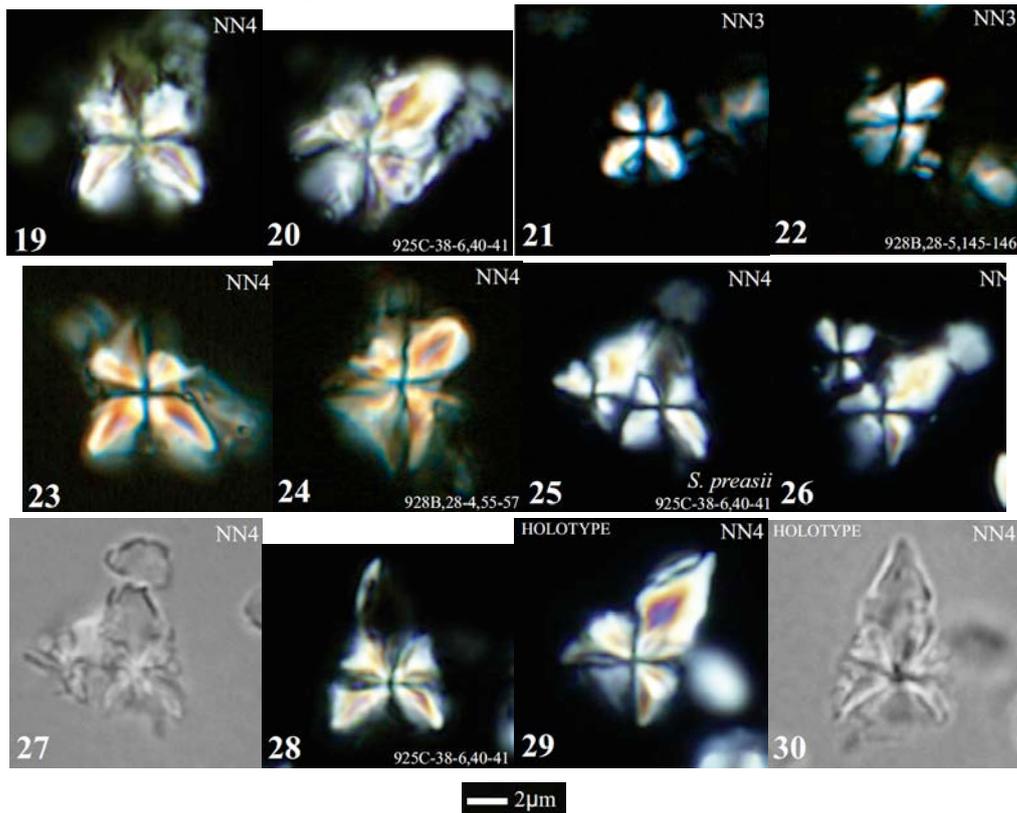


Sphenolithus preasii Bergen & de Kaenel in Bergen et al. (2017)



Pl. 5, figs 19–30

Derivation of name: named in honor of geologist Patrick Preas of ALS-Ellington, Houston.

Diagnosis: Conical sphenolith with a monocrystalline apical spine, a “shouldered” lateral profile, and arcuate proximal surface.

Description: Medium to large, conical sphenolith. The monocrystalline apical spine is moderate to long (~ 1/2 to 3/4 the total length of the specimen), has a pointed to rounded apex, and becomes extinct when the specimen is aligned with the polarizing direction. In this orientation, the four basal quadrants each appear equant and the height of the upper quadrants is less than the height of the lower quadrants (0.67–0.76 ratio). In lateral profile, the proximal surface is concave and arcuate. The basal lateral periphery appears “bulged”, giving the impression of shoulders when contrasted to the width of the spine at its juncture with the base (most evident at 45° in XPL). L = 5.6–10.0μm; W = 4.0–6.4μm (holotype: 9.8μm x 6.4μm).

Remarks: *Sphenolithus preasii* is somewhat transitional between *S. conicus* and *S. milanetti*. It differs from *S. conicus* by its “bulged” basal lateral periphery, arcuate proximal surface, and relatively lower upper quadrants (height upper to lower quadrant ratio < 0.8). *Sphenolithus milanetti* also has a “bulged” base, but its base is hemispherical and constructed of much larger elements. The basal upper quadrants (lateral cycle) of *S. milanetti* is much more reduced than in *S. preasii* (both height and width) relative to the

size of their lower quadrants (proximal cycle). *Sphenolithus preasii* is also similar to *S. heteromorphus*, but the latter species is not shouldered (uniform taper), has a linearly indented proximal surface, and the height of its upper (lateral cycle) and lower (proximal cycle) quadrants are equal. The lower quadrant elements (proximal cycle) of *S. heteromorphus* appear broad (width > height), whereas those of *S. preasii* are equant. *Sphenolithus preasii* has been referred to as “*S. milanetti (elongate)*.” in the BP GoM lexicon.

Holotype: Pl. 5, figs 28–30.

Type locality: ODP Leg 154, Hole 925C, Ceará Rise, western equatorial Atlantic.

Type level: Sample 38-6, 40–41cm (16.097Ma), Zone NN4, Lower Miocene.

Occurrence: *Sphenolithus preasii* is rarely found in samples from the GoM. In Leg 154, this late Early Miocene species ranges from Sample 926B-35-3, 75–76cm (upper NN3) to Sample 925C-38-5, 95–96cm (middle NN4), which are dated from 17.872Ma (0.018Ma error) to 16.040Ma (0.022Ma error). The LO of larger specimens (>9 μ m) of *S. preasii* is in Sample 928B-28-4, 95–96cm in the Leg 154 research, dated at 17.672Ma (0.011Ma error).

Bergen, J., de Kaenel, E., Blair, S., Boesiger, T. & Browning, E., 2017. Oligocene-Pliocene taxonomy and stratigraphy of the genus *Sphenolithus* in the circum North Atlantic Basin: Gulf of Mexico and ODP Leg 154. *Journal of Nannoplankton Research*, **37(2–3)**: 77–112.