**A new specimen of the mosasaur (Squamata: Mosasauridae) from western Kansas, U.S.A. reveals a never before seen suite of cranial characters for the family**

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**Abstract**

By analyzing the very fine details that arise from the morphological observation of bones of mosasaurs, an extinct group of large marine reptiles (Squamata, Mosasauridae), found on every continent around 98-66 Ma, distinct differences can be deciphered amongst species that otherwise may appear similar. It is the combination of these differences that can help determine to which group a given mosasaur specimen belongs. FHSM VP-5515 is a medium-sized russellosaurine mosasaur collected in the 1970s in Logan County, western Kansas; a hot spot for mosasaur fossils. The time spent this semester discovering and analyzing some subtle cranial features has been used to narrow down this species as most comparable to an enigmatic russellosaurine Ectenosaurus clidastoides. At the same time, the lack of the median dorsal keel on the frontal and that of an edentulous rostrum, respectively, align FHSM VP-5515 better with Plesioplatecarpus planifrons, and Platecarpus tympaniticus, two common species of mosasaurs found in the western Kansas chalk deposit. Further analysis of this specimen, some specimen found in the Yale Peabody Museum and a very well-preserved *E. clidastoides* specimen, FHSM VP-401, may lead to the separation of FHSM VP-5515 and YPM 4673 into a second species of Ectenosaurus.