

# MMP Inhibiting Wound Therapy

**Gary Skarja, Ph.D.**

Director, R&D

Rimon Therapeutics Ltd.

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# MMP Inhibiting Wound Therapy

## Increasing interest in protease modulating wound treatment

- chronic wounds contain elevated MMP levels
- excessive extracellular matrix degradation

## A number of dressings that claim to reduce MMP action via different mechanisms

- **decoy:** collagen-based (Promogran™, Biostep™)
- **therapeutic release:** (Tegaderm™ Matrix, Biostep™)
- **removal:** (MI-Sorb™)



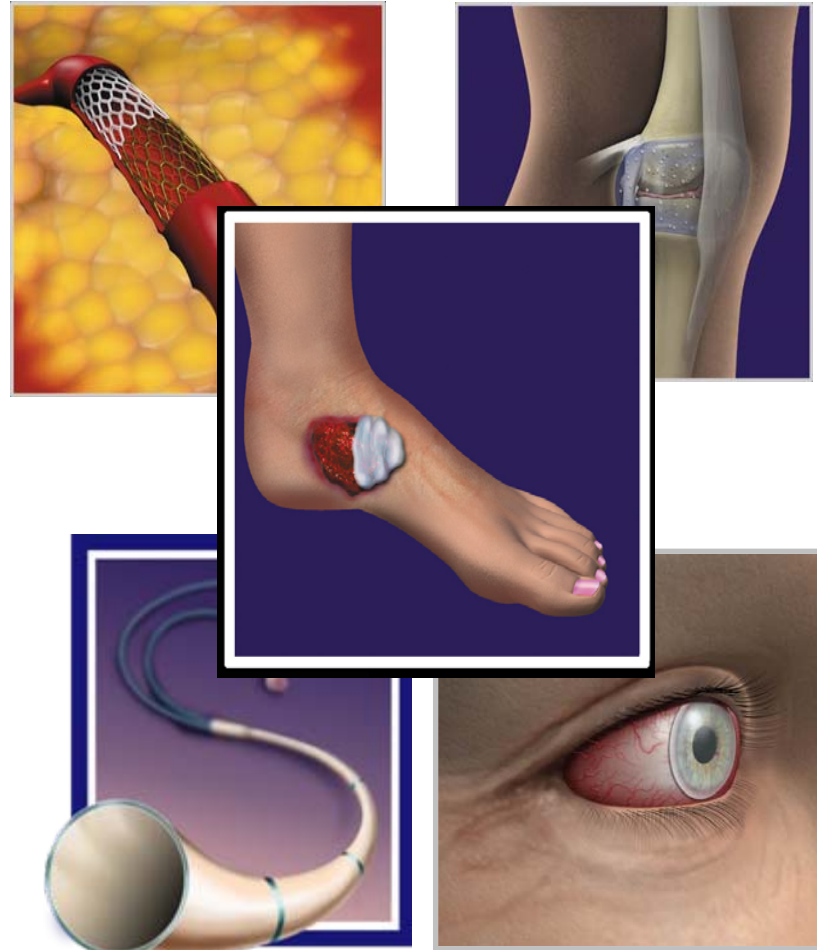
# Theramers™ - A Unique Technology

*Theramers™ are medical polymers that have inherent biological activity without the incorporation of pharmaceuticals or cells.*

## Value Proposition:

- Drug-like activity
- Device timelines
- Versatile polymer chemistry

*Novel therapies addressing the unmet needs of large indications for a fraction of the time and cost of conventional therapeutics*

