

Targeted Use of Collagen/ORC Improves Clinical Outcome

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OBJECTIVES

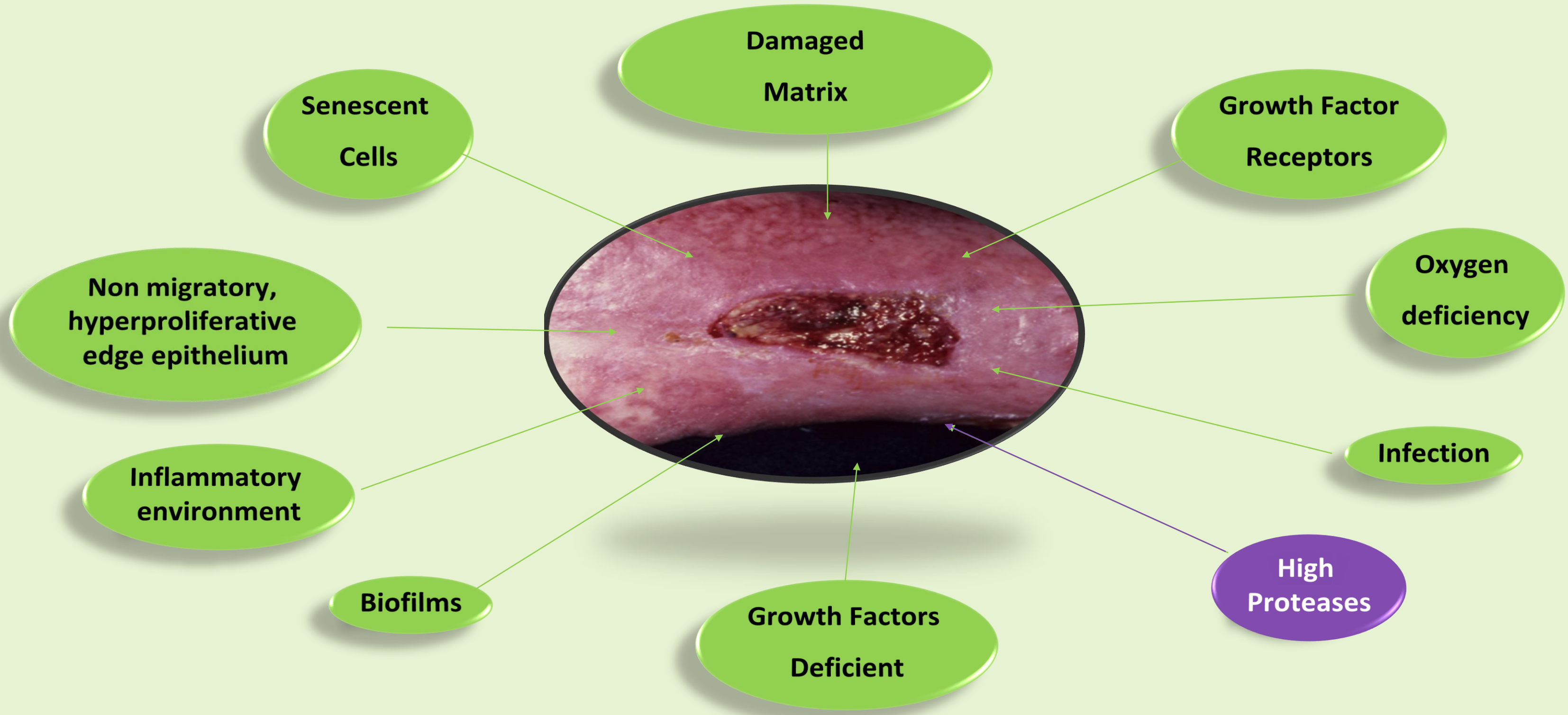
- To examine the effect of Collagen/ORC and Collagen/ORC/Silver as a treatment for wounds with elevated protease activity (EPA)
- To demonstrate how targeted use of Collagen/ORC and Collagen/ORC/Silver improves clinical outcome

INTRODUCTION

Wound healing is a complex process, with many contributing factors which can affect healing. It is therefore important to diagnose a non-healing wound correctly in order to select the most appropriate therapy, as they are unlikely to have any benefit over moist wound healing if they cannot correct the underlying defect of the wound. Clinical studies have shown that Collagen/ORC and Collagen/ORC/Silver can reduce protease activity; including human neutrophil-derived elastase (HNE) and matrix metalloproteinases (MMPs). Therefore, we hypothesise that the efficacy of these treatments may improve if they were targeted for wounds with elevated protease activity (EPA).

