

Table S4. Divergence times of extant species of Cenozoic macroperforate planktonic foraminifera taken from the evolutionary lineage phylogeny (continues overleaf). Although the divergence times are derived from the lineage phylogeny morphospecies names are given for ease of use. All extant morphospecies are listed even if they have been grouped together into one lineage and as a result there some different morphospecies that have a divergence time of 0.00 (e.g *Orbulina suturalis* and *Orbulina universa*).

	<i>T. quinqueloba</i>	<i>G. trilobus</i>	<i>G. falconensis</i>	<i>G. hexagonus</i>	<i>O. suturalis</i>	<i>O. universa</i>	<i>H. scitula</i>	<i>G. bulloides</i>	<i>G. siphonifera</i>	<i>M. menardii</i>	<i>G. sacculifer</i>	<i>G. ruber</i>	<i>N. pachyderma</i>	<i>N. dutertrei</i>	<i>G. conglobatus</i>	<i>T. humilis</i>	<i>G. tumida</i>	<i>T. crassaformis</i>	<i>S. dehiscens</i>	<i>P. obliquiloculata</i>	<i>T. oceanica</i>
<i>Turborotalita quinqueloba</i>		44.15	61.20	64.95	44.15	44.15	64.95	61.20	61.20	64.95	44.15	44.15	64.95	64.95	44.15	4.50	64.95	64.95	44.15	64.95	64.95
<i>Globigerinoides trilobus</i>	44.15		61.20	64.95	17.00	17.00	64.95	61.20	61.20	64.95	17.00	23.80	64.95	64.95	23.80	44.15	64.95	64.95	22.50	64.95	64.95
<i>Globigerina falconensis</i>	61.20	61.20		64.95	61.20	61.20	64.95	0.00	30.20	64.95	61.20	61.20	64.95	64.95	61.20	61.20	64.95	64.95	61.20	64.95	64.95
<i>Globorotaloides hexagonus</i>	64.95	64.95	64.95		64.95	64.95	64.90	64.95	64.95	64.90	64.95	64.95	64.90	64.90	64.95	64.95	64.90	64.90	64.95	64.90	64.90
<i>Orbulina suturalis</i>	44.15	17.00	61.20	64.95		0.00	64.95	61.20	61.20	64.95	17.00	23.80	64.95	64.95	23.80	44.15	64.95	64.95	22.50	64.95	64.95
<i>Orbulina universa</i>	44.15	17.00	61.20	64.95	0.00		64.95	61.20	61.20	64.95	17.00	23.80	64.95	64.95	23.80	44.15	64.95	64.95	22.50	64.95	64.95
<i>Hirsutella scitula</i>	64.95	64.95	64.95	64.90	64.95	64.95		64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	8.20	64.95	18.80	8.20
<i>Globigerina bulloides</i>	61.20	61.20	0.00	64.95	61.20	61.20	64.95		30.20	64.95	61.20	61.20	64.95	64.95	61.20	61.20	64.95	64.95	61.20	64.95	64.95
<i>Globigerinella siphonifera</i>	61.20	61.20	30.20	64.95	61.20	61.20	64.95	30.20		64.95	61.20	61.20	64.95	64.95	61.20	61.20	64.95	64.95	61.20	64.95	64.95
<i>Menardella menardii</i>	64.95	64.95	64.95	64.90	64.95	64.95	14.80	64.95	64.95		64.95	64.95	18.80	18.80	64.95	64.95	10.30	14.80	64.95	18.80	14.80
<i>Globigerinoides sacculifer</i>	44.15	17.00	61.20	64.95	17.00	17.00	64.95	61.20	61.20	64.95		23.80	64.95	64.95	23.80	44.15	64.95	64.95	22.50	64.95	64.95
<i>Globigerinoides ruber</i>	44.15	23.80	61.20	64.95	23.80	23.80	64.95	61.20	61.20	64.95	23.80		64.95	64.95	21.00	44.15	64.95	64.95	23.80	64.95	64.95
<i>Neogloboquadrina pachyderma</i>	64.95	64.95	64.95	64.90	64.95	64.95	18.80	64.95	64.95	18.80	64.95	64.95		10.80	64.95	64.95	18.80	18.80	64.95	10.80	18.80
<i>Neogloboquadrina dutertrei</i>	64.95	64.95	64.95	64.90	64.95	64.95	18.80	64.95	64.95	18.80	64.95	64.95	10.80		64.95	64.95	18.80	18.80	64.95	8.00	18.80
<i>Globigerinoides conglobatus</i>	44.15	23.80	61.20	64.95	23.80	23.80	64.95	61.20	61.20	64.95	23.80	21.00	64.95	64.95		44.15	64.95	64.95	23.80	64.95	64.95
<i>Turborotalita humilis</i>	4.50	44.15	61.20	64.95	44.15	44.15	64.95	61.20	61.20	64.95	44.15	44.15	64.95	64.95	44.15		64.95	64.95	44.15	64.95	64.95
<i>Globorotalia tumida</i>	64.95	64.95	64.95	64.90	64.95	64.95	14.80	64.95	64.95	10.30	64.95	64.95	18.80	18.80	64.95	64.95		14.80	64.95	18.80	14.80