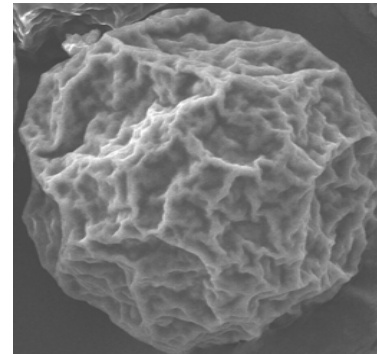


# MI-Sorb™ Wound Therapy

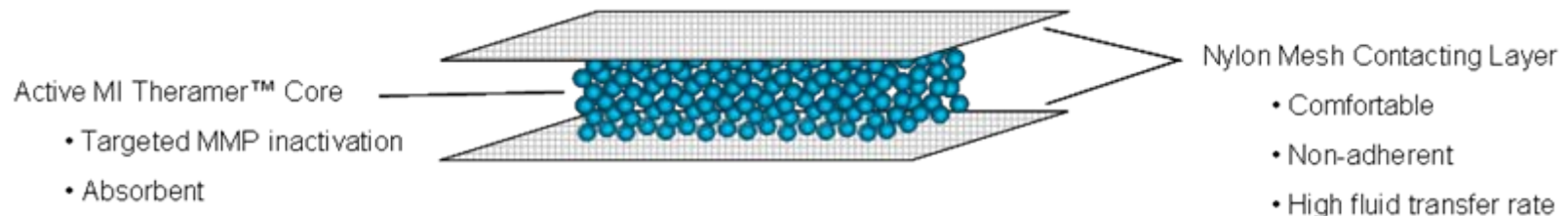
## MI-Sorb™:

- MI Theramer™ beads enclosed within a porous nylon sachet - **“tea bag”**
- Easy to apply and remove
- Non-adherent
- Non-toxic, non-sensitizing, non-irritating, non-hemolytic
- Designated by USFDA as a device

