AIM OF THE STUDY
3 AIMS OF THE STUDY

There has been considerable research conducted using IAM column to model passive intestinal absorption; there are several areas in which improvements might be made. In most of the experiments (section 2.3.6), $k'\text{IAM}$ measurements have been performed at single pH usually at physiological pH 7.0/7.4, which appears not to be a typical pH of small intestine. The GI tract exhibits a considerable pH gradient, and pH partition hypothesis predicts that the absorption of ionizable drugs may be location specific. Absorption of drug products generally takes place in small intestine, in a pH range 4.5-8.0. Therefore, it is necessary to utilize appropriate pH condition for the adequate prediction of oral absorption. The general objective of the present work was to study the effect of mobile phase pH (pH gradient of small intestine) on retention characteristics (capacity factor, $k'\text{IAM}$) of chemically diverse compounds in IAM column which could affect relationship between IAM capacity factor and human oral absorption.

The specific aims were:

1. To study effect of chromatographic conditions (column temperature, mobile phase pH and mobile phase composition) and molecular factors on IAM retention.

2. To establish relationship between IAM capacity factor and percent human oral absorption considering pH gradient of small intestine and pH-partitioning hypothesis.

3. To model and predict passive transcellular drug absorption across human intestine, together with IAM retention factor, using molecular descriptors and linear or non-linear regression analysis.

4. To check method’s suitability to classify compounds into low, moderate or high oral absorption category.