Proteins reflect one fascinating class of natural substances with huge potential for technical as well as biomedical applications. One well-known example is spider silk, a protein fiber with excellent mechanical properties such as strength and toughness. During 400 million years of evolution spiders became outstanding silk producers. Most spider silks are used for building the web, which reflects an optimized trap for flying prey. In order to analyze the potential of the underlying spider silk proteins, we have developed a recombinant system using bacteria as hosts which produce silk proteins mimicking the natural spider silks. Recombinant proteins enable detailed analysis of the fiber formation process. Additionally, silk proteins can be processed into other morphologies such as hydrogels, spheres or films with tailored properties.