MI Theramer™ Bead



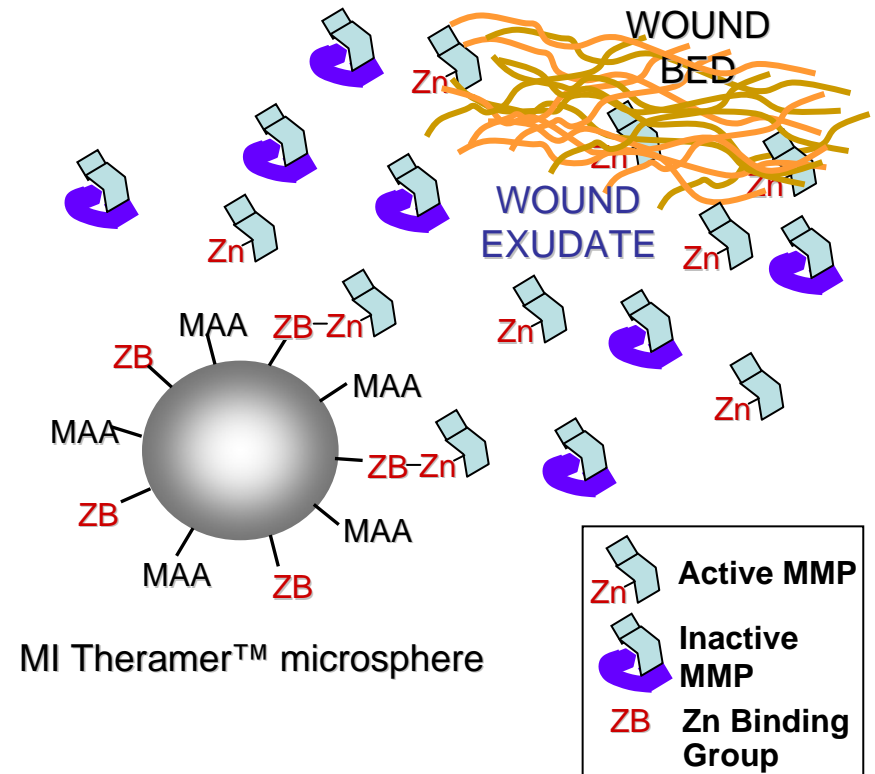
MI-Sorb™



# MI-Sorb™ – Mechanism of Action

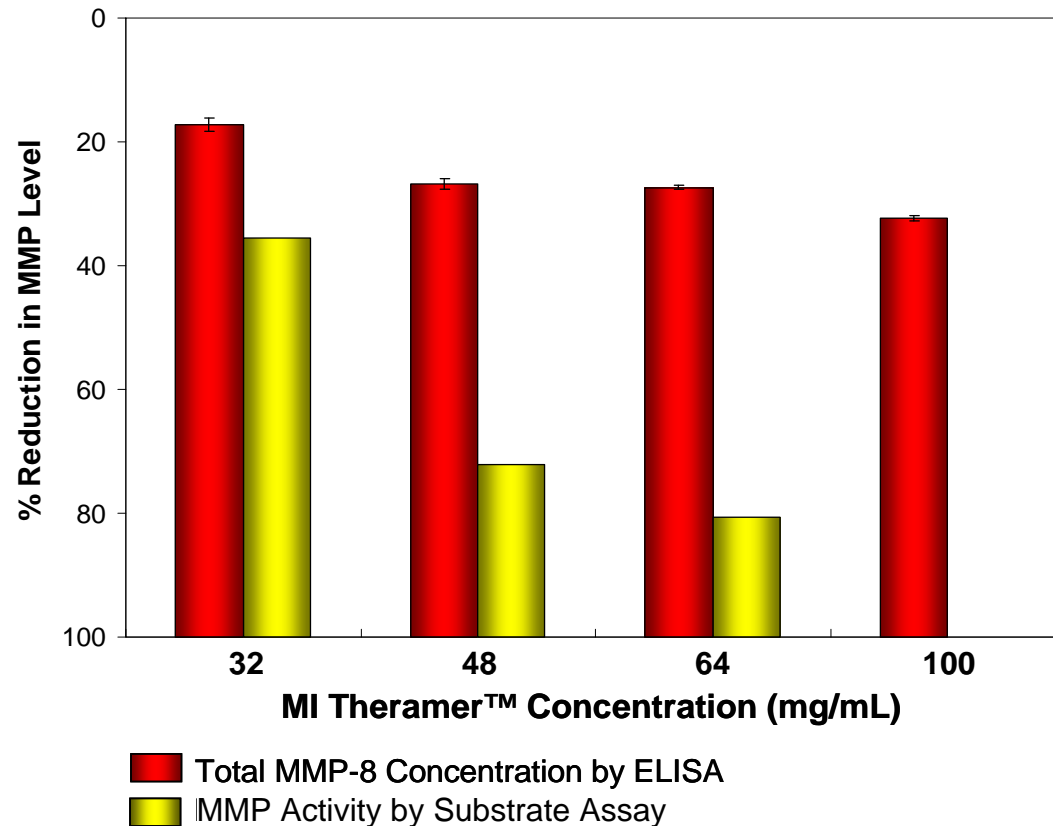
## Mechanism of Action:

- Designed to physically bind conserved catalytic zinc site on MMPs
- Catalytic zinc site exposure on activated MMPs permits bead binding
- Selective removal prevents excessive ECM degradation characteristic of chronic wounds



