

## **Locomotory and stance evolution in Triassic dicynodonts**

The dicynodonts were a very successful group of Permian and Triassic (~270–205 million years ago) plant-eating animals with global distribution, which survived the great Permian/Triassic extinction (251 million years ago). Particularly during the Triassic, the group was represented by numerous, extremely varied, specialized forms, from miniscule animals less than half a meter long to huge, massive species. The undeniable evolutionary success of the dicynodonts is, at least partially, a result of their progressing adaptations for efficient locomotion and food acquisition. However, despite the consistent presence of the whole group worldwide from around the Permian/Triassic transition to the end of the Triassic, the occurrence and diversity of particular dicynodont lineages changed rapidly multiple times and during the Triassic alone, several global overturns of dicynodont faunas happened. This may indicate that aside from general trends towards the increase of locomotor and feeding efficiency, individual dicynodont lineages evolved in somewhat divergent ways and the differences between them were fundamental enough to lead to severe, consistent, and worldwide reactions to the changing environmental conditions.

The aim of the project is to study the functional anatomy of Triassic dicynodonts in order to understand the evolution of their posture and locomotion in the context of their ecology, diversity, and changes of the environment throughout the Triassic, from their recovery from the Permian/Triassic extinction to extinction before the Triassic/Jurassic boundary. To reach that goal, we will study and document the anatomy of their skeleton, as well as their function, using modern methods of 3D imaging, musculature reconstruction, and biomechanical analysis.