TABLE 14.1 *(Continued)*
Summary of the Effect of Occlusion on Percutaneous Absorption

Models				
	In Vivo			
In Vitro	Animals	Humans	Compounds	Results and References
	Weanling pigs		Parathion and its major metabolites	Increased the absorption and shortened the mean residence time; the effect of occlusion on percutaneous absorption was affected by anatomical site (35–37).
	Weanling pigs		Pentachlorophenol	Absorption on occluded dosed site was significantly enhanced (by more than three times) when compared to nonoccluded site (38).
	Rhesus monkeys	Humans	Benzyl acetate and five other benzyl derivatives	Increased the penetration with variability between compounds (39).
	Rats		2',3'-Dideoxyinosine	Gave a more uniform plasma profile but did not increase the bioavailability (40).
		Humans	Hydrocortisone	Significantly increased (tenfold) the cumulative absorption (41).
		Humans	Pesticide malathion	Significantly increased malathion penetration. Duration of occlusion affected the penetration, i.e., increasing duration increased penetration (76).
		Humans	Hexyl nicotinate	Significantly increased the peak height and AUC, and the onset of action and time to peak were significantly shortened; also showed a significant correlation between stratum corneum water content and area under the LDV response–time curve (42, 43).
		Humans	Hydrocortisone, estradiol, testosterone, and progesterone	Significantly increased percutaneous absorption of the lipophilic steroids estradiol, testosterone, and progesterone but did not affect the penetration of the most water-soluble steroid hydrocortisone (29).
		Humans	Elastic surfactant-based vesicles	Fast penetration of intact elastic vesicles into the stratum corneum after nonocclusive treatment. Occlusive treatment provided very few intact vesicles in the deeper layers of the stratum corneum (75).
	Pigs		Ketoprofen in deformable vesicles Transfersomes	Occlusion disables penetration-enhancing effect of ultra-deformable, hydrophilic carriers by eliminating transcutaneous hydration gradient that normally drives carriers across the skin. These vesicles enhance drug penetration under nonocclusive application in vivo (65).

Abbreviations: AUC, area under the curve; *LDV*, laser Doppler velocimetry; *PNP*, *p*-nitrophenol.