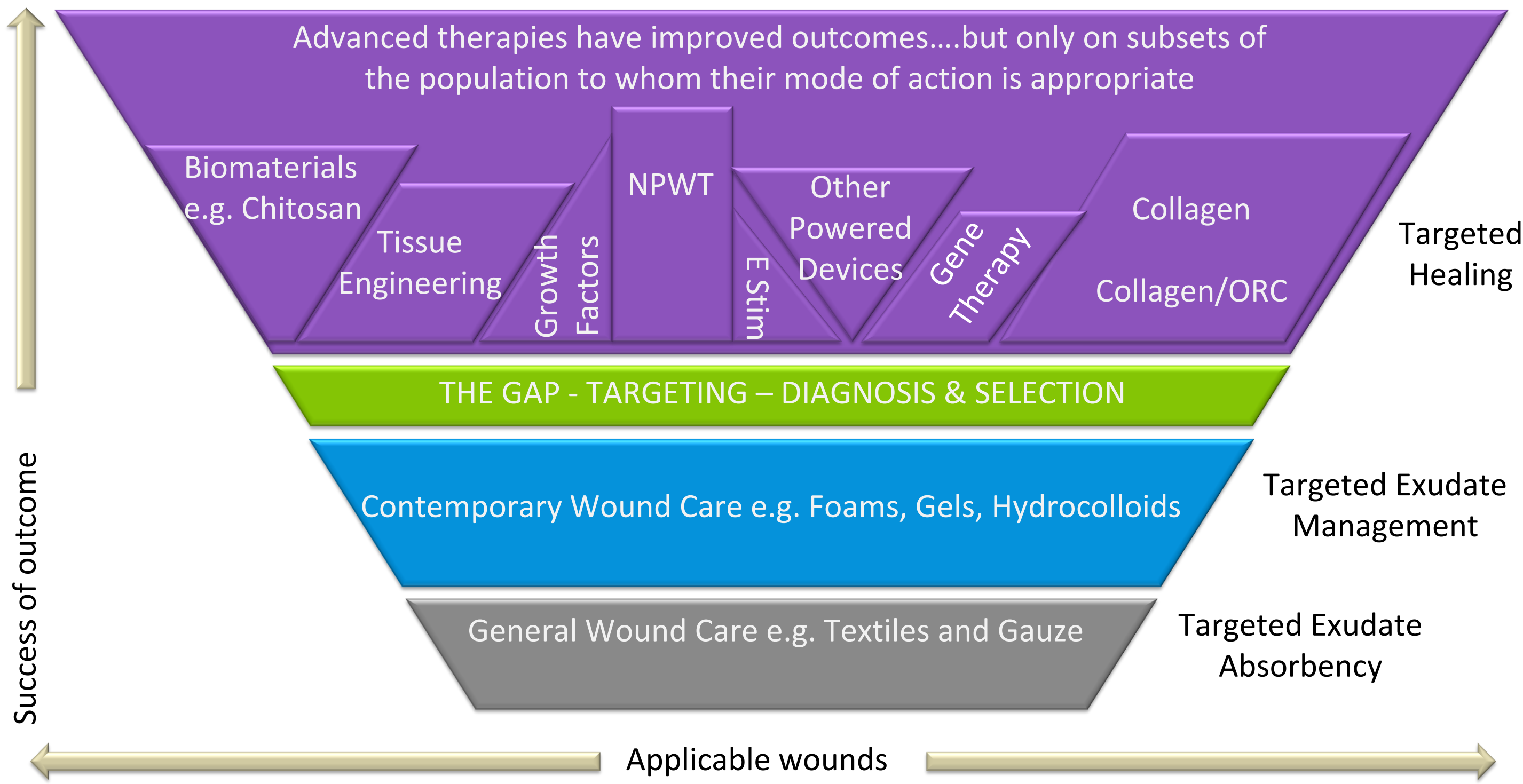
MANY FACTORS CAN CONTRIBUTE TO DELAYED WOUND HEALING

Background: Wound healing describes a complex sequence of events, and therefore a number of contributing factors can lead to a non-healing wound.



IS THE TREATMENT APPROPRIATE FOR THE WOUND?

