

# Albanerpetontidae

The **Albanerpetontidae** are an extinct family of lissamphibians, distinct from other groups of modern amphibians. Albanerpetontids include six named genera – *Albanerpeton*, *Anoualerpeton*, *Celtedens*, *Shirerpeton*, *Yaksha* and *Wesserpeton* – and between 10 and 20 known species, spanning about 160 million years from the Bathonian stage of the Middle Jurassic to the beginning of the Pleistocene, about 2.13-2 million years ago.

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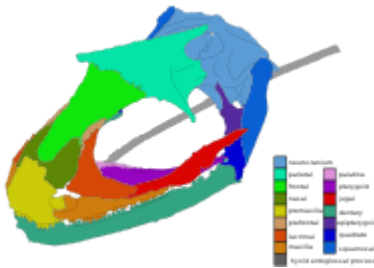
## History of Research

The earliest specimen of an albanerpetontid to be discovered was that of *Celtedens megacephalus* from the Early Cretaceous (Albian) Pietraraja Plattenkalk of Italy, described by Oronzio Gabriele Costa in 1864, and originally placed in the genus *Triton*, a junior synonym of the salamander genus *Triturus*.<sup>[1]</sup> Jaw elements of albanerpetontids from the Cretaceous of North America were assigned to the salamander genus *Prosiren* by Richard Estes in 1969, which was based on a vertebra.<sup>[2]</sup> *Albanerpeton*, the type genus of the family was first named by Estes and Hoffstetter in 1976 for the species of *A. inexpectatum* described from a large number of jaws and frontal bones described from a Miocene aged fissure fill deposit near Saint-Alban-de-Roche in France, and was initially classified as a salamander, and placed in the family Prosirenidae alongside *Prosiren* due to the morphological similarity with the previously described jaw fragments.<sup>[3]</sup> Fox and Naylor in 1982 realised that *Albanerpeton* was not a salamander, noting that the holotype vertebra of *Prosiren* was different to those of albanerpetontids, concluding that *Albanerpeton* was "well

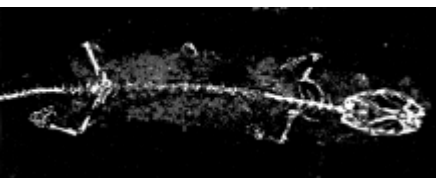
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|---|
| <div><b>Albanerpetontidae</b></div> <div><b>Temporal range:</b></div> <div><b>Bathonian–Gelasian</b></div> <div> <span>PreЄ</span> <span>Є</span> <span>OS</span> <span>D</span> <span>C</span> <span>P</span> <span>T</span> <span>J</span> <span>K</span> <span>PgN</span> </div> |
| <span></span> <div>Life restoration of <i>Albanerpeton</i></div>  |
| <span></span> <div>Skull of <i>Yaksha peretti</i></div>   |
| <b>Scientific classification</b> <span><span></span></span>   |
| Kingdom: <span><span></span></span> <u>Animalia</u>   |
| Phylum: <span><span></span></span> <u>Chordata</u>  |
| Class: <span><span></span></span> <u>Amphibia</u>   |
| Subclass: <span><span></span></span> <u>Lissamphibia</u>  |
| Order: <span><span></span></span> † <u>Allocaudata</u> <div>Fox and Naylor, 1982</div>  |
| Family: <span><span></span></span> † <u>Albanerpetontidae</u> <div>Fox and Naylor, 1982</div>   |
| <b>Genera</b>   |
| <ul style="list-style-type: none"><li>†<i>Albanerpeton</i></li> <li>†<i>Anoualerpeton</i></li></ul>   |



Fossil of *Celtedens megacephalus* from Italy



Bones of the only articulated Albanerpetontid skull, *Yaksha peretti*, vomer not shown



Holotype specimen of *Celtedens ibericus* from the Early Cretaceous of Spain, gray halo surrounding the bones are the remains of scales.

isolated from salamanders" and that it "seems no nearer phyletically to any other known amphibians, from Devonian to Recent" erecting the family Albanerpetontidae and the order Allocaudata to accommodate it.<sup>[4]</sup>

- †*Celtedens*
- †*Shirerpeton*
- †*Wesserpeton*
- †*Yaksha*

## Description

Albanerpetontids were small (several centimetres in length) and superficially lizard-like. The skin of albanerpetontids was embedded with bony, fish like scales. The morphology of the complete 3 dimensionally preserved skull of *Yaksha peretti* suggests that Albanerpetontids had ballistic tongues akin to those of chameleons and plethodontid salamanders, as evidenced by the presence of a elongated rod shaped bone in the jaw cavity, dubbed the hyoid entoglossal process, which in life was embedded within the tongue. An analagous bone exists in chameleons, and allows rapid propulsion of the tongue.<sup>[5][6]</sup> Autapomorphic characters for Albanerpetontids include: "a complex 'mortise and tenon' interdentary joint; non-pedicellate, slightly tricuspid, teeth; a sculptured median (fused) frontal; and an amniote-like 'atlas-axis' involving three anterior cervical components".<sup>[7]</sup>

