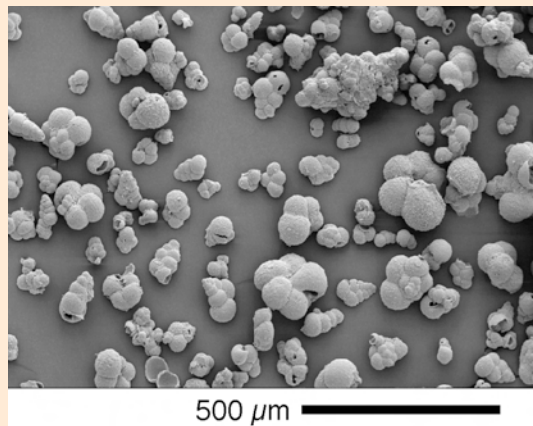


PALEOCENE

- ✓ Identificazione dei generi e loro distribuzione stratigrafica
- ✓ Biozonazione
- ✓ Descrizione delle principali linee fletiche
- ✓ Esempi di associazioni

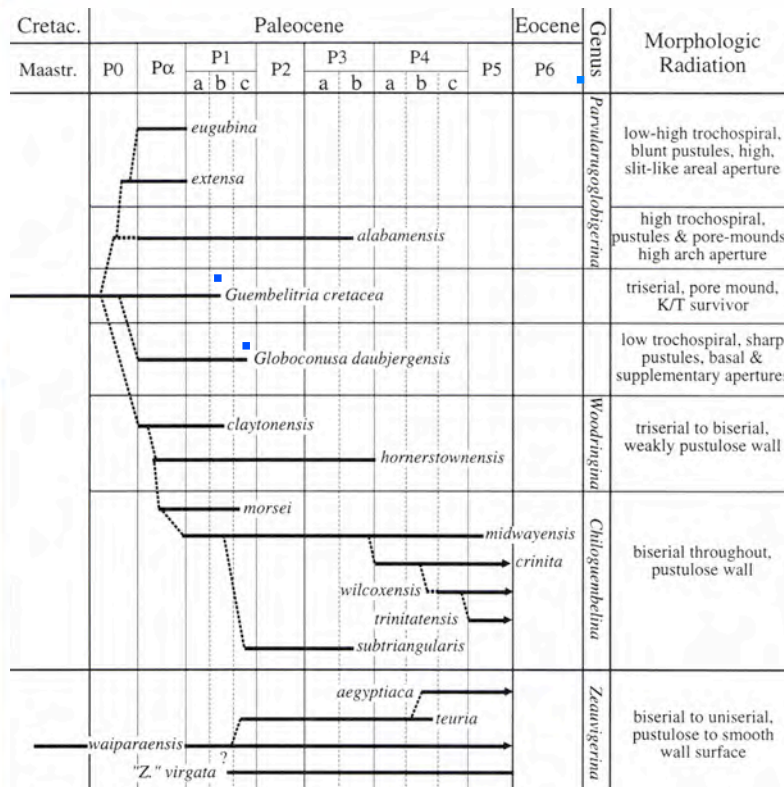


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Identificazione dei generi - PALEOCENE



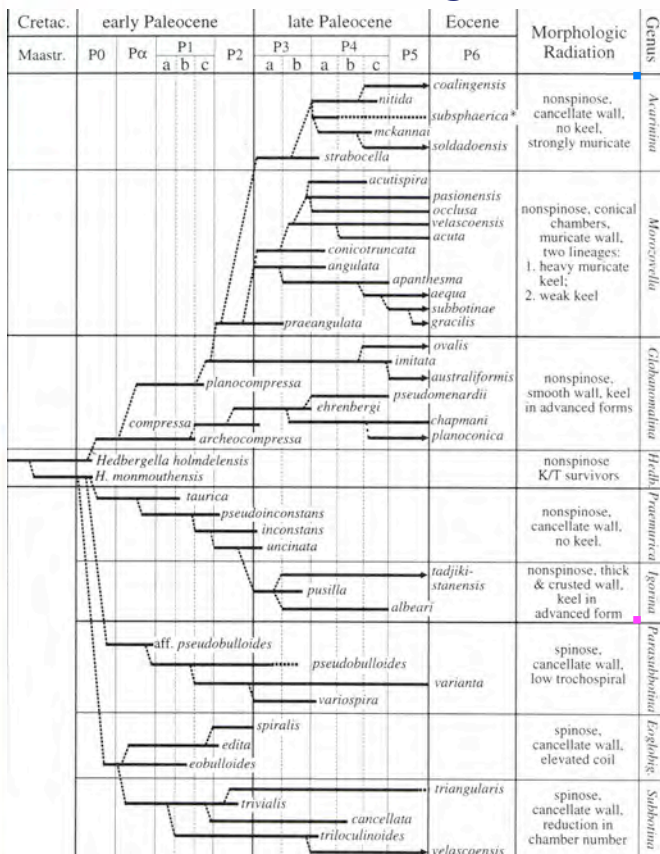
- Parete non spinosa (12 generi in totale)
- 6 liscia, sottile, microperforata