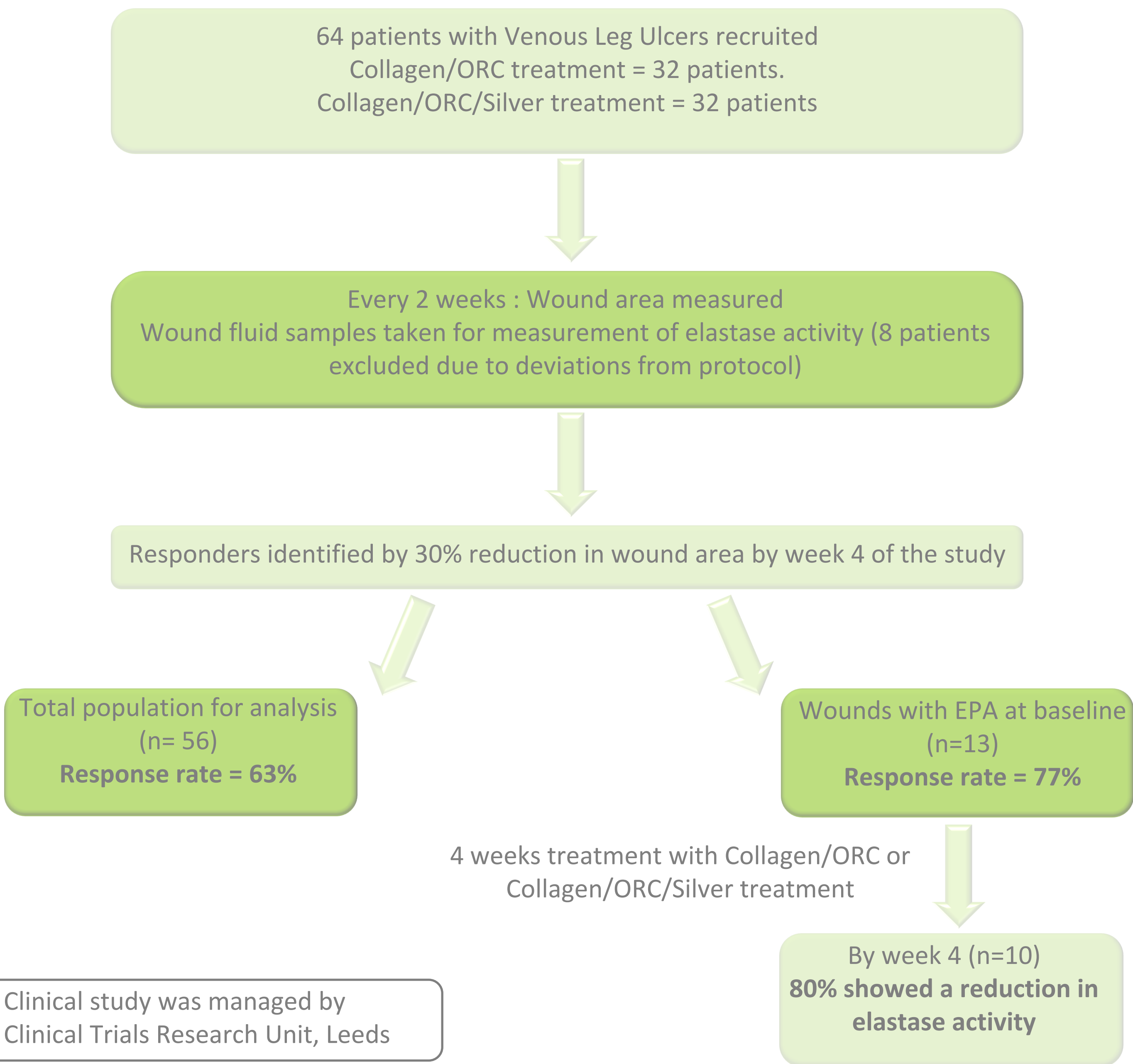
Advanced therapies are unlikely to have any benefit over moist wound healing if not appropriate to the aetiology of the wound. Therefore, it is important to diagnose a wound correctly in order to select the most appropriate therapy.