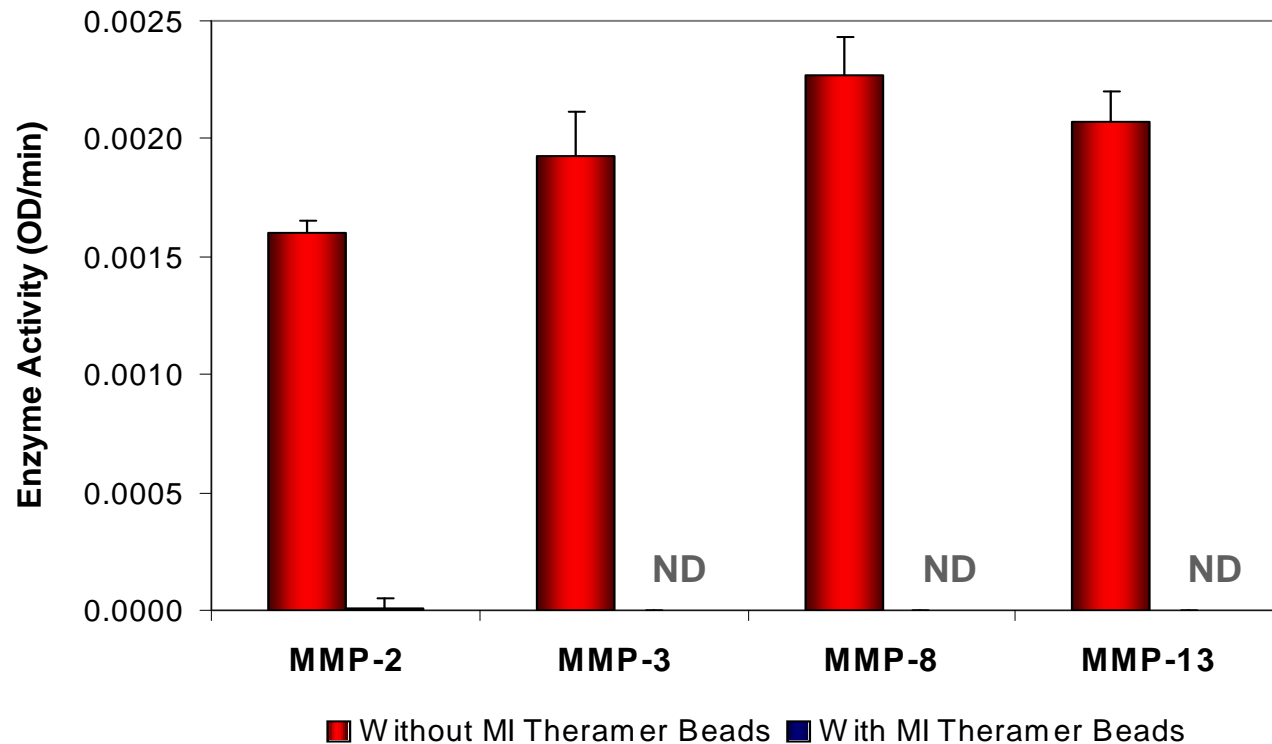
# MI-Sorb™ – Pre-Clinical Demonstration

MI Theramer™ preferentially targets the active form of MMPs present in chronic wound exudate



