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Determination of Esomeprazole in Rabbit Plasma by Liquid Chromatography-Mass Spectrometry and its Application to a Pharmacokinetic Study

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***SUMMARY*. A sensitive and selective liquid chromatography-mass spectrometry (LC–MS) method for determination of esomeprazole in rabbit plasma was developed and validated. After addition of midazolam as internal standard (IS), protein precipitation by acetonitrile was used as sample preparation, and chromatography involved Agilent SB-C18 column (2.1 x 150 mm, 5.0 μm) using 0.1 % formic acid in water and acetonitrile as a mobile phase with gradient elution. Detection involved positive ion mode electrospray ionization (ESI), and selective ion monitoring *(SIM)* mode was used for quantification of target fragment ions *m*/*z* 198 for esomeprazole and *m*/*z* 326 for midazolam (internal standard, IS). The assay was linear over the range of 10–2000 ng/mL for esomeprazole, with a lower limit of quantitation (LLOQ) of 10 ng/mL for esomeprazole. Intra- and inter-day precisions were less than 14 % and the accuracies were in the range of 89.2-112.6 % for esomeprazole. This developed method was successfully applied for the determination of esomeprazole in rabbit plasma for pharmacokinetic study.**

KEY WORDS: Esomeprazole, LC-MS, Pharmacokinetics, Rabbit plasma.

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