

TABLE 2.1

Experimental Parameters for Permeants Having Accurately Determined Human Red Cell Basal Permeabilities^a

Permeant	Basal permeability P (cm s ⁻¹)	van der Waals volume ^b (cm ³ mol ⁻¹)	Partition coefficients between solvent and water			
			$K_{\text{hexadecane}}$	K_{oil}	K_{octanol}	K_{lipid}^c
(1) Erythritol	6.7×10^{-9d}	66.2	—	3.0×10^{-5e}	1.2×10^{-3f}	2.6×10^{-2}
(2) Ethanediol	2.9×10^{-5g}	36.5	1.7×10^{-5h}	4.9×10^{-4i}	1.2×10^{-2i}	1.2×10^{-1}
(3) Ethanol	2.1×10^{-3j}	31.9	5.7×10^{-3k}	3.6×10^{-2i}	4.8×10^{-1i}	4.4×10^{-1}
(4) Glycerol	1.6×10^{-7l}	51.4	2.0×10^{-6h}	7.0×10^{-5i}	2.8×10^{-3m}	5.0×10^{-2}
(5) <i>n</i> -Hexanol	8.7×10^{-3j}	72.9	1.3^n	7.6^i	$1.1 \times 10^{+2i}$	—
(6) Methanol	3.7×10^{-3j}	21.7	3.8×10^{-3k}	9.5×10^{-3i}	1.8×10^{-1i}	2.1×10^{-1}
(7) <i>n</i> -Propanol	6.5×10^{-3j}	42.2	3.3×10^{-2k}	1.4×10^{-1i}	2.2^i	1.3
(8) Thiourea	1.1×10^{-6o}	39.5	—	1.2×10^{-3e}	7.2×10^{-2i}	—
(9) Urea	7.7×10^{-7p}	32.6	3.5×10^{-6h}	1.5×10^{-4e}	2.2×10^{-3m}	2.3×10^{-1}
(10) Water	1.2×10^{-3q}	10.6 ^r	4.2×10^{-5h}	1.3×10^{-3i}	4.1×10^{-2i}	—

^a All values are at approximately room temperature. Where possible, values at 25°C are listed.

^b Calculated using Bondi (1964).

^c Katz and Diamond (1974c).

^d Wieth (1971).

^e Collander and Bärlund (1933).

^f Calculated using K_{oil} value and Tables 8 and 17 of Leo *et al.* (1971).

^g Levitt and Mlekoday (1983).

^h Orbach and Finkelstein (1980). [Added in proof: Urea, 2.8×10^{-7} (A. Walter and J. Gutknecht, personal communication).]

ⁱ Measured value listed by Leo *et al.* (1971).

^j Brahm (1983a).

^k Franks and Lieb (1978).

^l Carlsen and Wieth (1976).

^m Estimated value listed by Leo *et al.* (1971).

ⁿ Aveyard and Mitchell (1969).

^o Mayrand and Levitt (1983).

^p Brahm (1983b).

^q Brahm (1982).

^r Calculated using Bondi (1964) and van der Waals and covalent radii from Pauling (1948).