

Recombinant production and purification of spider silk

Background:

Since ancient times spider silk has fascinated man because of its elegant way to combine strength and elasticity, and it has also been ascribed abilities to stop bleedings and promote wound healing. In contrast to the situation for the mulberry silk worm *Bombyx mori*, spiders are territorial and produce low amounts of silk and can therefore not be employed as such for large scale silk production. Recently, we developed a method for production of a soluble recombinant miniature spider protein, 4RepCT, that spontaneously forms fibres resembling native spider silk. However, in order to produce recombinant spider silk in larger scale, extra care has to be taken when deciding which strategy to use during the purification process. As our recombinant spider silk has shown promising results in several application, we now aim to scale up the production process.

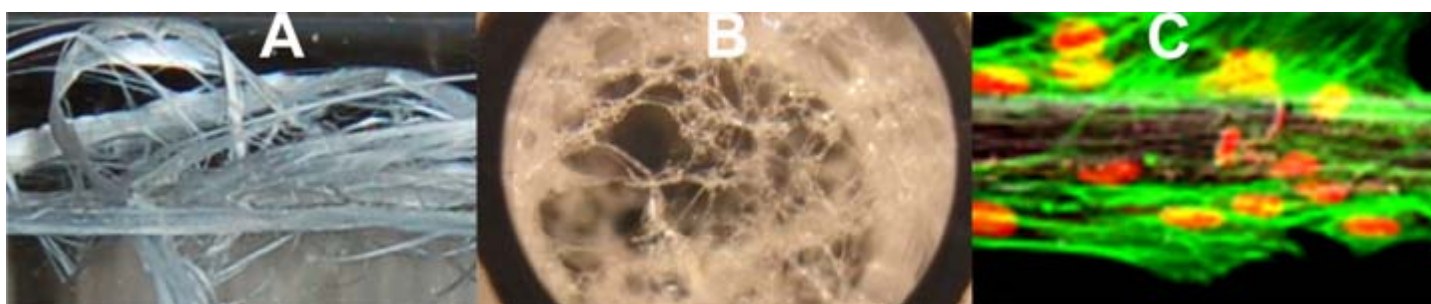


Figure 1. A recombinant spider fibre used for development of cell scaffolds.
A) Fibre. B) Foam in a culture plate. C) Human primary fibroblasts grown on a fibre.

Aims:

This project aims at developing a process for production and purification of recombinant spider silk, that is suitable for large scale production.

Methods:

During the travel from gene to protein fibre several important biotechnology methods will be utilised e.g: PCR, molecular cloning, recombinant protein expression and purification, and fibre formation.

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