Identificazione dei generi - PALEOCENE

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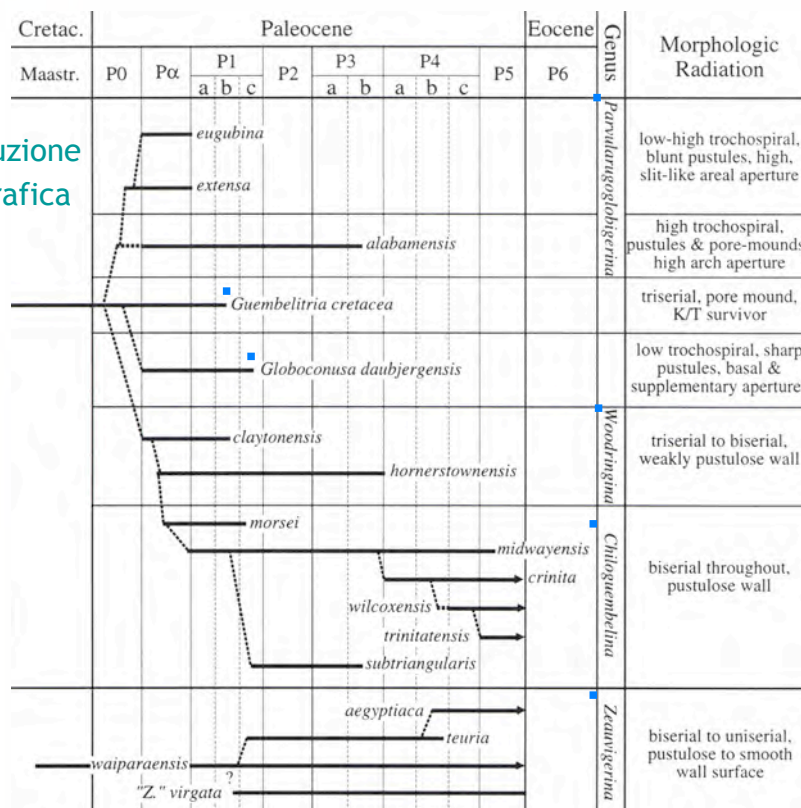
- Parete non spinosa
 - 2 muricate
 - 2 liscia
 - 1 tipo *Neogloboquadrina* (cancellata)
 - 1 spessa e incrostata
- Parete spinosa (3 generi in totale)
 - cancellata



Generi con parete non spinosa

- Liscia, sottile, microperforata (6 generi)

distribuzione stratigrafica





Generi con parete non spinosa

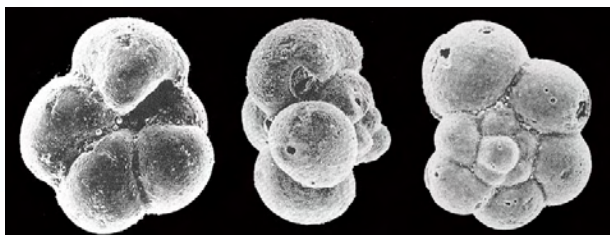
- Liscia, sottile, microperforata

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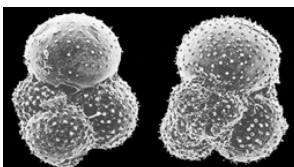
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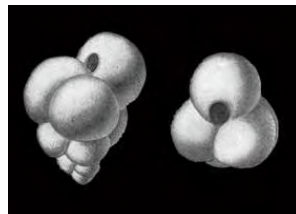
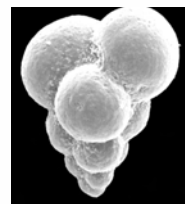
Cretac.	Paleocene										Eocene	Genus	Morphologic Radiation				
	Maastr.	P0	Pα	P1			P2	P3		P4				P5	P6		
			a	b	c			a	b	a	b	c					
			eugubina													Parvularugoglobigerina	low-high trochospiral, blunt pustules, high, slit-like areal aperture
			extensa														
								alabamensis							Guembeltria	high trochospiral, pustules & pore-mounds, high arch aperture	
			Guembeltria cretacea														
																Globoconusa	low trochospiral, sharp pustules, basal & supplementary apertures
			Globoconusa daubjergensis														



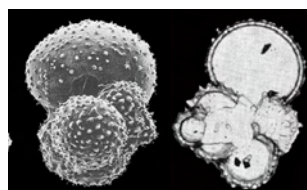
Parvularugoglobigerina eugubina



Globoconusa daubjergensis



Guembeltria



Olsson et al 1999



Generi con parete non spinosa

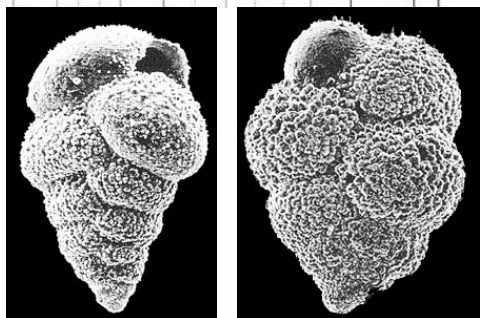
- Liscia, sottile, microperforata

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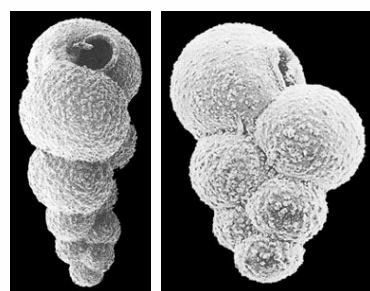
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Cretac.	Paleocene										Eocene	Genus	Morphologic Radiation		
	Maastr.	P0	Pα	P1			P2	P3		P4				P5	P6
			a	b	c			a	b	a	b	c			
			claytonensis					hornerstownensis						Woodringia	triserial to biserial, weakly pustulose wall
			morsei					midwayensis							
														Chiloguembelina	biserial throughout, pustulose wall
			wilcoxensis					crinita							
			trinitatensis					subtriangularis						Zeuviigerina	biserial to uniserial, pustulose to smooth wall surface
			aegyptiaca					teuria							
			waiparaensis					"Z." virgata							



