文昌鱼

脊索动物活化石

文昌鱼体长约50毫米，身体侧扁、半透明，两端尖细，外形似鱼，但没有明显的头部、头骨和脊椎。其脊索沿身体背侧纵贯全身，并一直延伸至体前端。文昌鱼保留了脊索、背神经管和咽鳃裂等脊索动物的基本身体结构，是研究脊索动物身体构型及脊椎动物早期演化的重要现生参照。

Branchiostoma

A Living Fossil of the Chordates

Branchiostoma is a small, translucent marine cephalochordate about 50 mm long. Its body is laterally compressed and tapers at both ends, giving it a fish-like appearance. However, it lacks a distinct head, cranium, and vertebral column. Instead, a notochord extends nearly the full length of the body and reaches its anterior tip. It also retains key features of the basic chordate body plan, including a notochord, a dorsal hollow nerve cord, and numerous pharyngeal slits. As a living representative of Cephalochordata, *Branchiostoma* provides an important comparative reference for understanding the chordate body plan and the early evolution of vertebrates.

海鞘

脊椎动物最近的无脊椎近亲

海鞘成体通常呈囊状，多固着在岩石等基底上生活，外形与鱼类相差很大。然而，大多数海鞘的幼体呈蝌蚪状，能够短暂游泳，并具有脊索、背神经管和肛后尾等脊索动物基本特征。幼体找到适宜基底后附着并发生变态，尾部被吸收，脊索随之消失，最终发育为固着生活的成体。分子系统学研究表明，尾索动物是脊椎动物的现生姐妹群，与脊椎动物的亲缘关系比文昌鱼所属的头索动物更近。

Ascidian

The Closest Living Invertebrate Relatives of Vertebrates

Adult sea squirts are typically sac-like marine animals that live attached to rocks or other substrates. Although their adult form looks very different from that of a fish, most sea squirts have tadpole-like, free-swimming larvae. These larvae possess key chordate features, including a notochord, a dorsal hollow nerve cord and a post-anal tail. After finding a suitable substrate, the larva attaches itself and undergoes metamorphosis. Its tail is resorbed, the notochord disappears, and it develops into a sessile adult. Molecular phylogenetic studies indicate that tunicates are the living sister group of vertebrates. They are therefore more closely related to vertebrates than are lancelets, such as those of the genus Branchiostoma, and provide important evidence for understanding vertebrate origins.

周氏鸿鱼

中国晚泥盆世的大型四足形类

周氏鸿鱼生活于约3.7亿年前的晚泥盆世，是中国发现的一种大型四足形类肉鳍鱼，估计体长可达约1.5米。周氏鸿鱼保存了部分头骨、肩带和前22节脊柱，环状骨化椎体发育，中央保留脊索通道。周氏鸿鱼兼具根齿鱼类和较进步四足形类的若干特征，为认识四足形类不同支系中相似结构的平行演化，以及鱼类向四足动物演化过程中的脊柱和肩带变化提供了重要证据。

Hongyu chowi

A Large Tetrapodomorph from the Late Devonian of China

Hongyu chowi was a large tetrapodomorph fish that lived approximately 370 million years ago during the Late Devonian. Discovered in Ningxia, China, it had an estimated body length of about 1.5 metres. The holotype preserves parts of the skull and pectoral girdle, together with the first 22 vertebral centra. Its vertebrae have ring-shaped centra surrounding a canal for the notochord. *Hongyu chowi* combines features characteristic of rhizodonts with others resembling those of more crownward tetrapodomorphs. This unexpected combination provides evidence for extensive parallel evolution among early tetrapodomorph lineages and offers important insights into the evolution of the vertebral column and pectoral girdle along the lineage leading towards tetrapods.

中华狼鳍鱼

热河生物群的代表性鱼类

狼鳍鱼是热河生物群的代表性成员之一。其身体呈纺锤形，多数个体体长仅数厘米。狼鳍鱼化石数量丰富，常在同一层面密集保存。这种埋藏现象记录了鱼群的集群死亡事件，可能与湖水缺氧等环境变化有关，但不能仅凭密集埋藏确定其具有群游习性。狼鳍鱼广泛发现于中国北方及东亚其他地区的早白垩世湖相地层。义县组不同层位中的狼鳍鱼种类和组合有所差异，可为研究热河生物群的地层对比与湖泊生态变化提供重要资料。

Lycoptera sinensis

A Representative Fish of the Jehol Biota

Lycoptera is one of the representative members of the Jehol Biota. It had a spindle-shaped body, and most individuals were only a few centimeters long. *Lycoptera* fossils are abundant and are often densely preserved on the same bedding plane. Such occurrences record mass-mortality events and may be related to environmental changes such as oxygen depletion in lakes; however, dense fossil accumulations alone do not demonstrate schooling behavior. *Lycoptera* is widely found in Early Cretaceous lacustrine deposits of northern China and other parts of East Asia. Differences in *Lycoptera* species and assemblages among different stratigraphic levels of the Yixian Formation provide important evidence for studying stratigraphic correlation within the Jehol Biota and changes in lake ecosystems.