

# Lizard's cornified appendages: what drives the keratin cytoskeleton to organize into high performance materials?

Jennifer Y. Kasper<sup>1</sup>, Marcus Koch<sup>1</sup>, Mathias W. Laschke<sup>3</sup>, Thomas M. Magin<sup>4</sup>, Carien Niessen<sup>5</sup>, Lorenzo Alibardi<sup>6</sup>, Aránzazu del Campo<sup>1,2</sup>

<sup>1</sup> *INM-Leibniz Institute for New Materials, Saarbrücken, Germany*

<sup>2</sup> *Department of Chemistry, Saarland University, Germany*

<sup>3</sup> *Institute for Clinical & Experimental Surgery, Saarland University, Homburg (Saar), Germany*

<sup>4</sup> *Division of Cell & Developmental Biology, University of Leipzig, Leipzig, Germany*

<sup>5</sup> *Department of Dermatology, University of Cologne, Cologne, Germany*

<sup>6</sup> *Comparative Histolab and University of Bologna, Bologna, Italy*

This study describes the formation mechanism of adhesive setae on gecko's toe pad at the interface between the clear cell layer and the oberhäutchen cell layer. Histological analysis reveals the localization of key cytoskeletal proteins and their organization during formation of the new skin layer in the digits of a virgin gecko (*Lepidodactylus lugubris*). We compare different developmental stages, from premature developing setae to mature, cornified setae.