

Intestinal Absorption Kit

TRANSIL Intestinal Absorption Kit

CATALOG #
AAA60725

PRODUCT SYNONYMS

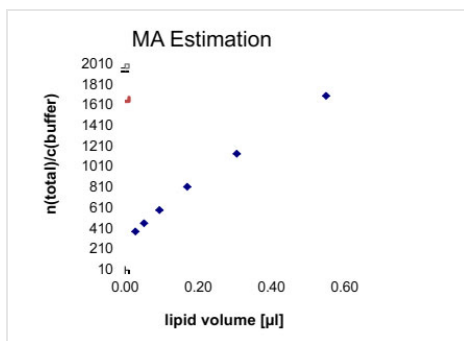
Intestinal Absorption; TRANSIL Intestinal Absorption Kit; Intestinal Absorption kit

PRODUCT SPECIFICATIONS

Preparation and Storage

Store at -20 degree C

IMAGES



Standard Curve (Sample)

Related Product Information for Intestinal Absorption kit	Background: The complex, costly, and often uncertain outcome of the drug discovery and development process requires the simultaneous optimization of several properties. It has now long been recognized that favorable potency and selectivity characteristics are not the sole hallmarks of a successful drug discovery program, nor is the safety profile considered to be the only hurdle to be overcome, although it is of paramount importance. The ability to prospectively predict the pharmacokinetics of new chemical entities in humans is a powerful means by which scientists involved in the discovery of new drugs can select for further development only those compounds with the potential to be successful therapeutic agents. Absorption of an orally administered drug from the GI tract is a complex process that is influenced by various factors. These factors include physiological properties such as the diameter, length, surface area, and pH profile of the intestine, the gastric emptying and intestinal transit times, and physicochemical properties of the drug such as its solubility and effective permeability coefficient the latter of which has been correlated with the compounds lipophilicity and size. The permeability and/or solubility can limit the fraction dose absorbed of a drug. In addition, degradation in the intestinal fluid and metabolism in the gut wall or the liver can also decrease the compound's bioavailability, which is usually defined as the fraction of the administered parent compound that reaches the systemic circulation. During the lead optimization process, identifying the causes of poor bioavailability is very important, because it can help to guide the synthesis program toward candidates with a more suitable pharmacokinetic profile and, thus, a higher chance for successful development. Ultimately, for real "drugs" the type of formulation and its composition also play an important role in determining the rate and extent of oral absorption. The half-life of a drug is a major contributor to the dosing regimen is a function of both the clearance and apparent volume of distribution (VD), each of these parameters can be predicted and combined to generate half-life values. Drugs with short half-lives are likely to be administered more frequently than those with long half-lives. The dosing regimen is also intrinsically linked to other factors as: the drug's pharmacodynamics and the difference between systemic concentrations associated with side effects versus those minimally required for efficacy. However, these latter attributes are much more difficult to predict from in vitro or animal data and will be different for each therapeutic target. Thus, a great deal of focus has been placed on the prediction of human half-life. While methods using allometric scaling or correlative methods exist to predict half-life, greater success is attained if the two major components of half-life, clearance and volume of distribution, are predicted separately and combined to generate a half-life prediction (Obach et al 1997). Volume of distribution represents a complex combination of multiple chemical and biochemical phenomena. It is a measure of the relative partitioning of a drug between plasma (the central compartment) and the tissues. Thus, the VD term considers all of the tissues as a single homogeneous compartment. As a result, compounds that are equally bound to plasma proteins may yield a different VD, since the compound with the greater tissue binding will yield the larger VD. Conversely, compounds with equal tissue binding may differ in VD, with the compounds having the greater plasma protein binding yielding the smaller VD. Drug partitioning into tissues is a function of the sum of binding interactions with tissue components versus binding to plasma proteins, provided that the drug can readily penetrate into tissues. It should be noted that, realistically, binding to the various tissues is a function of the composition of each tissue, which dictates the binding affinities and capacities for various drugs. However, while it is simple to measure plasma protein binding using human plasma, measurement of tissue binding in humans is not practical. The TRANSIL Intestinal Absorption Kit is not only a screening tool to predict intestinal permeability coefficients, but also predicts compounds' tissue binding. As drug-membrane interactions are key to both, the process of membrane permeability and binding to and permeating into the cell membranes of tissues, the TRANSIL assay kit based on immobilized natural phosphatidylcholine membrane vesicles is an ideal tool to predict these pharmacokinetic parameters early in drug discovery. Principle of the Assay: The principle of the TRANSIL Intestinal Absorption kit is to assess the affinity of test compounds to phosphatidylcholine membranes. The membrane affinity is determined by incubating a fixed concentration of the drug candidate with varying concentrations of membrane surface area immobilized on the silica beads. A total of 8 wells of a tube unit/plate are used to determine the membrane affinity for each compound (Figure 1). Six wells contain membrane silica beads while two serve as references to account for nonspecific binding and contain buffer only. Using the spreadsheet and algorithms supplied with the assay, the affinity to the intestinal membranes is calculated from remaining free compound concentration in the supernatant of each well with membrane beads. Any of the available detection systems, such as HPLC-UV, LC-MS/MS, scintillation counting, etc. can be used for quantification, as long as it can quantify uM concentrations in volumes of 50 ul or less.
Product Categories/Family for Intestinal Absorption kit	Sovicell ADME Assays

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.