SYNTHESIS OF SPIN-LABELED RNAS TO ELUCIDATE THE FUNCTION OF REVERSE TRANSCRIPTASE.

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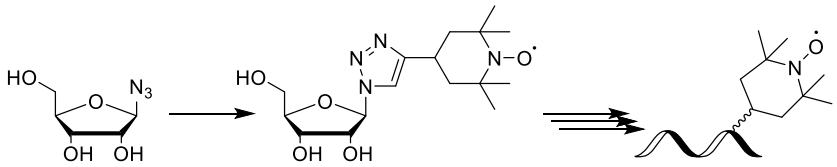
EXTENDED ABSTRACT

Long Interspersed Nuclear Element (LINE) is one of the noncoding RNAs. LINE is a simple, regularly repeated sequence that accounts for 21% of the human genome. LINEs are thought to be retroviruses whose genomic sequences are retrotranscribed into mammals, and they increase and move within the genome, but the mechanism by which they do so is still unknown (retrotransposons). To elucidate this mechanism, dynamic conformational analysis using nuclear magnetic resonance (NMR) can be performed at the moment when the RNA interacts with the reverse transcriptase. RNA is an elongated molecule, and it is not clear how RNA interacts with proteins, although minor intermediates may express important functions in the cells. Therefore, we focused on the paramagnetic relaxation method, which allows us to observe long-range interactions and minor intermediates. The paramagnetic relaxation method is a method to observe the effects of electron spin by NMR, which allows us to observe long-range interaction and minor intermediates.

In this study, nucleosides possessing spin-labeling moieties were synthesized and introduced into RNA sequences. It was found that the spin label was quenched during RNA synthesis using an automated nucleic acid synthesizer.



An example of a reaction

KEYWORDS
LINE, retrotransposons, NMR, paramagnetic relaxation method