Chiloguembelina



Woodringia



Zeuviigerina

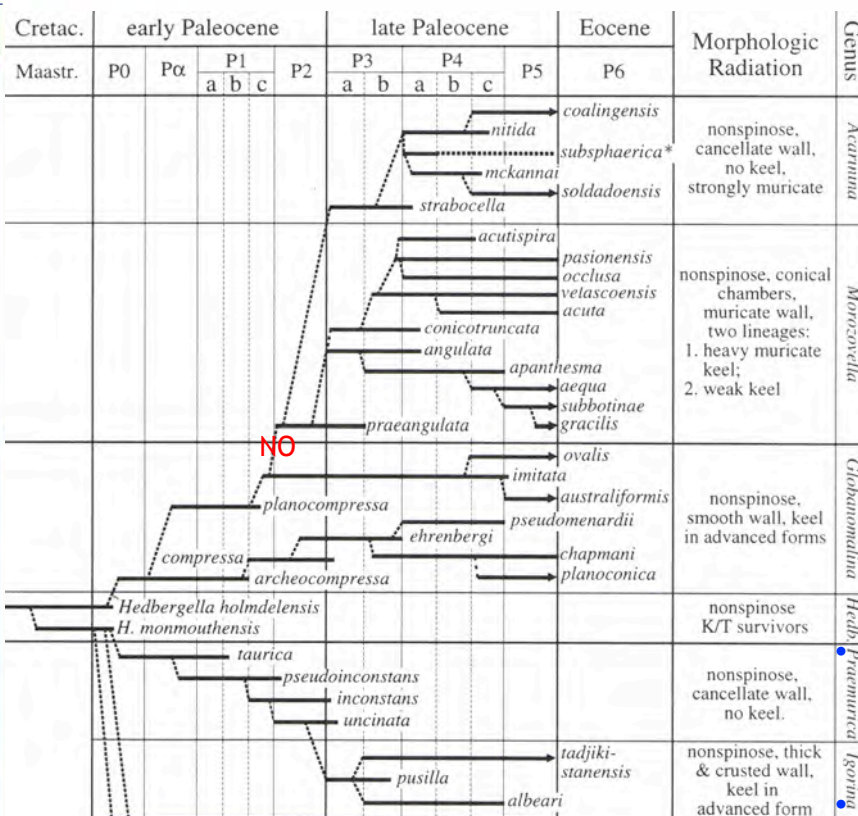
Olsson et al 1999



Generi con parete non spinosa

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- Muricata - 2 generi

- Liscia - 2 generi

- tipo *Neogloboquadrina* (1 genere)

- Cancellata
- Spessa e incrostata

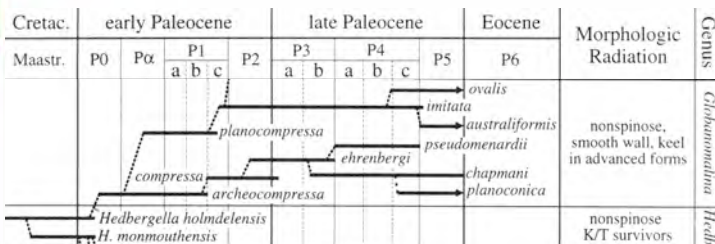
Olsson et al 1999 30



Generi con parete non spinosa

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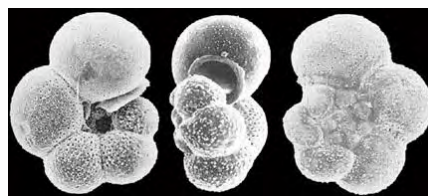
- liscia



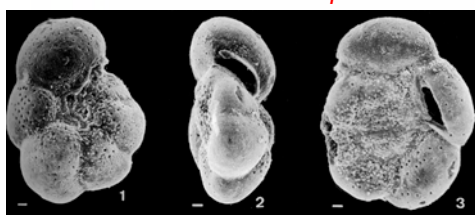
Hedbergella holmdelensis



Globanomalina compressa



Hedbergella monmouthensis



Globanomalina archeocompressa



Globanomalina pseudomenardii

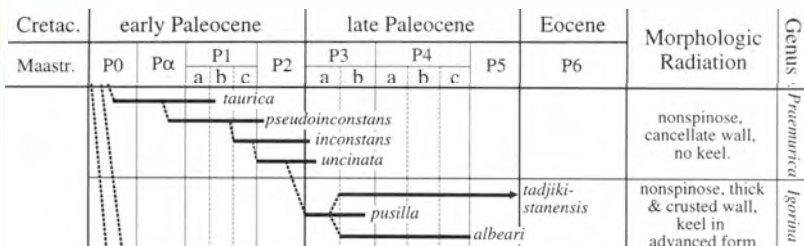
Olsson et al 1999 31



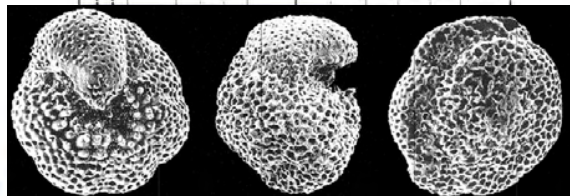
Generi con parete non spinosa

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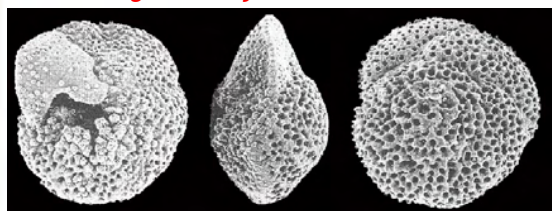
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- tipo *Neogloboquadrina* Cancellata
- Spessa e incrostata

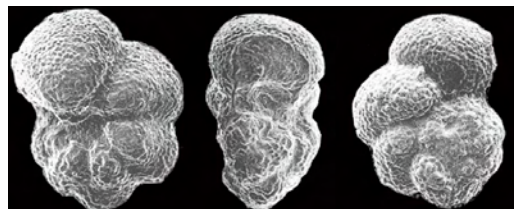


Igorina tadjikistanensis

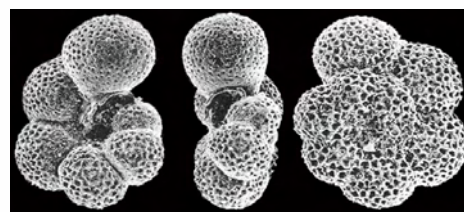


Igorina albeari

Igorina: la parete è fortemente pustulosa con pustule arrotondate che possono unirsi tra loro a dare una struttura cancellata (vedi Soldan et al. 2011)