## Life habits

The morphology of albanerpetontids suggests that they were sit-and-wait terrestrial predators and fed on invertebrates, similar to living plethodontids. The fact that the skull of the juvenile paratype of *Yaksha* was around 1/4 of the size of the adult suggests that albanerpetontids grew by direct development and did not have a metamorphic larval stage.<sup>[5]</sup>

## Distribution

The distribution of Albanerpetontids is largely confined to Eurasia and North America, with remains also known from Morocco.<sup>[8][9]</sup>

The first albanerpetontids are known from the western Palearctic (Europe and North Africa) in the Middle Jurassic (Bathonian), with the first known remains from North America occurring in the latter half of the Early Cretaceous. The last known remains of albanerpetontids in North America are from the Paskapoo Formation in Canada, dating to the Paleocene. All other Cenozoic members of the family, belonging to the genus *Albanerpeton*, are known from Europe, until their final appearance in Italy during the Early Pleistocene.<sup>[9]</sup>

## Classification

Albanerpetontids were long thought to be salamanders because of their small size and generalized body plans.<sup>[10]</sup> However, these features are now thought to be ancestral for lissamphibians and not indicative of close relationships between the two groups.<sup>[11]</sup> Albanerpetontids are now recognized as a distinct clade of lissamphibians separate from the three living orders of amphibians – Anura (frogs), Caudata (salamanders), and Gymnophiona (caecilians). Most studies show them as more closely related to frogs and salamanders than to caecilians,<sup>[12]</sup> but bootstrap and Bayesian analyses show that this result is not robust and that they could also be sister-group of the Lissamphibia.<sup>[13]</sup> The presence of epipterygoids and a separate supraoccipital at least argues against a position within Batrachia.<sup>[7]</sup> A phylogenetic analysis in 2020 among lissamphibian relationships using multiple methods found no consensus for the position of Albanerpetontidae in relation to other lissamphibians.<sup>[5]</sup>

