

BioUltraBond – surgical sealant with properties like spider silk

For medical or non-medical use * Tissue-Vulcanizer, Surgical Sealant

Technology

The technology presents a novel sealant, glue or filler for biological tissues based on a biodegradable, photocross-linkable fusion protein having the formula (I) ULD-(L)_n-ULD, wherein ULD is an ubiquitin-like-domain, forming tetrameric protein structures, and (L) is a linker sequence, preferably an elastin-like protein. The particular advantage of the current system lies in its great variability and low toxicity. It is derived from human protein sequences and offers a very versatile design space e.g. implementing specific degradation sites and cellular epitopes. Moreover, the novel tissue sealant allows providing sealants, glues or fillers with high elasticity, (wet-) adhesiveness and high resistance, which can be applied to a (wet) biological tissue within minutes using blue light. In addition, it also pertains to medical uses of the novel biological tissue sealant, glue or filler and to methods of treatment.

Application

- Bonding/replacement of tissue and organs/components
- closure/treatment of vascular and organ perforations
- connection of musculoskeletal system components (bones to tendons/ligaments to muscles)
- final sealing of anastomoses
- general tissue replacement and wound closure
- replacement of cornea, cartilage & other tissues
- elastic protein materials, protein networks

Development Status

- Successful ex vivo and proof-of concept experiments performed with cornea, kidney, cartilage, stomach and connective tissue
- Animal experiments to underpin former results regarding tolerability/immunology/functionality

Responsible Scientist

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Patent Status

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