Praemurica uncinata



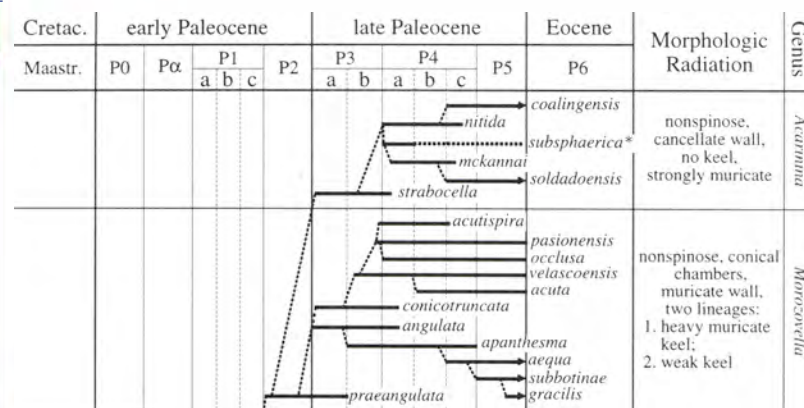
Praemurica taurica



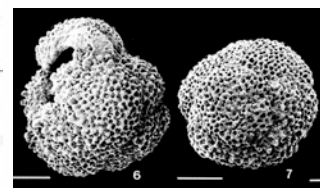
Generi con parete non spinosa

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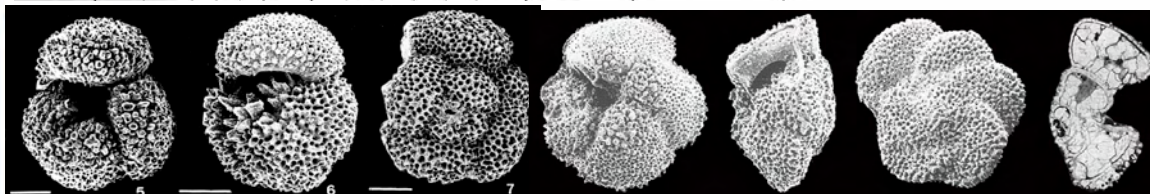
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- Muricata

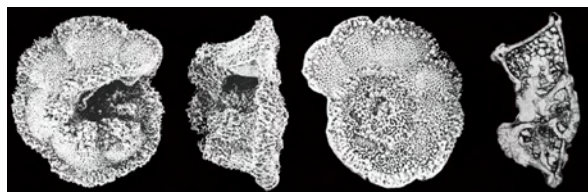


Acarinina subsphaerica



Acarinina soldadoensis

Morozovella angulata



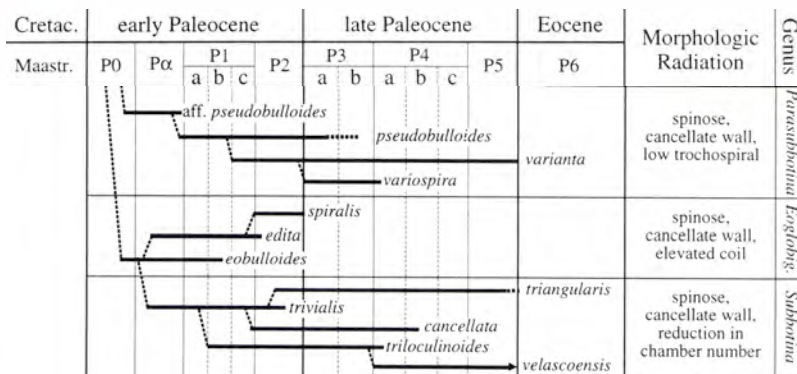
Morozovella velascoensis



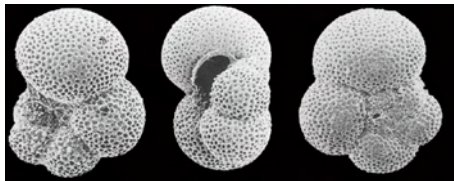
Generi con parete spinosa

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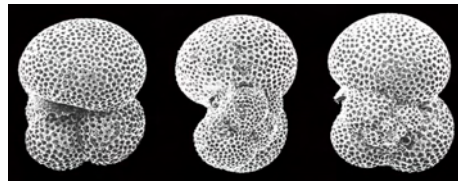
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- Cancellata - 3 generi



