



## Determination of Ketamine in Rabbit Plasma by Gradient Elution Liquid Chromatography/Electrospray Mass Spectrometry

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**SUMMARY.** A sensitive and simple liquid chromatography/electrospray mass spectrometry (LC-ESI-MS) method for determination of ketamine in rabbit plasma using one-step protein precipitation was developed and validated. After addition of methadone as internal standard (IS), protein precipitation by acetonitrile was used as sample preparation. Chromatographically separation was achieved on an SB-C18 (2.1 mm × 50 mm, 3.5 μm) column with methanol-0.1 % formic acid as the mobile phase with gradient elution. Electrospray ionization (ESI) source was applied and operated in positive ion mode; multiple reaction monitoring (MRM) mode was used to quantification using target fragment ions  $m/z$  237.7 → 219.7 for ketamine and  $m/z$  309.9 → 264.8 for the IS. Calibration plots were linear over the range of 5-1000 ng/mL for ketamine in rabbit plasma. Lower limit of quantification (LLOQ) for ketamine was 5 ng/mL. Mean recovery of ketamine from plasma was in the range of 97.5-100.1 %. RSD of intra-day and inter-day precision were both less than 11 %. This method is simple and sensitive enough to be used in pharmacokinetic research for determination of ketamine in rabbit plasma.

**KEY WORDS:** Ketamine, LC-MS, Rabbit plasma.

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