THE STUDY

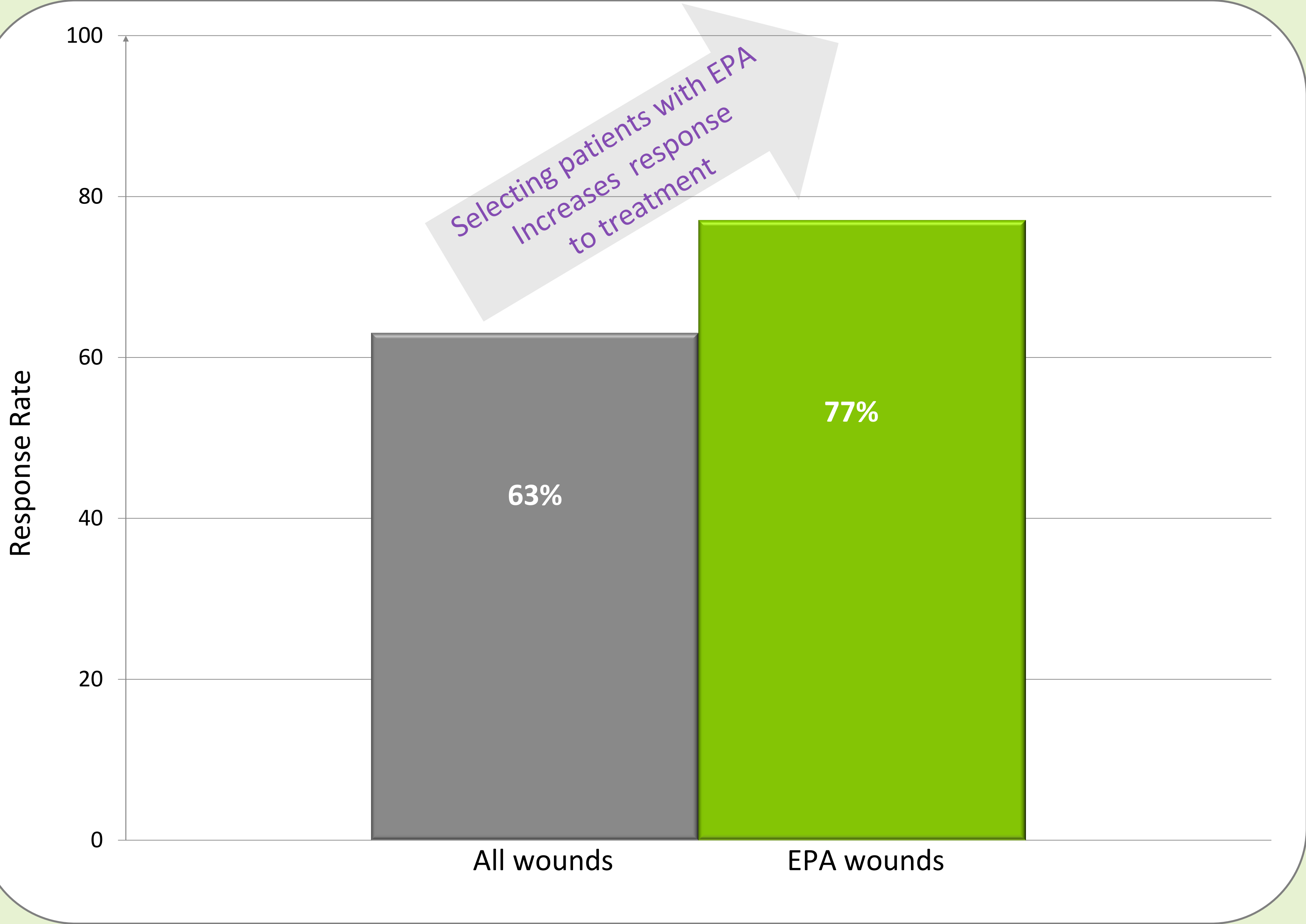
Methods: In this clinical study, venous leg ulcers were randomised to receive either Collagen/ORC or Collagen/ORC/Silver treatment. Every 2 weeks wound fluid samples were collected and elastase activity measured using a fluorogenic substrate assay. Wound healing status was calculated based on wound area reduction; healing was defined as $\geq 30\%$ reduction in wound area over 4 weeks.

EPA wounds were defined as wounds with elastase activity $>25\text{mU}/110\mu\text{L}$, this has been found to be indicative of a non healing wounds*



TARGETED USE OF COLLAGEN/ORC AND COLLAGEN/ORC/SILVER THERAPY IMPROVES CLINICAL EFFICACY

The total population for analysis was 56. The response rate was 63% (35/56). This increased to 77% (10/13) when wounds with EPA were treated with these therapies. Therefore, stratifying the patients according to protease activity at baseline shows patients entering the study with EPA had a higher probability of responding to Collagen/ORC and Collagen/ORC/Silver. Furthermore, when wound fluid samples were collected and analysed in the EPA group, at week 4 post-treatment, 80% showed a reduction in elastase activity.



Selecting patients with EPA increases response to treatment by 22%

DISCUSSION:

This study has shown that biomaterials with Collagen/ORC and Collagen/ORC/Silver are appropriate treatments for wounds with EPA and pre-selecting wounds with EPA increased the response rate to these therapies. Testing for EPA prior to treatment could help target treatment for improved clinical efficacy, and bring economic benefits.

CONCLUSIONS

- Targeted therapies are most effective when used on appropriate wounds.
- Collagen/ORC and Collagen/ORC/Silver reduce elevated protease activities (MMP and HNE activity)
- Targeting Collagen/ORC and Collagen/ORC/Silver for use on EPA wounds could increase the efficacy of these therapies

* Serena T, Cullen B *et al*. Protease Activity Levels Associated with Healing Status of Chronic Wounds. Presented at Wounds UK, Harrogate, UK, 2011.