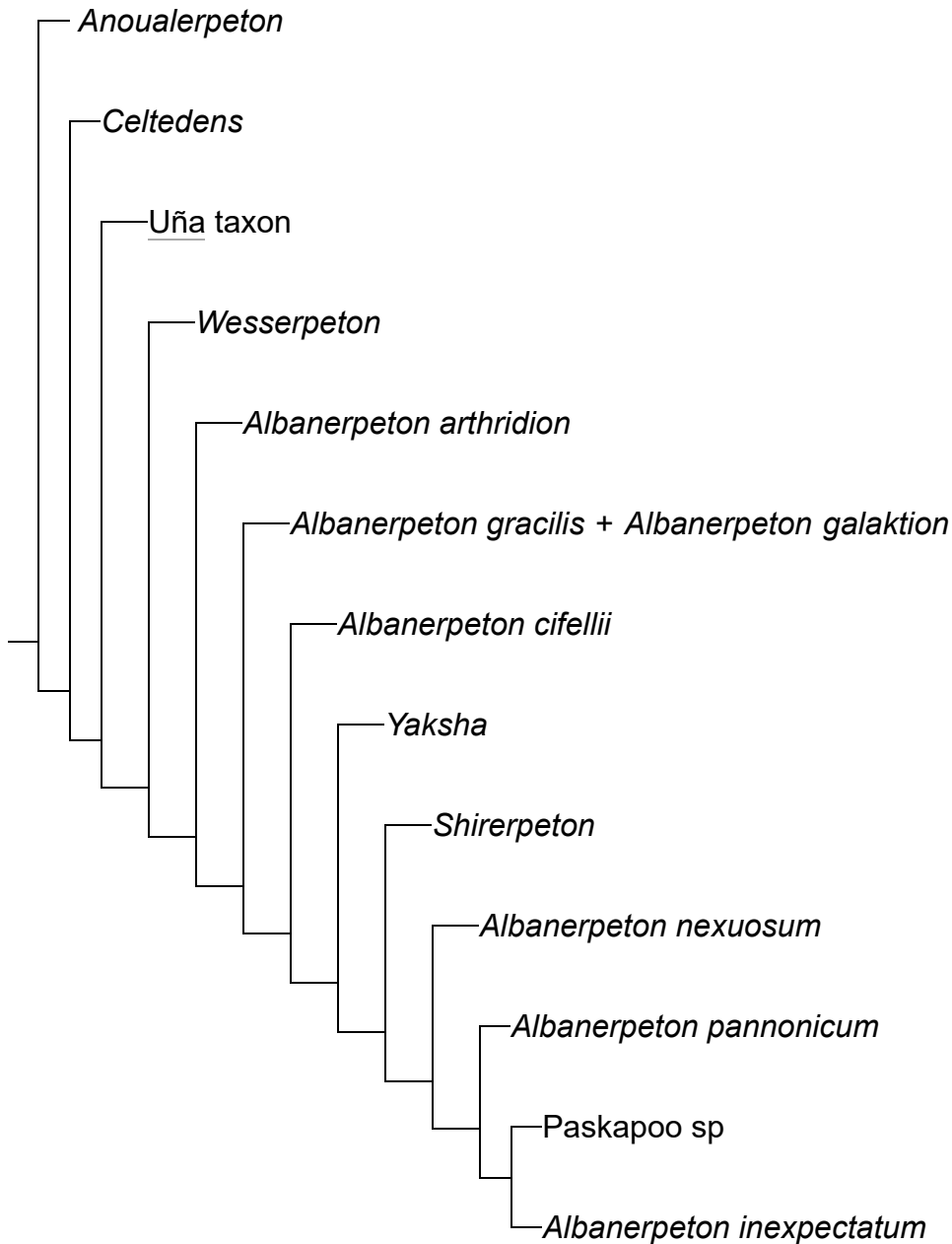
## Taxonomy

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- Genus *Shirerpeton* Matsumoto & Evans, 2018<sup>[7]</sup>
  - *Shirerpeton isajii* Matsumoto & Evans, 2018 Early Cretaceous, Japan
- Genus *Wesserpeton* Sweetman & Gardner 2013
  - *Wesserpeton evansae* Sweetman & Gardner 2013 Early Cretaceous, United Kingdom
- Genus *Anoualerpeton* Gardner, Evans & Sigogneau-Russell 2003
  - *Anoualerpeton priscus* Gardner, Evans & Sigogneau-Russell 2003 Middle Jurassic, United Kingdom
  - *Anoualerpeton unicus* Gardner, Evans & Sigogneau-Russell 2003 Late Jurassic, Morocco
- Genus *Celtedens* McGowan & Evans 1995 Late Jurassic-Early Cretaceous, Europe
  - *Celtedens megacephalus* (Costa 1864) Early Cretaceous, Italy, United Kingdom
  - *Celtedens ibericus* McGowan & Evans 1995 Early Cretaceous, Spain
- Genus *Albanerpeton* Estes & Hoffstetter 1976
  - *Albanerpeton arthridion* Fox & Naylor 1982 Early Cretaceous, United States
  - Clade "Gracile-snouted"
    - *Albanerpeton gracilis* Gardner 2000 Late Cretaceous, North America
    - *Albanerpeton cifellii* Gardner 1999 Late Cretaceous, United States
    - *Albanerpeton galaktion* Fox & Naylor 1982 Late Cretaceous, North America
  - Clade "Robust-snouted"
    - *Albanerpeton nexuosus* Estes 1981 Late Cretaceous, North America
    - *Albanerpeton pannonicus* Venczel & Gardner 2005 Pliocene-Early Pleistocene Hungary, Italy
    - *Albanerpeton inexpectatum* Estes & Hoffstetter 1976 Oligocene-Miocene, Europe
- Genus *Yaksha* Daza et al, 2020
  - *Yaksha perettii* Daza et al, 2020 Late Cretaceous, Myanmar
- Fragmentary remains of albanerpetontids are also known from the Bathonian aged Anoual Formation of Morocco,<sup>[14]</sup> The Bathonian aged Aveyron locality of France,<sup>[7][15]</sup> the Tithonian aged Chassiron locality of France,<sup>[16]</sup> the Cenomanian-Turonian Khodzhakul and Bissekty Formations of Uzbekistan, originally assigned to the dubious genus *Nukusaurus*<sup>[17]</sup> and the Santonian aged Csehbánya Formation of Hungary.<sup>[18]</sup>

## Phylogeny

From Daza et al 2020.<sup>[5]</sup>



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## External links

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- [Albanerpetontidae phylogeny](http://www.helsinki.fi/~mhaaramo/metazoa/deuterostoma/chordata/amphibia/lissamphibia/allocaudata.html). (<http://www.helsinki.fi/~mhaaramo/metazoa/deuterostoma/chordata/amphibia/lissamphibia/allocaudata.html>)
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