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A simple LC/MRM-MS-based method to quantify free linker-payload in antibody-drug conjugate preparations

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Highlights

- A simple MRM-based method to quantify free linker-payload in an ADC is described.
- The approach has an LLOQ of 10 nM and requires no special laboratory equipment.
- The method was used to monitor free linker-payload removal during ADC manufacturing.

Abstract

Antibody-drug conjugates represent a growing class of biologic drugs that use the targeted specificity of an antibody to direct the localization of a small molecule drug, often a cytotoxic payload. After conjugation, antibody-drug conjugate preparations typically retain a residual amount of free (unconjugated) linker-payload. Monitoring this free small molecule drug component is important due to the potential for free payload to mediate unintended (off-target) toxicity. We developed a simple RP-HPLC/MRM-MS-based assay that can be rapidly employed to quantify free linker-payload. The