

TRENDS in Ecology & Evolution

Figure 1. The prevailing morphological tree (a) and the emerging molecular tree (b) of the placental orders. (a) Morphology generally places Xenarthra (sloths, anteaters and armadillos) as basal, and most of the remaining orders into three well-established clades: Ungulata (thought to be derived from CONDYLARTH ancestors, Archonta and Anagalida. The depicted tree is from Shoshani and McKenna [3]. The tree obtained by Liu *et al.* [4] is identical, apart from placing cetaceans as sister group to the perissodactyl-paenungulate clade. The tree of Novacek ([6]; <http://tolweb.org/tree?group=Mammalia>) places Pholidota (pangolins) as basal sister to Xenarthra, makes Primates and Scandentia (tree shrews) sister groups, and collapses several clades (black dotted lines). Novacek [5] subsequently collapses some further clades (gray dotted lines), which increases reconciliation with the molecular tree. (b) The molecular tree recognizes four major clades: Afrotheria, Xenarthra, Laurasiatheria and Euarchoptogilres, of which the latter two are joined into Boreoeutheria. The presented placental ordinal topology is according to Murphy *et al.* [21]. Placing Marsupialia as sister to Placentalia is based on Phillips and Penny [54] and references therein. Clades indicated by solid lines are, with rare exceptions, supported independently by all other molecular data and analyses [24–29]. Notable exceptions are the strong tendency of mitochondrial protein sequences to place hedgehogs and rodents as basal in the tree [14]. Colors distinguish the four basal placental clades in the molecular tree.

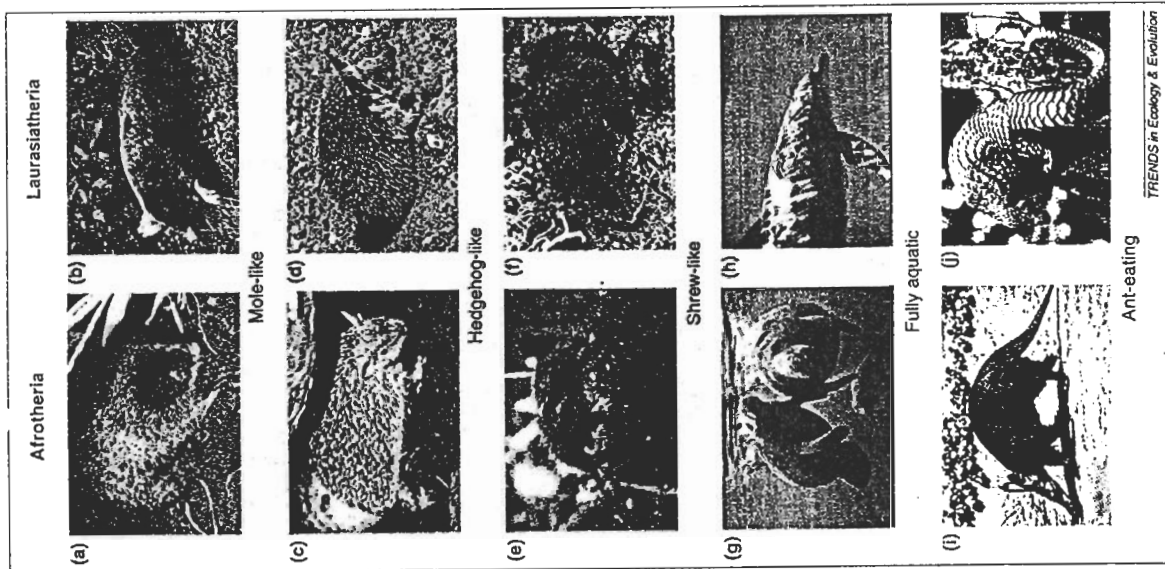


Figure 2. Parallel morphological radiations in Afrotheria and Laurasiatheria illustrate homoplasy in external morphology. (a) African golden mole (Chrysochlorinae) and (b) Old World mole (Chrysochlorinae); (c) Old World mole (Chrysochlorinae) and (d) common shrew (Soricidae); (e) common shrew (Soricidae); (f) common shrew (Soricidae); (g) common shrew (Soricidae); (h) common shrew (Soricidae); (i) common shrew (Soricidae); (j) common shrew (Soricidae).

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