Endogenous Peptide as an Alternative to Antibiotics: Investigating the Antibacterial Properties of Vicryl Sutures Coated with TCP-25

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The increase in the global population, an increase of elderly, combined with new surgical interventions and possibilities lead to an overall increase of surgeries. Every year there over 50 million surgeries performed in the US. Out of those surgeries, about 5% lead to complications in the form of postoperative infections. However, this number can be as high as 28% under poor conditions. The most common ways of preventing postoperative infections are to use antibiotics. However, resistance to antibiotics is increasing, and it is estimated that in 2050, 10 million people will die because of failed treatments due to antibiotic resistance. Because of the uprising resistance towards antibiotics it would be more favorable to use other substances, for example endogenous antimicrobial peptides (AMP). In my study I examined whether it is possible to coat a surgical suture material, vicryl, with an endogenous AMP (TCP-25) and whether this coated suture now gained an antibacterial effect. I found that it was possible to coat a suture with TCP-25 and that these sutures now indeed demonstrated a substantial antibacterial effect towards the bacteria Escherichia coli, Staphylococcus epidermidis and Staphylococcus aureus. These bacteria are shown to be the most prevalent in wounds and in postoperative infections

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