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New dental remains from Atapuerca-Gran Dolina TD6 level: *Homo antecessor* revisited.

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Homo antecessor species was named in 1997 based on the fossil hominin collection recovered at the Gran Dolina-TD6 level of Atapuerca [1]. At that time, *H. antecessor* was proposed as the best candidate to represent the last common ancestor of *H. sapiens* and *H. neanderthalensis*. However, the suggestion that the modern human-Neanderthal split occurred during the late Middle Pleistocene was an important handicap for the acceptance of this hypothesis [2]. Recently, new molecular data points to an earlier split for both lineages [3] and calls for a reconsideration of the evolutionary meaning of this hominin population under a new light [4, 5]. Here, we describe for the first time the outer enamel (OES) and dentine (EDJ) surfaces of 15 permanent teeth attributed to *H. antecessor*. We compare the new teeth against a large sample of African, European and Asian hominins from the Early to the Late Pleistocene. Some of the new dental specimens have been unearthed in the excavations held during the last decade. Other specimens have been virtually extracted by means of micro-CT from inside an immature maxilla discovered more than 20 years ago. Overall, *H. antecessor* presents a primitive dentition in common with most of the Early and Middle Pleistocene hominins from Africa such as *H. habilis*, *H. ergaster* and the Buia and Tighenif specimens. However, TD6 teeth present a suite of traits that are present in Asian *H. erectus* and absent in their African counterparts. The identification of this Eurasian dental pattern suggests an early differentiation of the Eurasian Early Pleistocene groups from the African groups. *H. antecessor* does not display any dental synapomorphy with *Homo sapiens* but presents a few traits exclusively shared with Neanderthals. Overall, the new data supports the taxonomic validity of *H. antecessor* by presenting a mosaic of dental traits that is unique to this group. Our data is also compatible with a position close to the node of divergence of *H. sapiens* and *H. neanderthalensis* but warns about the complexity of the interactions and dispersals during the Early to Middle Pleistocene transition in Europe.

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