Parasubbotina pseudobulloides



Subbotina triloculinoides



Eoglobigerina ebulloides

Olsson et al 1999 34



Biostratigrafia e biozonazione

PALEOCENE TIME SCALE

Berggren and Pearson 2005

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TIME (Ma)	CHRONS	POLARITY	EPOCH	AGE	CALCAREOUS NANNOPLANKTON		PLANKTONIC FORAMINIFERA				
					Martini (1971)	Bukry (1973, 1975)	Berggren et al. (1995)	Berggren and Pearson (this work)			
51	C23n _{2n}	■	Eocene	EARLY	YPRSIAN	NP12	CP10	P7	<i>M. aragonensis</i> / <i>M. formosa</i> CRZ	E5	<i>M. aragonensis</i> / <i>M. subbotinae</i> CRZ
52	C23r	■						P6b	<i>M. formosa</i> / <i>M. jansformis</i> / <i>M. aragonensis</i> ISZ	E4	<i>M. formosa</i> LOZ
53	C24n ₁	■	EARLY	YPRSIAN	NP11	CP9	P6a		<i>M. velascoensis</i> - <i>M. formosa</i> / <i>M. jansformis</i> ISZ	E3	<i>M. marginodentata</i> PRZ
54	C24r	■						P5	<i>M. velascoensis</i> IZ	E2	<i>M. velascoensis</i> LOZ
55	C25n	■	LATE	THANETIAN	NP10	CP8	P4c		<i>M. velascoensis</i> IZ	E1	<i>M. velascoensis</i> PRZ
56	C25r	■						P4b	<i>Ac. soldadensis</i> - <i>Gl. pseudomenardii</i> ISZ	P5	<i>Ac. soldadensis</i> - <i>Gl. pseudomenardii</i> CRZ
57	C26n	■	LATE	THANETIAN	NP9	CP7	P4c		<i>Ac. subphaerica</i> - <i>Ac. soldadensis</i> ISZ	P5	<i>Ac. subphaerica</i> - <i>Ac. soldadensis</i> CRZ
58	C26r	■						P4a	<i>Gl. pseudomenardii</i> - <i>Ac. subphaerica</i> CRZ	P4b	<i>Ac. subphaerica</i> PRZ
59	C27n	■	LATE	SELIANDIAN	NP8	CP6	P4a		<i>Gl. pseudomenardii</i> - <i>P. variolans</i> CRZ	P4a	<i>Gl. pseudomenardii</i> - <i>P. variolans</i> CRZ
60	C27r	■						P3b	<i>I. albeai</i> - <i>Gl. pseudomenardii</i> ISZ	P3b	<i>I. albeai</i> LOSZ
61	C28n	■	EARLY	DANIAN	NP7	CP5	P3a		<i>M. angulata</i> - <i>I. albeai</i> ISZ	P3a	<i>I. pusilla</i> PRZ
62	C28r	■						P2	<i>P. inconstans</i> - <i>P. inconstans</i> ISZ	P2	<i>Gl. compressa</i> - <i>P. inconstans</i> LOSZ
63	C29n	■	EARLY	DANIAN	NP6	CP4	P1c		<i>Gl. compressa</i> - <i>P. inconstans</i> ISZ	P1c	<i>Gl. compressa</i> - <i>P. inconstans</i> LOSZ
64	C29r	■						P1b	<i>S. triloculinoides</i> - <i>Gl. compressa</i> ISZ	P1b	<i>S. triloculinoides</i> LOSZ
65	C30n	■	LATE	THANETIAN	NP5	CP3	P1a		<i>P. eugubina</i> - <i>S. triloculinoides</i> ISZ	P1a	<i>P. pseudobulloides</i> PRZ
66	C30r	■						P1a	<i>P. eugubina</i> - <i>S. triloculinoides</i> ISZ	P1a	<i>P. pseudobulloides</i> PRZ
67	C31n	■	CRETACEOUS	MAESTRICHTIAN	NP4	CP2	Pα & P0		<i>P. eugubina</i> TRZ & <i>G. cretacea</i> PRZ	Pα & P0	<i>P. eugubina</i> TRZ & <i>G. cretacea</i> PRZ
68	C31r	■						Pα & P0	<i>P. eugubina</i> TRZ & <i>G. cretacea</i> PRZ	Pα & P0	<i>P. eugubina</i> TRZ & <i>G. cretacea</i> PRZ

- ◀ P5
- ◀ P4b base
- ◀ P4a base

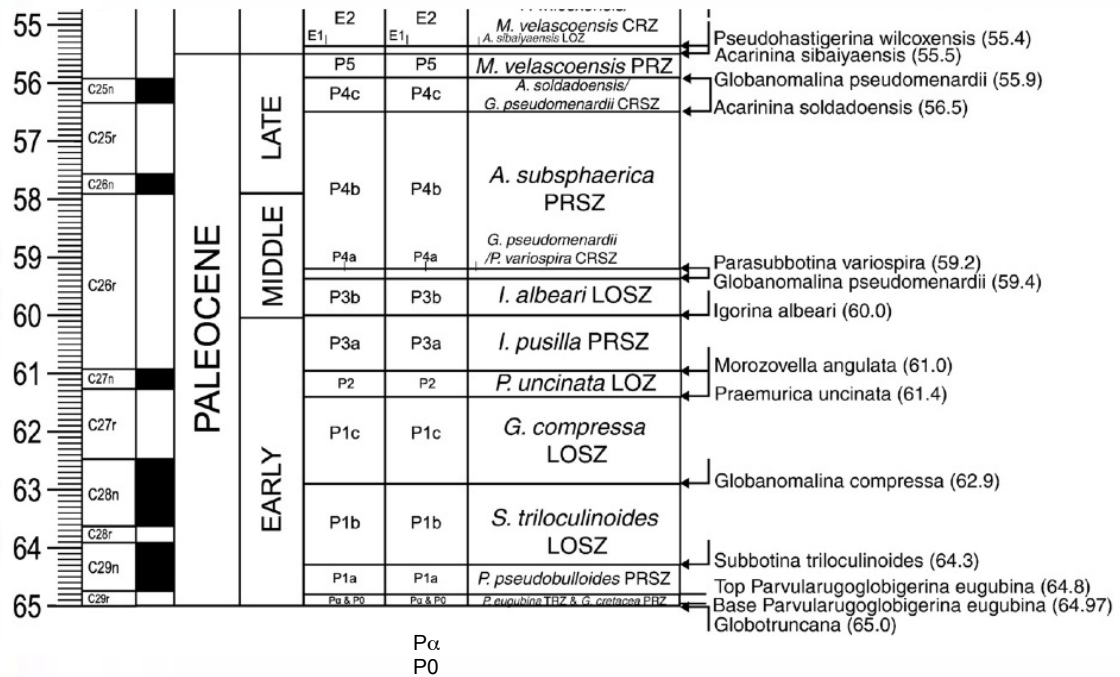


Biostratigrafia e biozonazione

Definizione delle zone ed eventi marker di zona

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Wade et al 2011

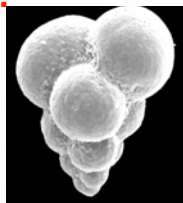
36



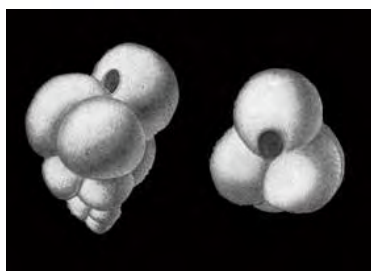
Base del Paleocene

Zona P0

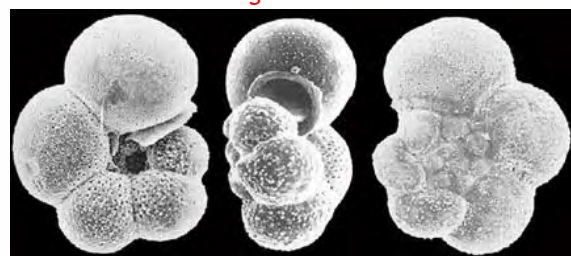
- 3 specie di piccole dimensioni (<75 micron) sopravvivono al limite K/Pg
 - r-strategiste
 - *Muricohedbergella* (= *Hedbergella*) *mounmouthensis*
 - *Muricohedbergella* (= *Hedbergella*) *delrioensis*
 - *Guembelitra* *cretacea*



