



Bone Adhesive Technology

Bio-inspired polymeric adhesive for sternum closure

Technology Highlights:

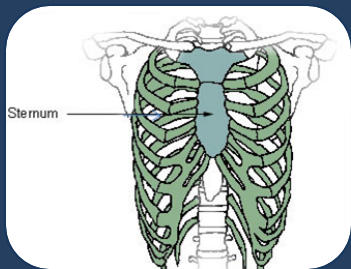
Improved bone fixation strength

Easy to operate compared to traditional wire fixation

Biodegradable & safe for internal use

Improved patient comfort

Optimised setting timeline to facilitate emergency access



Market opportunity

Median sternotomy is the most common cardiothoracic surgery procedure performed in the U.S. (>750,000 per year). Traditional incision closure, using stainless steel wire, is associated with known morbidity of 1.5% and a mortality of 25% when failure or wound dehiscence occurs. While bone cements such as KRYPTONITE™ have impressive fixation strength, their setting timelines, render them unsuitable for this sternal application.

With Global Analysts Inc. recently predicting the market for wound closure technologies to be at **\$2.08 billion by 2015**, a non-toxic bone adhesive, addressing the clinical requirements of optimised adhesion strength over the convalescence time, has undeniable potential. **We recently developed a novel biodegradable bone adhesive with the potential to provide a safe and effective sternal bone closure solution.** Its tailored 'setting' properties facilitate easy access to the chest cavity in the event of emergency.

Stage of development

Cross-linker optimisation has resulted in the polymer's adhesion being of suitable strength to facilitate emergency access during the initial post-operative days, strengthening to >700 Kpa to support healing, before completely degrading after 2-3 months. Mechanical tests on PMMA sheets and lamb sternal bone have delivered encouraging results. Cytotoxicity analysis (Fig 2) shows the polymer to be suitable for internal use.

Principle Inventors:

Dr. Wenxin Wang & the Research team of the Network of Excellence for Functional Biomaterials (NFB).

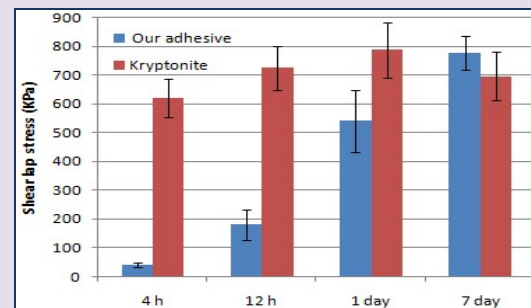


Fig 1: Mechanical shear-lap test

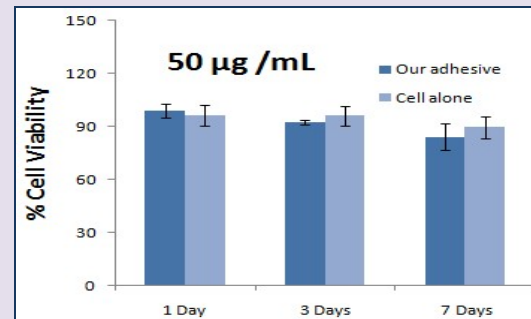


Fig 2: Cell cytotoxicity test

Objective: A Licensing or Business Development opportunity.

If you are interested in learning more about this opportunity please contact:

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