东北七鳃鳗

现生无颌脊椎动物的重要代表

东北七鳃鳗体形细长，没有上下颌和成对的鳍。头部两侧各有七个鳃孔，“七鳃鳗”因此得名。七鳃鳗属于现生无颌脊椎动物，其所在的圆口类是有颌脊椎动物的现生姐妹群。七鳃鳗具有自身长期演化形成的独特结构，同时也保留了研究脊椎动物早期演化的重要信息。其基因组、神经嵴发育、神经系统和免疫系统等受到广泛研究，是探索脊椎动物关键结构与生理系统演化的重要现生参照。

Eudontomyzon morii

An Important Living Representative of Jawless Vertebrates

Eudontomyzon morii has a slender, elongate body and lacks paired fins and jaws. Seven pairs of gill openings are arranged along the sides of the head, a characteristic feature of lampreys. The larvae live buried in sandy or muddy substrates, whereas adults inhabit freshwater streams and rivers. As a living jawless vertebrate, *Eudontomyzon morii* retains a combination of ancestral vertebrate features and highly specialized characteristics that evolved during the long independent history of lampreys. Studies of its genomes, neural crest development, nervous system and immune system provide important comparative information for understanding the origin and early evolution of key vertebrate traits.

奇迹秀山鱼

最早的完整保存有颌脊椎动物

奇迹秀山鱼生活于约 4.36 亿年前的志留纪早期，全长约 3 厘米，属于早期盾皮鱼类。它具有宽阔的头甲、发达的背棘和覆盖细小鳞片的躯干，身体背腹扁平，鳍和尾部结构保存完整。奇迹秀山鱼的头甲融合了多个盾皮鱼类群的特征，并呈现出向硬骨鱼类头顶骨片构型转变的若干特点。它的发现将完整有颌脊椎动物的化石记录向前推进了约 1100 万年，表明有颌脊椎动物在早志留世已经发生了显著的多样化，为认识有颌类早期身体构型与演化提供了关键证据。

Xiushanosteus mirabilis

The Earliest Complete Gnathostome Vertebrate Fossil

Xiushanosteus mirabilis was a tiny jawed vertebrate that lived in the Early Silurian. Measuring approximately 3 centimetres in total length, it had a broad, semicircular head shield and a short trunk enclosed by dermal armour. Its body was dorsoventrally flattened, with paired fins and a nearly complete tail preserved in remarkable detail.The dermal skeleton of *Xiushanosteus mirabilis* combines features found in several major placoderm groups. The discovery of complete specimens—pushing back the fossil record of complete jawed vertebrates by approximately 11 million years—provides direct evidence that jawed vertebrates had already undergone substantial morphological diversification early in their evolutionary history and offers an unprecedented view of their early body plans.

沧龙类牙齿

白垩纪海洋中的多样化捕食者

沧龙类是一类高度适应水生生活的有鳞类爬行动物，在白垩纪晚期广泛分布于世界各地的海洋中。它们与现生蜥蜴和蛇同属有鳞类。不同沧龙具有形态多样的牙齿，可用于抓握、切割或压碎猎物，反映出它们具有不同的食性和生态适应。

Mosasaur tooth

Diverse Predators of the Cretaceous Seas

Mosasaurids were aquatic squamate reptiles that became widely distributed in the world's oceans during the Late Cretaceous. They belonged to Squamata, the same major group that includes modern lizards and snakes. Mosasaurids ranged from relatively small forms to giant marine predators. They evolved a wide variety of tooth shapes adapted for grasping, cutting, or crushing prey, reflecting their diverse diets and ecological roles in Late Cretaceous marine ecosystems.

鲨鱼

适应不同食性的牙齿

现生鲨类超过 500 种，具有适应不同食物和取食方式的多样化牙齿。用于切割猎物的牙齿通常扁平、尖锐并具有锯齿；用于抓持猎物的牙齿往往细长而尖；部分取食贝类和甲壳动物的底栖鲨类则具有低平、圆钝的牙齿，适合压碎坚硬的外壳。同一个体的上下颌及颌部不同位置也可能具有形态不同的牙齿。鲨类牙齿能够不断脱落和替换，使其在一生中始终保持有效的取食工具。牙齿形态的多样性反映了鲨类对不同食物资源与生态环境的适应。

Selachimorpha

Teeth Adapted to Different Diets

More than 500 species of sharks are living today, displaying a remarkable diversity of teeth adapted to different diets and feeding strategies. Teeth used for cutting are typically flattened, sharp, and often serrated, whereas those used for grasping prey tend to be slender and pointed. Some bottom-dwelling sharks that feed on molluscs and crustaceans have low, rounded teeth suited for crushing hard shells. Within a single shark, tooth shape may differ between the upper and lower jaws and among different positions along each jaw. Shark teeth are continuously shed and replaced throughout life. This diversity of tooth shapes reflects adaptations to different prey, feeding mechanisms, and ecological niches.

梦幻鬼鱼

最古老的肉鳍鱼

梦幻鬼鱼是生活在距今约 4.23 亿年前志留纪晚期的原始肉鳍鱼类，化石发现于中国云南曲靖。它体长约 30 厘米，身体呈流线型，牙齿锋利，颅骨与肉鳍鱼类相似，颊部接近辐鳍鱼类，胸鳍棘刺类似盾皮鱼类、棘鱼类和软骨鱼类。作为潇湘脊椎动物群代表性化石，梦幻鬼鱼化石保存近乎完整，进一步填补了硬骨鱼类和其他有颌类之间的形态学鸿沟。

Guiyu oneiros

The Earliest Known Sarcopterygian

Guiyu oneiros is an early sarcopterygian that lived about 423 million years ago in the Late Silurian and was discovered in Qujing, Yunnan, China. It was about 30 cm long, with a streamlined body and sharp teeth. Its skull resembles those of sarcopterygians, whereas its cheek region is more actinopterygian-like, and the spine in front of the pectoral fin resembles those seen in placoderms, acanthodians, and chondrichthyans. As a representative fossil of the Xiaoxiang Vertebrate Fauna, *Guiyu oneiro* is preserved nearly complete and helps bridge the morphological gap between osteichthyans and other early jawed vertebrates.