<i>Truncorotalia crassaformis</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80		64.95	18.80	4.30
<i>Sphaeroidinella dehiscens</i>	44.15	22.50	61.20	64.95	22.50	22.50	64.95	61.20	61.20	64.95	22.50	23.80	64.95	64.95	23.80	44.15	64.95	64.95		64.95	64.95
<i>Pulleniatina obliquiloculata</i>	64.95	64.95	64.95	64.90	64.95	64.95	18.80	64.95	64.95	18.80	64.95	64.95	10.80	8.00	64.95	64.95	18.80	18.80			18.80
<i>Truncorotalia oceanica</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	4.30	64.95	18.80	
<i>Beella digitata</i>	61.20	61.20	30.20	64.95	61.20	61.20	64.95	30.20	29.40	64.95	61.20	61.20	64.95	64.95	61.20	61.20	64.95	64.95	61.20	64.95	64.95
<i>Globorotalia unguolata</i>	64.95	64.95	64.95	64.90	64.95	64.95	14.80	64.95	64.95	10.30	64.95	64.95	18.80	18.80	64.95	64.95	3.20	14.80	64.95	18.80	14.80
<i>Turborotalita cristata</i>	4.50	44.15	61.20	64.95	44.15	44.15	64.95	61.20	61.20	64.95	44.15	44.15	64.95	64.95	44.15	0.00	64.95	64.95	44.15	64.95	64.95
<i>Globigerinella calida</i>	61.20	61.20	30.20	64.95	61.20	61.20	64.95	30.20	29.40	64.95	61.20	61.20	64.95	64.95	61.20	61.20	64.95	64.95	61.20	64.95	64.95
<i>Pulleniatina finalis</i>	64.95	64.95	64.95	64.90	64.95	64.95	18.80	64.95	64.95	18.80	64.95	64.95	10.80	8.00	64.95	64.95	18.80	18.80	64.95	5.20	18.80
<i>Globoquadrina conglomerata</i>	64.95	64.95	64.95	64.90	64.95	64.95	37.20	64.95	64.95	37.20	64.95	64.95	37.20	37.20	64.95	64.95	37.20	37.20	64.95	37.20	37.20
<i>Globoturborotalita rubescens</i>	44.15	22.50	61.20	64.95	22.50	22.50	64.95	61.20	61.20	64.95	22.50	23.80	64.95	64.95	23.80	44.15	64.95	64.95	17.30	64.95	64.95
<i>Hirsutella theyeri</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	8.20	64.95	18.80	8.20
<i>Hirsutella hirsuta</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	8.20	64.95	18.80	8.20
<i>Globoconella inflata</i>	64.95	64.95	64.95	64.90	64.95	64.95	18.30	64.95	64.95	18.30	64.95	64.95	18.80	18.80	64.95	64.95	18.30	18.30	64.95	18.80	18.30
<i>Globoturborotalita tenella</i>	44.15	22.50	61.20	64.95	22.50	22.50	64.95	61.20	61.20	64.95	22.50	23.80	64.95	64.95	23.80	44.15	64.95	64.95	17.30	64.95	64.95
<i>Hirsutella bermudezi</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	7.20	64.95	18.80	7.20
<i>Truncorotalia truncatulinoides</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	4.30	64.95	18.80	3.40
<i>Truncorotalia excelsa</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	4.30	64.95	18.80	3.40
<i>Truncorotalia pachytheca</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	4.30	64.95	18.80	3.40
<i>Turborotalita clarkei</i>	4.50	44.15	61.20	64.95	44.15	44.15	64.95	61.20	61.20	64.95	44.15	44.15	64.95	64.95	44.15	0.00	64.95	64.95	44.15	64.95	64.95
<i>Truncorotalia cavernula</i>	64.95	64.95	64.95	64.90	64.95	64.95	8.20	64.95	64.95	14.80	64.95	64.95	18.80	18.80	64.95	64.95	14.80	4.30	64.95	18.80	3.40
<i>Globigerinella adamsi</i>	61.20	61.20	30.20	64.95	61.20	61.20	64.95	30.20	29.40	64.95	61.20	61.20	64.95	64.95	61.20	61.20	64.95	64.95	61.20	64.95	64.95
<i>Beella megastoma</i>	61.20	61.20	30.20	64.95	61.20	61.20	64.95	30.20	29.40	64.95	61.20	61.20	64.95	64.95	61.20	61.20	64.95	64.95	61.20	64.95	64.95
<i>Menardella fimbriata</i>	64.95	64.95	64.95	64.90	64.95	64.95	14.80	64.95	64.95	10.30	64.95	64.95	18.80	18.80	64.95	64.95	10.00	14.80	64.95	18.80	14.80

Divergence times of extant species of Cenozoic macroperforate planktonic foraminifera taken from the species lineage fossil phylogeny (continued from previous page).