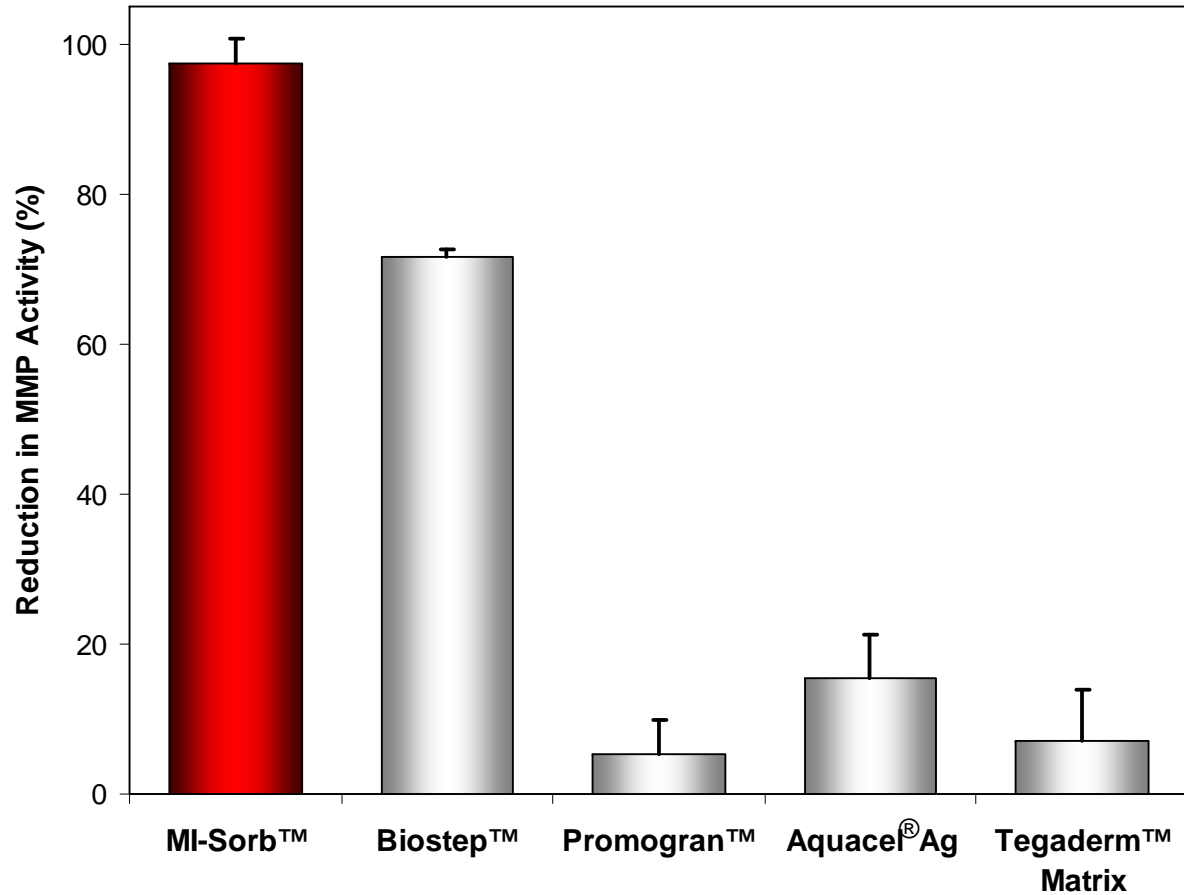
# MI-Sorb™ – Pre-Clinical Demonstration

MI Theramer™ shows broad-spectrum, localized MMP inhibition



# Product Comparisons

MMP Inhibition – MI-Sorb™ compares favorably to marketed protease modulating dressings



# Clinical Investigation

A randomized, single centre, multi-site 32 patient pilot study

- Conducted by Dr. R.G. Sibbald

## Design:

Lead-in – 2 weeks with LBP

Treatment arm – MI-Sorb™ (4 weeks)

Control arm – LBP (4 weeks)

## Outcomes:

- Recorded Adverse Events
- Wound MMP Activity**
- Change in wound bed appearance and wound size



# Clinical MMP Inhibition

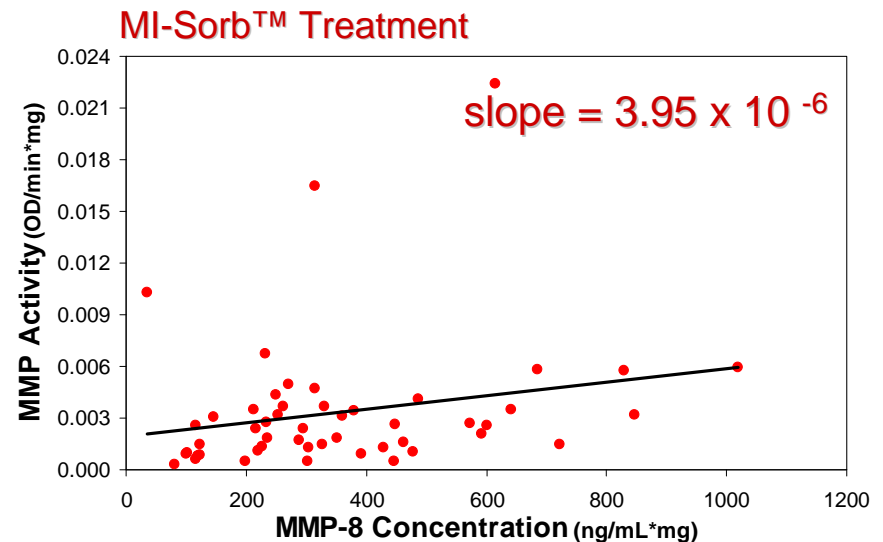
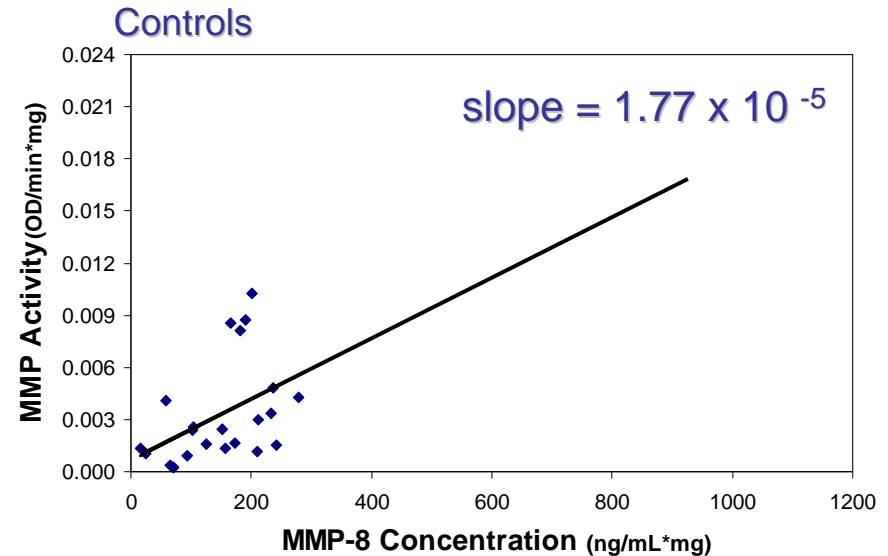
## Grouped MMP Analysis:

