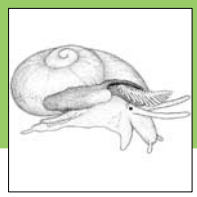
The Microanatomy of *Xenoskenea pellucida* (Monterosato, 1874) (Gastropoda,Heterobranchia, Ectobranchia)

Erika Speimann, Martin Heß, Gerhard Haszprunar
BioZentrum der LMU München, Großhadernerstraße 2, 82152 Planegg, Germany
erika.speimann@gmx.de

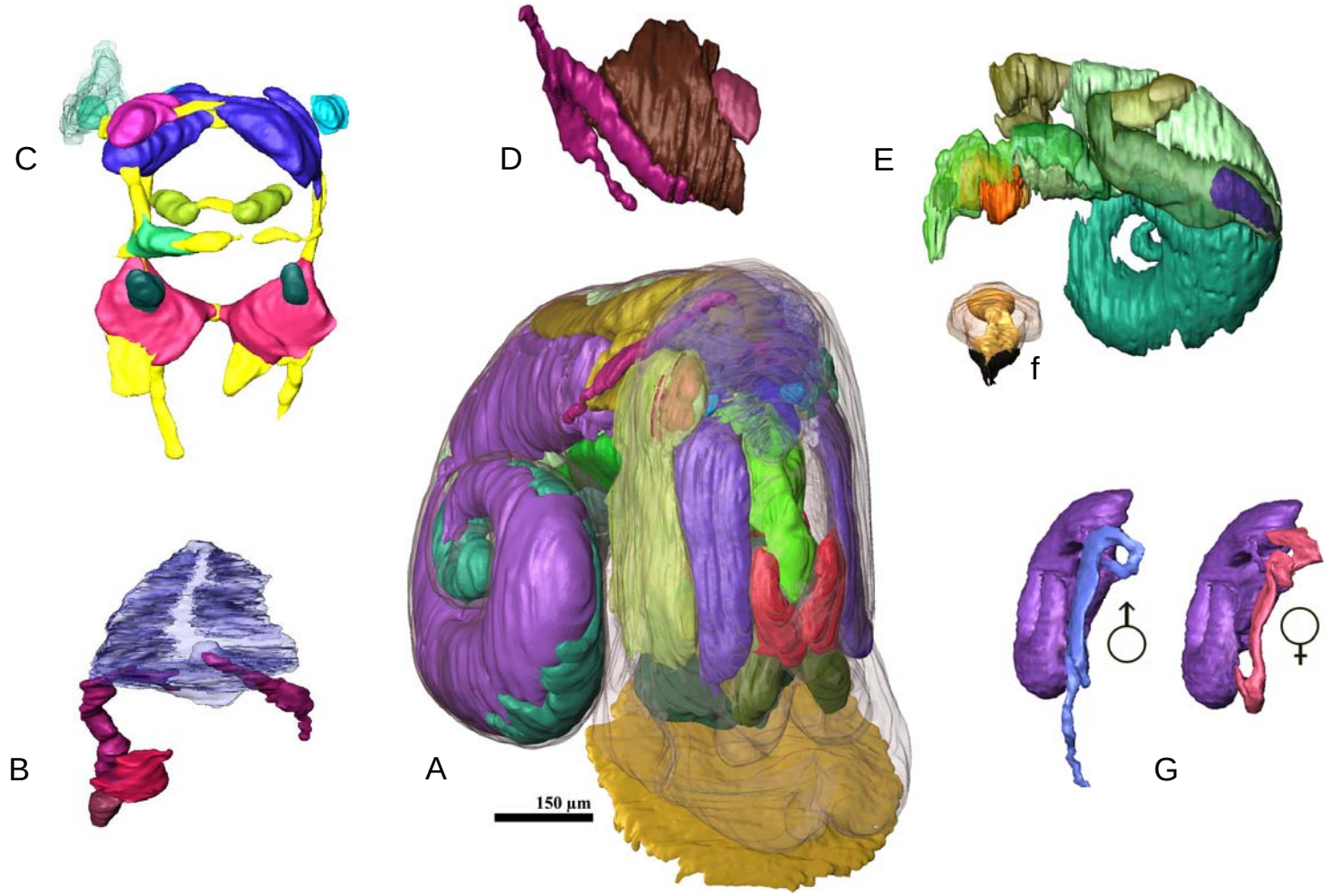


Introduction & Methods

Until recently the classification of most microgastropods has been based on shell characters, radula details and external morphology. Nevertheless, the vetigastropod family Skeneidae (type species *Skenea serpuloides* Clark, 1851) has often been suspected to represent a polyphyletic assemblage. Based on its heterostrophic apex the skeneimorph microgastropod (1.6 mm shell diameter) *Xenoskenea pellucida* (Monterosato, 1874) has been transferred to basal Heterobranchia (Warén et al. 1993: Veliger 26: 1-15). Herein, we describe the detailed morphology and anatomy of this species based on computer-aided (software AMIRA™) 3D-reconstructions from semi-thin section series.

Results

Xenoskenea pellucida is characterised as follows: hyperstrophic larval shell; elongated snout with small appendages; smooth cephalic and no epipodial tentacles; a second posterior food gland; a single bipectinate, ciliated gill with two retractor muscles but lacking bursicles and skeletal rods; a single, left, pallially situated kidney; a monotocardian heart with passing rectum; a truly hermaphroditic genital system adapted for internal fertilisation; a rhipidoglossate radula but lack of radular cartilages; an epiathroid nervous system; statocysts containing a single statolith.



Discussion

This character-set as a whole reflects basal heterobranch conditions and in particular affinities to ectobranch (valvatoidean) taxa such as *Hyalogyra* and *Hyalogyrina*. Accordingly, *Xenoskenea pellucida* should be transferred from Vetigastropoda – Skeneidae to Ectobranchia-Hyalogyrinidae. Further studies (in progress) on other hyalogyrinid species are necessary to clear up the specific position within this basal heterobranch family. The presence of the rhipidoglossate radula in the ectobranch Hyalogyrinidae makes it likely that the origin of Heterobranchia as a whole lies in the rhipidoglossate level of gastropod evolution.

3D-reconstructions (surface renderings) of *Xenoskenea pellucida*

A *Transparent soft body with operculum (ocher) and all organs*
B *Gill with afferent and efferent sinus (pink), heart (light red: auricle, aubergine: ventricle) (dorsal view)*
C *Nervous system with coloured ganglia (dark blue: cerebro-pleural ganglia, red: pedal ganglia, chartreuse: buccal ganglia, pink: supra-intestinal ganglion, green: sub-intestinal ganglion, turquoise: osphradial ganglion with transparent osphradium, light blue: eyes, dark green: statocysts) (back view)*
D *Heart and excretory system (brown: kidney, pink: blood sinus, aubergine: ventricle) (lateral left view)*
E *Alimentary system (light green: pharynx and oesophagus, pastell green: salivery glands and anterior digestive gland, turquoise: posterior digestive gland, dark green: stomach, olive: intestinum and rectum, purple: gastric shield, orange: muscular odontophore) (lateral left view)*
f *Detail: Jaws (black) with radula (yellow) in radula sack (transparent) (frontal view)*
G *Genital system (purple: hermaphrodite gland, blue: male gonoduct, red: female gonodukt) (dorsal view)*