	<i>B. digitata</i>	<i>G. ungulata</i>	<i>T. cristata</i>	<i>G. calida</i>	<i>P. finalis</i>	<i>G. conglomerata</i>	<i>G. rubescens</i>	<i>H. theyeri</i>	<i>H. hirsuta</i>	<i>G. inflata</i>	<i>G. tenella</i>	<i>H. bermudezi</i>	<i>T. truncatulinoides</i>	<i>T. excelsa</i>	<i>T. pachytheca</i>	<i>T. clarkei</i>	<i>T. cavernula</i>	<i>G. adamsi</i>	<i>B. megastoma</i>	<i>M. fimbriata</i>
<i>Turborotalita quinqueloba</i>	61.20	64.95	4.50	61.20	64.95	64.95	44.15	64.95	64.95	64.95	44.15	64.95	64.95	64.95	64.95	4.50	64.95	61.20	61.20	64.95
<i>Globigerinoides trilobus</i>	61.20	64.95	44.15	61.20	64.95	64.95	22.50	64.95	64.95	64.95	22.50	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Globigerina falconensis</i>	30.20	64.95	61.20	30.20	64.95	64.95	61.20	64.95	64.95	64.95	61.20	64.95	64.95	64.95	64.95	61.20	64.95	30.20	30.20	64.95
<i>Globorotaloides hexagonus</i>	64.95	64.90	64.95	64.95	64.90	64.90	64.95	64.90	64.90	64.90	64.95	64.90	64.90	64.90	64.90	64.95	64.90	64.95	64.95	64.90
<i>Orbulina suturalis</i>	61.20	64.95	44.15	61.20	64.95	64.95	22.50	64.95	64.95	64.95	22.50	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Orbulina universa</i>	61.20	64.95	44.15	61.20	64.95	64.95	22.50	64.95	64.95	64.95	22.50	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Hirsutella scitula</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95	8.20	8.20	8.20	8.20	64.95	8.20	64.95	64.95	14.80
<i>Globigerina bulloides</i>	30.20	64.95	61.20	30.20	64.95	64.95	61.20	64.95	64.95	64.95	61.20	64.95	64.95	64.95	64.95	61.20	64.95	30.20	30.20	64.95
<i>Globigerinella siphonifera</i>	29.40	64.95	61.20	29.40	64.95	64.95	61.20	64.95	64.95	64.95	61.20	64.95	64.95	64.95	64.95	61.20	64.95	29.40	29.40	64.95
<i>Menardella menardii</i>	64.95	10.30	64.95	64.95	18.80	37.20	64.95	14.80	14.80	18.30	64.95	14.80	14.80	14.80	14.80	64.95	14.80	64.95	64.95	10.30
<i>Globigerinoides sacculifer</i>	61.20	64.95	44.15	61.20	64.95	64.95	22.50	64.95	64.95	64.95	22.50	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Globigerinoides ruber</i>	61.20	64.95	44.15	61.20	64.95	64.95	23.80	64.95	64.95	64.95	23.80	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Neogloboquadrina pachyderma</i>	64.95	18.80	64.95	64.95	10.80	37.20	64.95	18.80	18.80	18.80	64.95	18.80	18.80	18.80	18.80	64.95	18.80	64.95	64.95	18.80
<i>Neogloboquadrina dutertrei</i>	64.95	18.80	64.95	64.95	8.00	37.20	64.95	18.80	18.80	18.80	64.95	18.80	18.80	18.80	18.80	64.95	18.80	64.95	64.95	18.80
<i>Globigerinoides conglobatus</i>	61.20	64.95	44.15	61.20	64.95	64.95	23.80	64.95	64.95	64.95	23.80	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Turborotalita humilis</i>	61.20	64.95	0.00	61.20	64.95	64.95	44.15	64.95	64.95	64.95	44.15	64.95	64.95	64.95	64.95	0.00	64.95	61.20	61.20	64.95
<i>Globorotalia tumida</i>	64.95	3.20	64.95	64.95	18.80	37.20	64.95	14.80	14.80	18.30	64.95	14.80	14.80	14.80	14.80	64.95	14.80	64.95	64.95	10.00
<i>Truncorotalia crassaformis</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95	7.20	4.30	4.30	4.30	64.95	4.30	64.95	64.95	14.80
