

Table I. Observed Turnover Rates and Times for Plasma Membrane

System	Rate	Turnover Time	Reference
	$\mu\text{m}^2/\text{min}$	<i>min</i>	
Model	785	10	Assumed
Root cap slime	14–26	40–70	5
Slime (<i>Drosophyllum</i>)	26	0.4	5
Water glands (<i>Monarda</i>)	2000	0.5	5
Moss protonema tip cells (<i>Funaria</i>)	170	Not applicable	22, 28
Pollen tubes (<i>Lilium</i>)	300	Not applicable	^a
(<i>Tradescantia</i>)	350–600	Not applicable	^b
Plant cells			
Growing		20–40	4
Not growing		60–115	4
Animal cells	18.3–198	7–600	35

^a From observed growth rate (15). ^b From observed accumulation rate and diameter of vesicles (21). Cytochalasin D inhibits production as well as transport of vesicles (29), so the value given is a lower limit.

4. Emons AMC, JA Traas 1986 Coated pits and coated vesicles on the plasma membrane of plant cells. *Eur J Cell Biol* 41: 57-64

5. Gunning BES, MW Steer 1975 Ultrastructure and the biology of plant cells. Edward Arnold, London, pp 80-82

15. Morre DJ, J Kartenbeck, WW Franke 1979 Membrane flow and interconversions among endomembranes. *Biochim Biophys Acta* 559: 71-152

21. Picton JM, MW Steer 1983 Membrane recycling and the control of secretory activity in pollen tubes. *J Cell Sci* 63: 303-310

22. Reiss H-D, E Schnepf, W Herth 1984 The plasma membrane of the *Funaria* caulonema tip cell: morphology and distribution of particle rosettes, and the kinetics of cellulose synthesis. *Planta* 160: 428-435

28. Schnepf E, O Witte, U Rudolph, G Deichgraber, H-D Reiss 1985 Tip cell growth and the frequency and distribution of particle rosettes in the plasmalemma: experimental studies in *Funaria* protonema cells. *Protoplasma* 127: 222-229

29. Shannon TM, JM Picton, MW Steer 1984 The inhibition of dictyosome vesicle formation in higher plant cells by cytochalasin D. *Eur J Cell Biol* 33:144-147

35. Thilo L 1985 Quantification of endocytosis-derived membrane traffic. *Biochim Biophys Acta* 822: 243-266