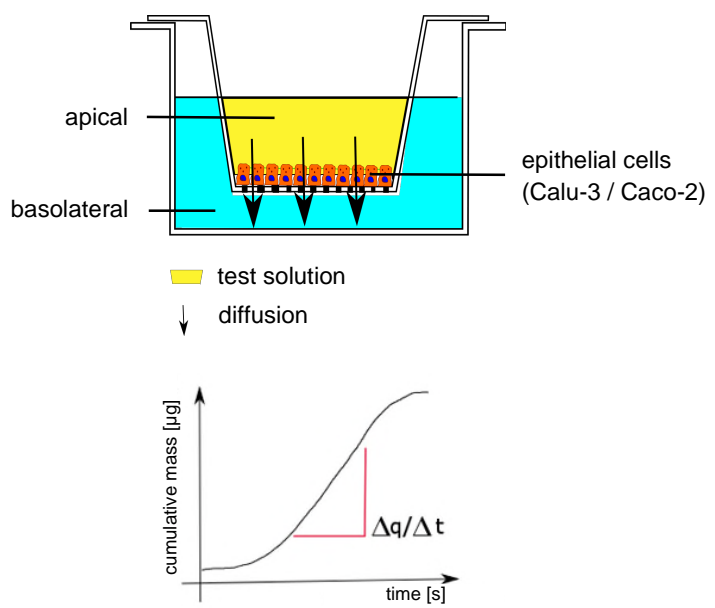


Method name	Determination of cumulative mass across a cell barrier (lung cells / intestinal cells)
Organ system	Lungs / Bowel
Subject area	Drug development
Area of application	Formulation development, Testing of bioequivalent properties
Relation of the method to the 3Rs	Replacement & Reduction, Pharmacological prediction on drug absorption
Figure	 <p>The figures show a transwell™ with a test solution for transport across an epithelial cell barrier (upper figure) and a plot of the cumulative mass of the test substance over time (lower figure).</p>
Brief description	The transwell™ model allows the representation of the cumulative mass of a test substance across a confluent epithelial monolayer. Calu-3 cells are used for pulmonary issues, whereas intestinal testing requires Caco-2 cells. However, the system can be applied to all cell types that form a confluent monolayer through, e.g., tight junctions. The integrity of the cell barrier will be assessed using transepithelial resistance (TEER) measurements. Plotting the cumulative mass in the apical compartment against time allows the calculation of an apparent permeability coefficient. The study gives a first prediction of drug absorption.
Theme-based funding	INNO-KOM project “Kombipulmonal” (FKZ 49MF200045).
Publication	n. a.