<i>Sphaeroidinella dehiscens</i>	61.20	64.95	44.15	61.20	64.95	64.95	17.30	64.95	64.95	64.95	17.30	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Pulleniatina obliquiloculata</i>	64.95	18.80	64.95	64.95	5.20	37.20	64.95	18.80	18.80	18.80	64.95	18.80	18.80	18.80	18.80	64.95	18.80	64.95	64.95	18.80
<i>Truncorotalia oceanica</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95	7.20	3.40	3.40	3.40	64.95	3.40	64.95	64.95	14.80
<i>Beella digitata</i>		64.95	61.20	10.20	64.95	64.95	61.20	64.95	64.95	64.95	61.20	64.95	64.95	64.95	64.95	61.20	64.95	10.20	0.30	64.95
<i>Globorotalia ungulata</i>	64.95		64.95	64.95	18.80	37.20	64.95	14.80	14.80	18.30	64.95	14.80	14.80	14.80	14.80	64.95	14.80	64.95	64.95	10.00
<i>Turborotalita cristata</i>	61.20	64.95		61.20	64.95	64.95	44.15	64.95	64.95	64.95	44.15	64.95	64.95	64.95	64.95	0.00	64.95	61.20	61.20	64.95
<i>Globigerinella calida</i>	10.20	64.95	61.20		64.95	64.95	61.20	64.95	64.95	64.95	61.20	64.95	64.95	64.95	64.95	61.20	64.95	0.30	10.20	64.95
<i>Pulleniatina finalis</i>	64.95	18.80	64.95	64.95		37.20	64.95	18.80	18.80	18.80	64.95	18.80	18.80	18.80	18.80	64.95	18.80	64.95	64.95	18.80
<i>Globoquadrina conglomerata</i>	64.95	37.20	64.95	64.95	37.20		64.95	37.20	37.20	37.20	64.95	37.20	37.20	37.20	37.20	64.95	37.20	64.95	64.95	37.20
<i>Globoturborotalita rubescens</i>	61.20	64.95	44.15	61.20	64.95	64.95		64.95	64.95	64.95	2.00	64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Hirsutella theyeri</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95		3.50		64.95	8.20	8.20	8.20	8.20	64.95	8.20	64.95	64.95	14.80
<i>Hirsutella hirsuta</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	3.50		18.30	64.95	8.20	8.20	8.20	8.20	64.95	8.20	64.95	64.95	14.80
<i>Globoconella inflata</i>	64.95	18.30	64.95	64.95	18.80	37.20	64.95	18.30	18.30		64.95	18.30	18.30	18.30	18.30	64.95	18.30	64.95	64.95	18.30
<i>Globoturborotalita tenella</i>	61.20	64.95	44.15	61.20	64.95	64.95	2.00	64.95	64.95	64.95		64.95	64.95	64.95	64.95	44.15	64.95	61.20	61.20	64.95
<i>Hirsutella bermudezi</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95		7.20	7.20	7.20	64.95	7.20	64.95	64.95	14.80
<i>Truncorotalia truncatulinoides</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95	7.20		0.80	0.80	64.95	0.80	64.95	64.95	14.80
<i>Truncorotalia excelsa</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95	7.20	0.80		0.00	64.95	0.80	64.95	64.95	14.80
<i>Truncorotalia pachytheca</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95	7.20	0.80	0.00		64.95	0.80	64.95	64.95	14.80
<i>Turborotalita clarkei</i>	61.20	64.95	0.00	61.20	64.95	64.95	44.15	64.95	64.95	64.95	44.15	64.95	64.95	64.95	64.95		64.95	61.20	61.20	64.95
<i>Truncorotalia cavernula</i>	64.95	14.80	64.95	64.95	18.80	37.20	64.95	8.20	8.20	18.30	64.95	7.20	0.80	0.80	0.80	64.95		64.95	64.95	14.80
<i>Globigerinella adamsi</i>	10.20	64.95	61.20	0.30	64.95	64.95	61.20	64.95	64.95	64.95	61.20	64.95	64.95	64.95	64.95	61.20	64.95		10.20	64.95
<i>Beella megastoma</i>	0.30	64.95	61.20	10.20	64.95	64.95	61.20	64.95	64.95	64.95	61.20	64.95	64.95	64.95	64.95	61.20	64.95	10.20		64.95
<i>Menardella fimbriata</i>	64.95	10.00	64.95	64.95	18.80	37.20	64.95	14.80	14.80	18.30	64.95	14.80	14.80	14.80	14.80	64.95	14.80	64.95	64.95	