Hedbergella holmdelensis



Guembelitra



Hedbergella monmouthensis

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37

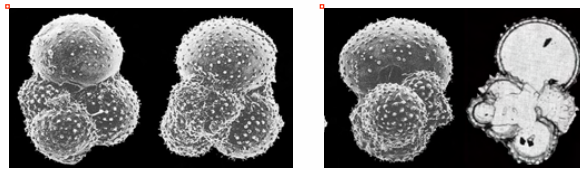


Base del Paleocene

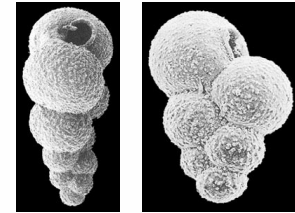
Zona a *P. eugubina* P α

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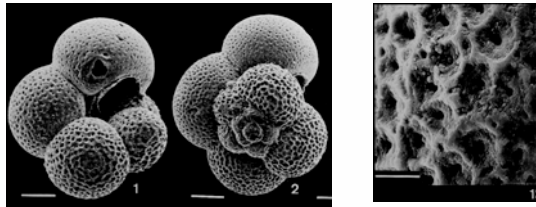
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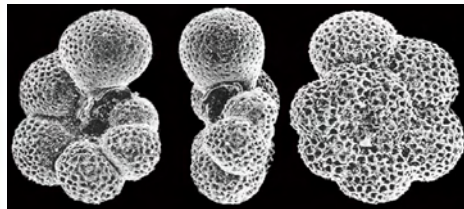
Globoconusa daubjergensis



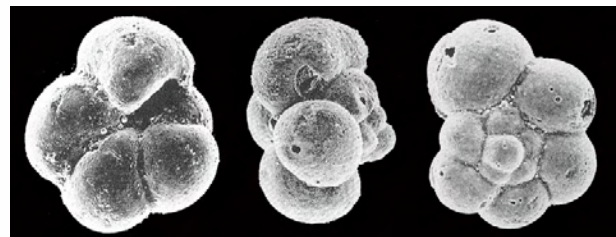
Woodringina



Eoglobigerina eobulloides



Praemurica taurica



Parvularugoglobigerina eugubina



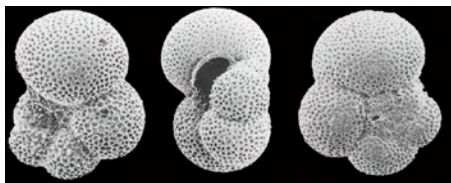
Paleocene inferiore

Zone P1-P2

- Evoluzione di *Praemurica*
- Diversificazione di
 - *Subbotina* e *Parasubbotina*

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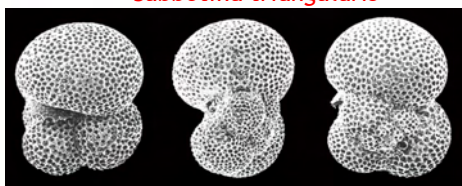
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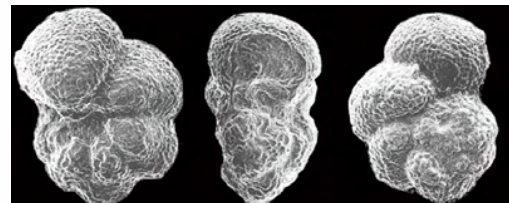
Parasubbotina pseudobulloides



