

**TABLE 7.1**  
**Some Epithelial Tissues Classified**

Epithelium type	Trans-epithelial resistance (Ohms/cm <sup>2</sup> )	Water permeability	Postulated function
<u>"Tight" epithelia</u>			
Frog skin <sup>a</sup>	1,300	Low, increased by anti-diuretic hormone	Defence against dehydration, salt loss
Toad urinary bladder <sup>b</sup>	1,000–3,500	Low, increased by anti-diuretic hormone (see Table 2.6)	Salt retention, water storage
Rabbit urinary bladder <sup>c</sup>	5,000–10,000		
Turtle colon <sup>d</sup>	700		Salt absorption
Rabbit, kidney collecting duct <sup>e</sup>	270	Low, increased by anti-diuretic hormone	Water retention in dehydration
<u>"Intermediate" epithelia</u>			
Thick ascending limb of kidney, mammals <sup>f</sup>	27	Low	Dilution of urine
Early distal tubule amphibian kidney	60	Low	Dilution of urine
Coprodeum of the hen cloaca <sup>g</sup>	150–250	Low	Dilution of urinary fluid
Submaxillary gland main duct <sup>h</sup>	7.4	Low	Dilution of salivary fluid
<u>"Leaky" epithelia</u>			
Gall bladders <sup>i</sup>			
Roach	110	High	Water removal, leading to concentration of gall fluid
Frog	130	High	
Goose	30	High	
Rabbit	23	High	
Ileum, Rabbit <sup>j</sup>	55	High	Solute absorption
Jejunum, Rat <sup>k</sup>	30	High	Solute absorption
Proximal tubule, kidney, Rat <sup>k</sup>	6	Very high (see Table 2.6)	Massive solute reabsorption

<sup>a</sup> W. Nagel (1980). *J. Physiol. (London)*, **302**, 281–295.

<sup>b</sup> MacKnight *et al.* (1980).

<sup>c</sup> Lewis, S. A., Eaton, D. C., and Diamond, J. M. (1976). *J. Membr. Biol.* **28**, 41–70.

<sup>d</sup> Thompson, S. M., and Dawson, D. C. (1978). *J. Gen. Physiol.* **72**, 269–282.

<sup>e</sup> Jamison and Kriz (1982).

<sup>f</sup> Greger, R., and Schlatter, E. (1983). *Pflügers Arch.* **396**, 325–344.

<sup>g</sup> Bindslev, N. (1981). in "Water Transport across Epithelia", H. H. Ussing *et al.* (eds) Munksgaard, Copenhagen, pp 468–481.

<sup>h</sup> Van Os, C. H. *et al.* (1981). in "Water Transport across Epithelia," H. H. Ussing *et al.* (eds) Munksgaard, Copenhagen, pp 178–187.

<sup>i</sup> Reuss, L. (1978). in "Membrane Transport in Biology, Vol IV B", G. Giebisch *et al.* (eds), Springer-Verlag, Berlin, pp 853–898.

<sup>j</sup> Holman, G. D. *et al.* (1979). *J. Physiol. (London)* **290**, 367–386.

<sup>k</sup> Fromter and Diamond (1972).