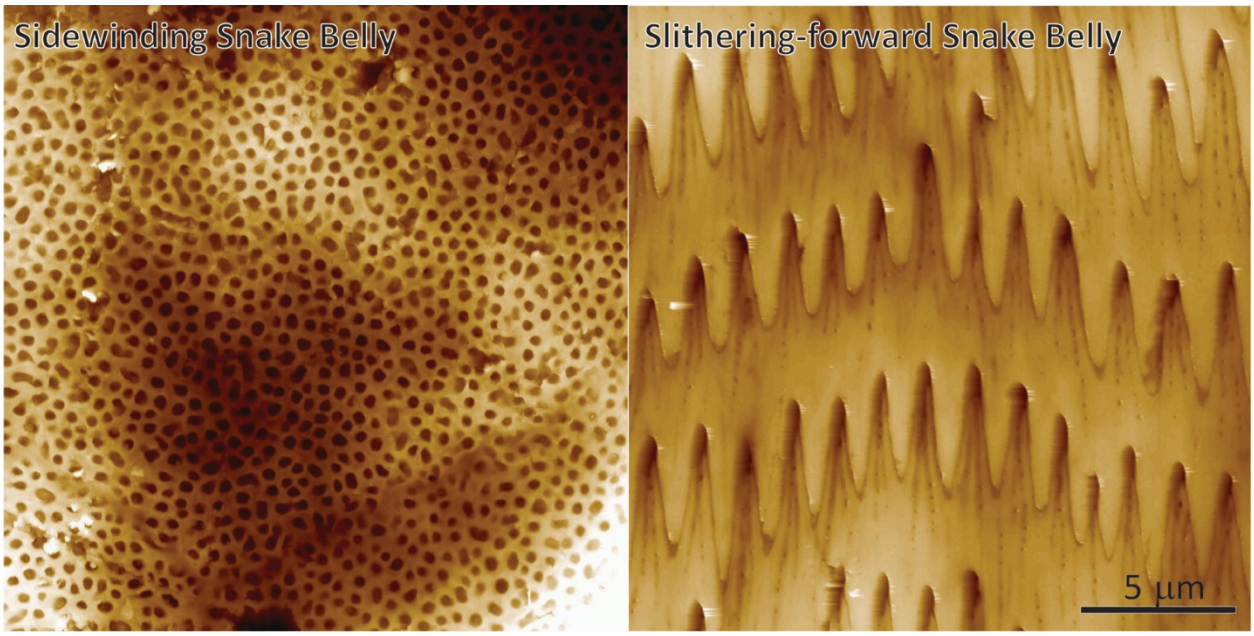
Title: Functional Micro-structures on Snake Skins

Animal skins are complex, highly specialized surfaces that are decorated with a variety of small structural features, whose functional benefits are often unknown. We investigate the microscopic features present on snake skins—which serve as the only interface between these animals and their environments—and we discover that distantly related sidewinding vipers have a unique structure that is distinct from other snakes. We develop a mathematical model that links structure to function and provides insight into evolutionary and behavioral adaptation in limbless locomotion.



J. M. Riesera*, T.-D. Li*, J. L. Tingle, D. I. Goldman, and J. R. Mendelson III, "Functional consequences of convergently evolved microscopic skin features on snake locomotion", *PNAS*, **2021**, 118, 6 (* equal contribution)