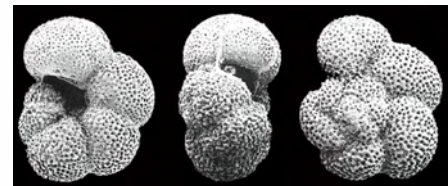
Subbotina triangularis



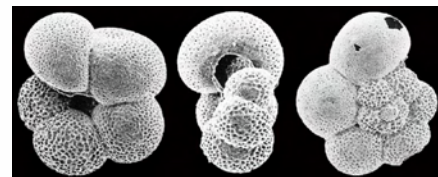
Subbotina trilocolinooides



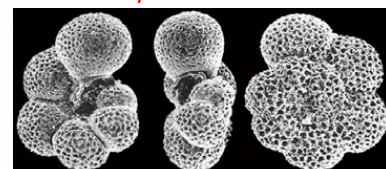
Praemurica uncinata



Praemurica inconstans



Praemurica pseudoinconstans



Praemurica taurica



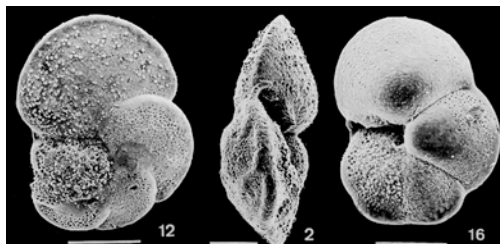
Paleocene inferiore - medio

Zone P2-P4

- Evoluzione di *Globanomalina*



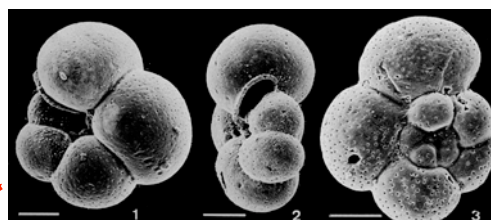
Globanomalina ehrenbergi



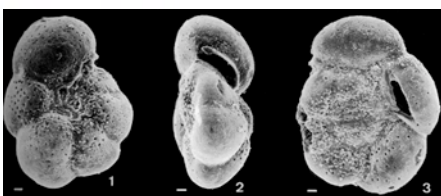
Globanomalina pseudomenardii



Globanomalina compressa



Globanomalina planocompressa



Globanomalina archeocompressa

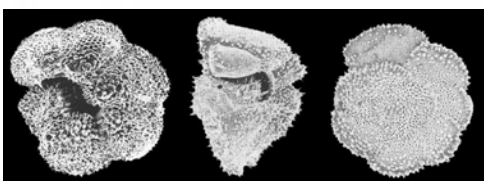
40



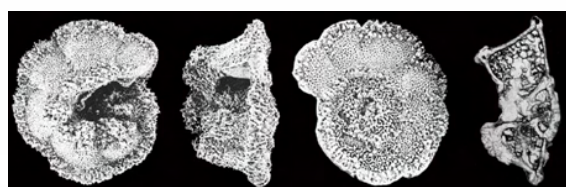
Paleocene inferiore - medio

Zone P3-P4-P5

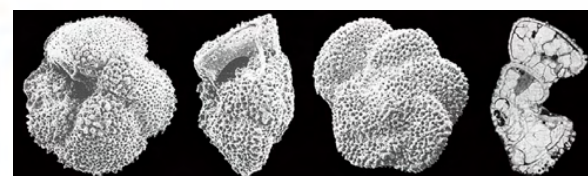
- Evoluzione del gruppo *Morozovella velascoensis*



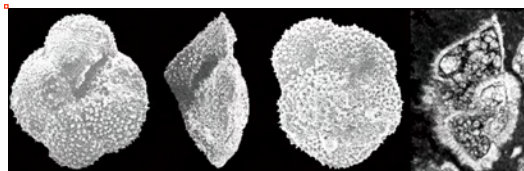
Morozovella conicotruncata



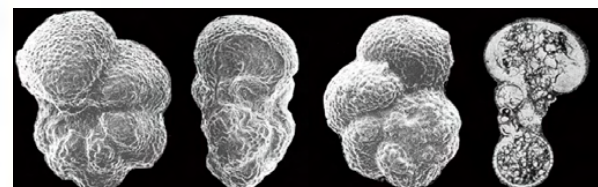
Morozovella velascoensis



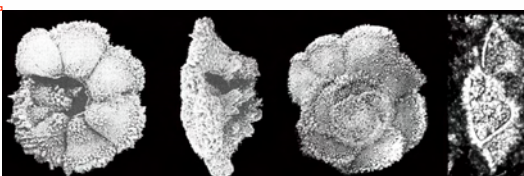
Morozovella angulata



Morozovella edgari



Praemurica uncinata



Morozovella pasionensis

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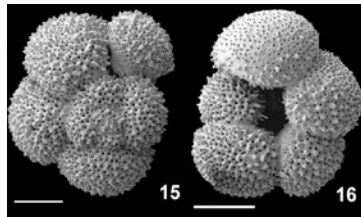




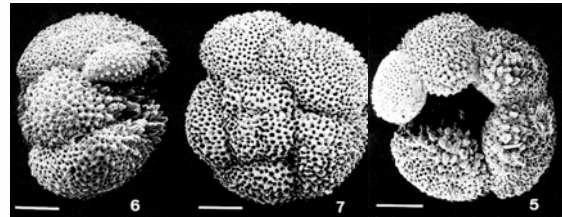
Paleocene medio - superiore

Zone P3-P4-P5

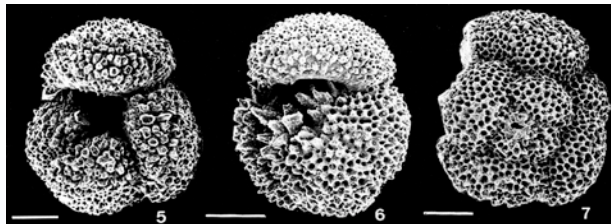
- Evoluzione di *Acarinina*



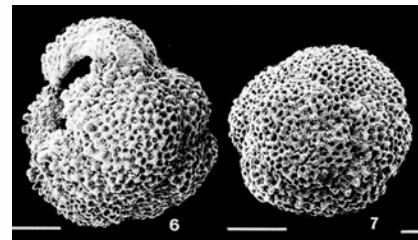
Acarinina angulosa



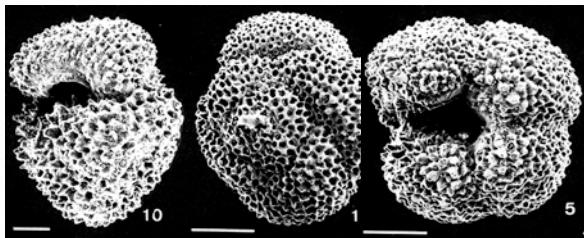
Acarinina mckannai



Acarinina soldadoensis



Acarinina subsphaerica



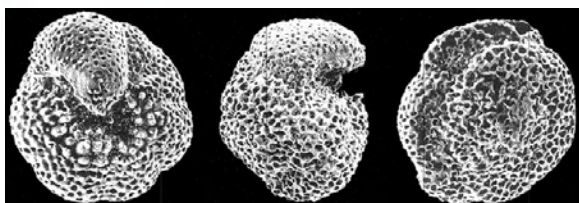
Acarinina nitida



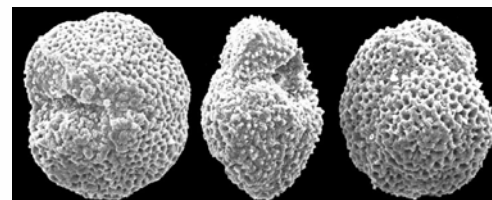
Paleocene medio - superiore a base Eocene

