Fossil fireworm species named after rock musician

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The fossil fireworm *Rollinschaeta myoplena* is from the Cretaceous of Lebanon, preserving muscle tissue, which fluoresce white under UV light. Researchers from the University of Bristol, UK, who discovered this muscly creature named it after the frontman of punk band Black Flag, Henry Rollins. Credit: Luke Parry/University of Bristol

A muscly fossil fireworm, discovered by scientists from the University of Bristol and the Natural History Museum, has been named *Rollinschaeta myoplena* in honour of punk musician and spoken word artist, Henry Rollins.

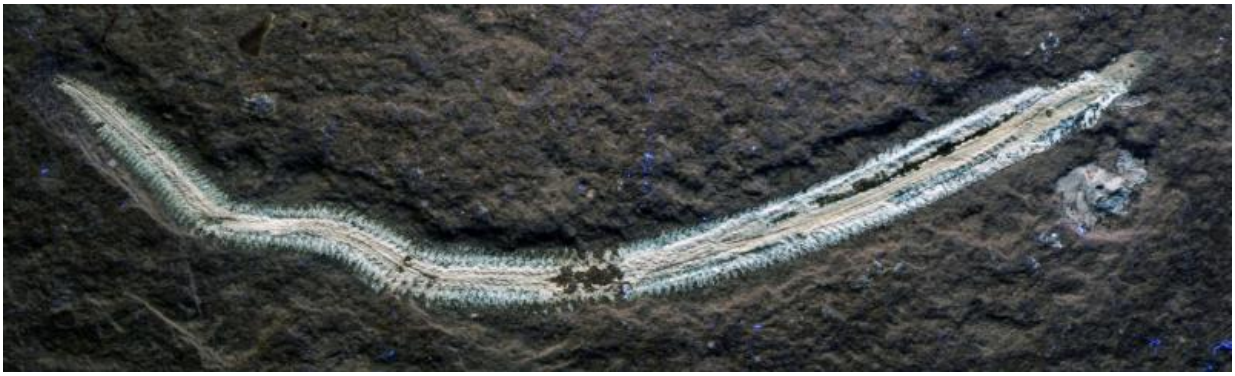
The fossil worm is a polychaete annelid, a marine relative of earthworms and leeches. Polychaetes are entirely soft bodied and thus seldom occur as fossils. When conditions are right, however, some remarkable and surprising details of such creatures can be preserved, as in the case of *Rollinschaeta* which is preserved mostly as three dimensional muscle tissue.

Bristol PhD student Luke Parry, one of the researchers who made the discovery, said: "Fossil muscle tissue is rare and usually not described in any detail by palaeontologists, but our discovery highlights that soft tissues preserved in fossils can offer details approaching what we can observe in living organisms. When choosing a name for our muscly beast, we decided to honour Henry Rollins, the legendary, muscular frontman of LA punk band Black Flag."

The researchers were able to identify different muscle groups in *Rollinschaeta* as the creature's muscles were replicated by the mineral

apatite soon after its death. Using CT scanning, the scientists investigated the three dimensional arrangement of muscles in living annelids to compare them with *Rollinschaeta*.

Surprisingly, it was possible to determine, based only on its muscles, that *Rollinschaeta* is a member of the fireworms (Amphinomidae) whose living representatives are common predators on coral reefs and whose segments bear abundant stinging bristles from which they get their name.



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Credit: Luke Parry/University of Bristol

Co-author of the study, Dr Jakob Vinther of Bristol's School of Earth Sciences said: "While carrying out the research, we informally referred to the creature as 'the muscle worm' due to its preservation in almost pure muscle. Part of the reason why it's preserved so well by muscle is that it was, in real life, a very buff little worm. Fireworms are active during the daytime on coral reefs and other environments with strong

currents which makes them much more muscular compared to most other bristle worms."

The study also highlights a major bias in soft tissue preservation. "The Lebanese locality where *Rollinschaeta* fossils were found yields many other bristle worm species, but they usually don't preserve any muscle tissue, except for tiny bits," said co-author Paul Wilson, a recently graduated MSc student from Bristol, now a PhD student at the University of Warwick. "Therefore, we have illustrated a clear variation in the propensity for muscle tissue preservation which shows that not all organisms have the right composition for all sorts of exceptional preservation."

Greg Edgecombe of the Natural History Museum, co-author of the study, said: "This is the first time that any fossil has been identified by its muscle anatomy. It's probably more of a curiosity due to the exceptional composition and muscularity of this fireworm rather than something we might expect to turn up in the fossil record a lot. But it does show that when muscles get preserved, we can get a lot of information about extinct animals from them."

The research is published this week in *BMC Evolutionary Biology*.

More information: 'A new fireworm (Amphinomidae) from the Cretaceous of Lebanon identified from three-dimensionally preserved myoanatomy' by Parry, L.A., Wilson, P., Sykes, D., Edgecombe, G.D. and Vinther, J. in *BMC Evolutionary Biology* [Open Access]

Provided by University of Bristol

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