

Functional diversity of the rubber-like protein resilin in arthropod exoskeleton structures.

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Resilin is an elastomeric protein typically occurring in exoskeletons of arthropods. It features a unique combination of different outstanding properties. Among those, exceptional rubber-like properties such as a relatively low stiffness, a rather pronounced long-range deformability and a nearly perfect elastic recovery are well known. Within the exoskeleton structures, resilin has various functions including the generation of deformability and flexibility, the storage of elastic energy, the reduction of fatigue and damage and the sealing of wounds. This presentation will highlight some examples of the research on exoskeleton structures with large proportions of resilin and describe the functional morphologies of the respective structures in detail.