Zone P3-P4-P5-E1

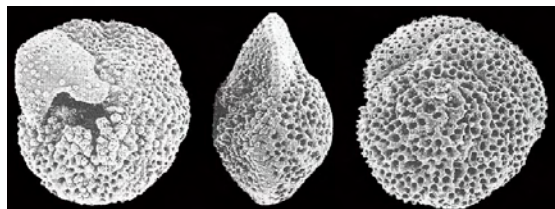
- Evoluzione di *Igorina*



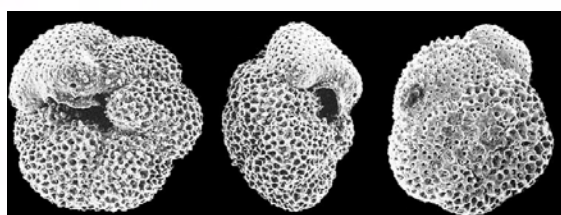
Igorina tadjikistanensis



Igorina convexa



Igorina albeari



Igorina pusilla





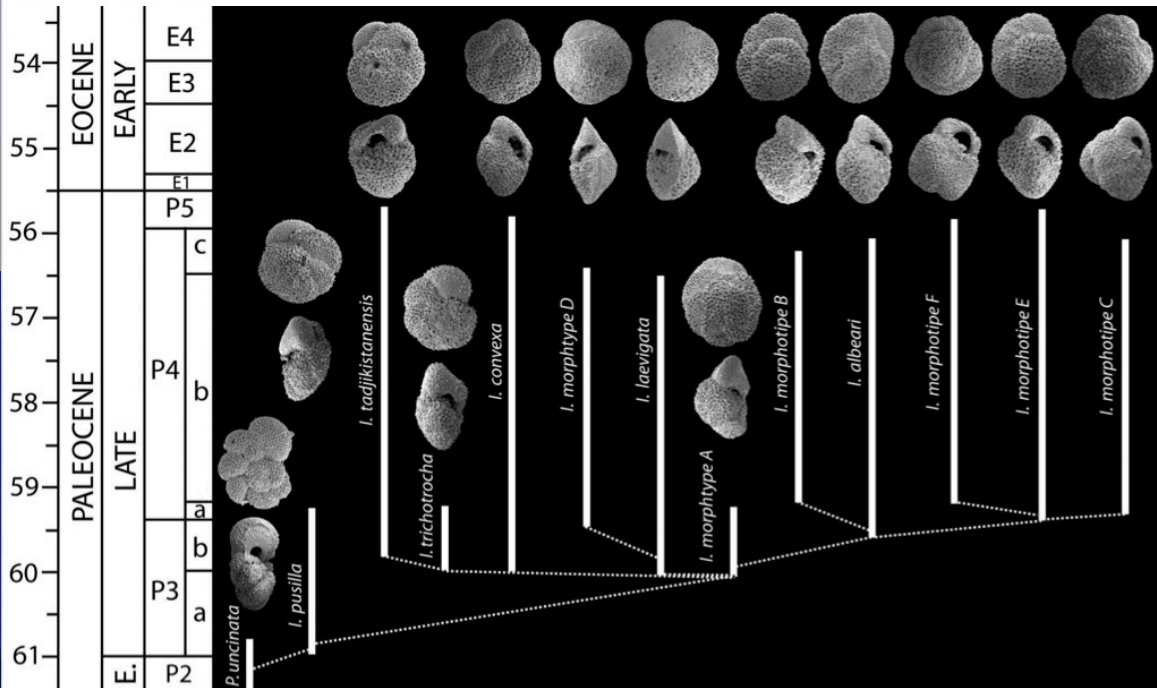
Paleocene medio - superiore a base Eocene

Zone P3-P4-P5-E1

- Evoluzione di *Igorina*

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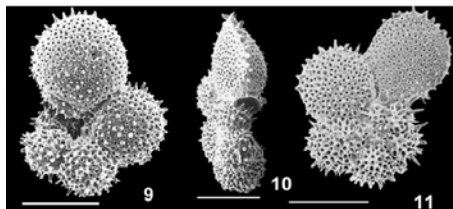
Limite Paleocene/Eocene

Cambiamenti biotici al PETM (Paleocene Eocene Thermal Maximum)

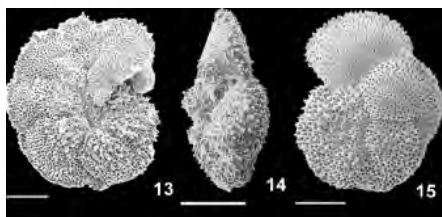
- In area tropicale i foraminiferi planctonici si diversificano e si osserva la comparsa di taxa a breve durata (short-lived exotic taxa) (*Acarinina africana*, *Acarinina sibaiyaensis*, *Morozovella allisonensis*), definiti excursion taxa

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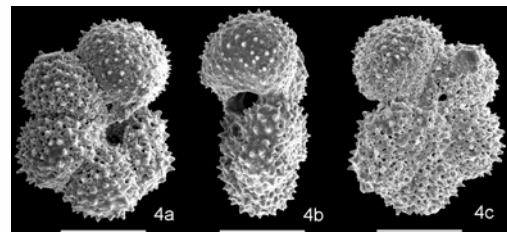
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Acarinina africana



Morozovella allisonensis



Acarinina sibaiyaensis

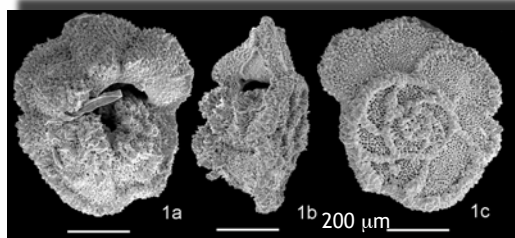


Limite Paleocene/Eocene

Aumento dimensioni al PETM

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Morozovella velascoensis