- Examines MMP results across all patients
- Linear regression analysis performed on MMP activity vs. MMP-8 concentration data

## Data is grouped by:

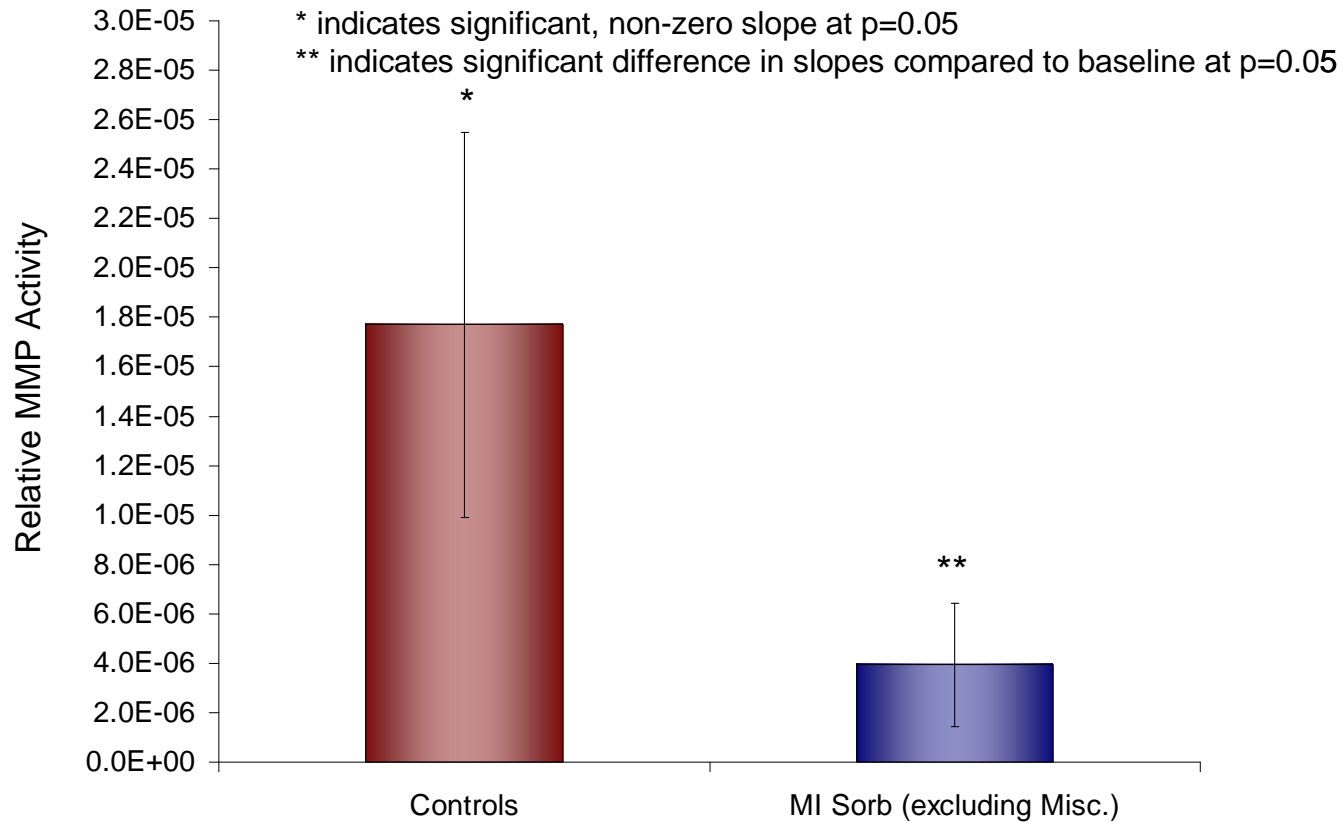
- Study week (Baseline, weeks 3 - 6)
- Treatment arm (Control, MI-Sorb™)

