

P034 Spider silk and amyloid fibrils – a structural comparison
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Silks of insects and spiders belong to nature's best performing protein fibres. They have been optimised and adopted for different purposes over hundred millions of years of evolution. One of the best characterised silks, the dragline silk, is produced in the major ampullate gland of the garden spider *Araneus diadematus*. It is employed as frame and radii of the web and serves as lifeline. Silk is composed of proteins, and the dragline silk of the garden spider consists of ADF-3 and ADF-4 (*Araneus Diadematus Fibroin*). Although silks have been studied for decades, the assembly mechanism of the silk proteins is still not unravelled. Interestingly it has previously been noted that amyloids share structural characteristics with certain silks. Moreover, the detection of amyloid-like nanofibrils in the spider's gland suggested their involvement in the assembly process of spider silk.

Engineered spider silk proteins, mimicking the dragline protein ADF-4 have been shown to self-assemble into such nanofibrils as well. In order to investigate the amyloidogenic nature of these silk nanofibrils in more detail, their structural properties have been compared to amyloid-like fibrils of a recombinant yeast prion protein by X-Ray diffraction studies and FT-IR measurements.