and 2´-O-methylated samples can also be processed using the same protocol, with multiplexing enabled through up to 480 compatible UDI primer pairs (available separately).

The kit's novel approach to adaptor ligation culminated from over a decade of research by NEB scientists. The first study, published in 2012, recognised that RNA sequencing bias was significant and caused mostly by unpredictable differences in ligation efficiency for small RNAs. The second foundational study, published in 2020, presented a novel library preparation workflow that reduced bias and increased sensitivity in small RNA library prep. Several protocol enhancements have since improved the kit to outperform the originally published methods.

"Bias in small RNA sequencing has long complicated the interpretation of RNA sequencing data, and limited RNA research," explained Greg Lohman, Research Group Leader in NEB's Molecular Enzymology Division. "We anticipate that successfully resolving this bias through a novel library preparation method will make diverse RNA research easier and open the door to future discoveries."