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Classification of a molecule not classified BCS esomeprazole

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Determination of the solubility and permeability of the molecules allowed them to be classified into four categories according to the BCS classification system. This classification system can be used as a drug development tool to exonerate certain drugs from bioequivalence studies. The objective of the work is the classification of a molecule not classified BCS (Esomeprazole) by comparing its permeability with two molecules classified BCS, one of which is highly permeable and the other is weakly permeable administered simultaneously in rats, using the model of intestinal perfusion in situ in anesthetized rats. Determination of the effective permeability is done in four anesthetized rats by measuring the decay of the equilibrium luminal concentrations of the test molecule which is administered as a solution in infusion inside a segment of intestine maintained irrigated and innervated. It is sufficient to choose two molecules from the list of model molecules: One highly permeable (Naproxen-Metoprolol) and the other weakly permeable (Atenolol-Hydrochlorthiazide-Furosemide), for use as internal standards (include them in the infusion fluid, together with the test substance), in addition to the liquid flow marker (phenol red or other). The effective permeability of each molecule is calculated at steady state. Rats 1, 2 and 4 for which Esomeprazole/Atenolol/Metoprolol was administered simultaneously have results close to each other. Rat 3 has a very high effective permeability. Based on the published data, Metoprolol is classified as class I in BCS: High solubility, high permeability. It can be concluded that our Esomeprazole study molecule has low permeability, high solubility, which allowed us to classify it in class III BCS.

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