*Reduction of the wound fluid active MMP fraction is reflected by a significant decrease in regression line slope*



# Clinical MMP Inhibition

MI-Sorb treatment results in a significant reduction in the active fraction of MMPs present in the wound exudate



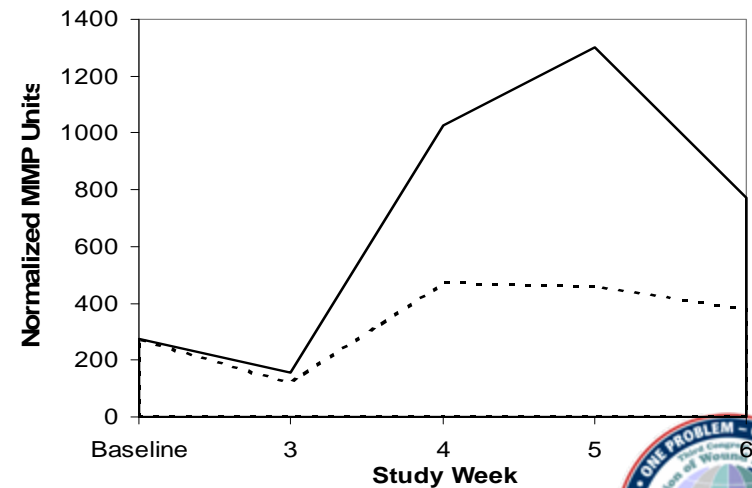
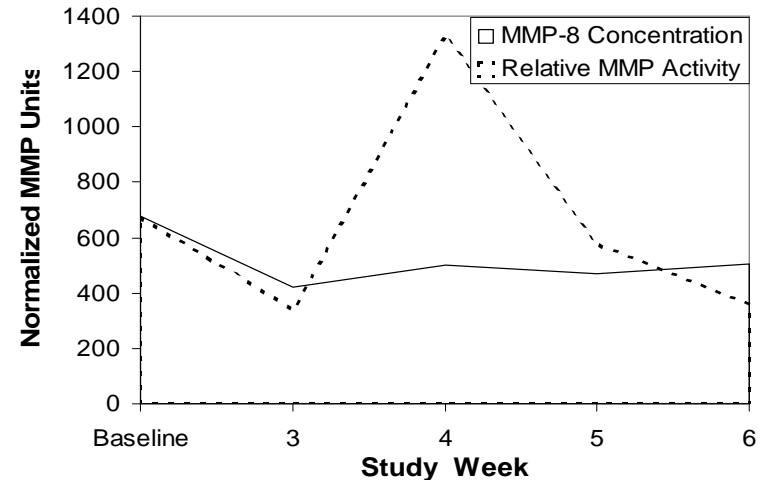
# Clinical MMP Inhibition

## Patient-Based MMP Analysis:

- Examines MI-Sorb™ efficacy on a wound-by-wound basis

## For each Patient:

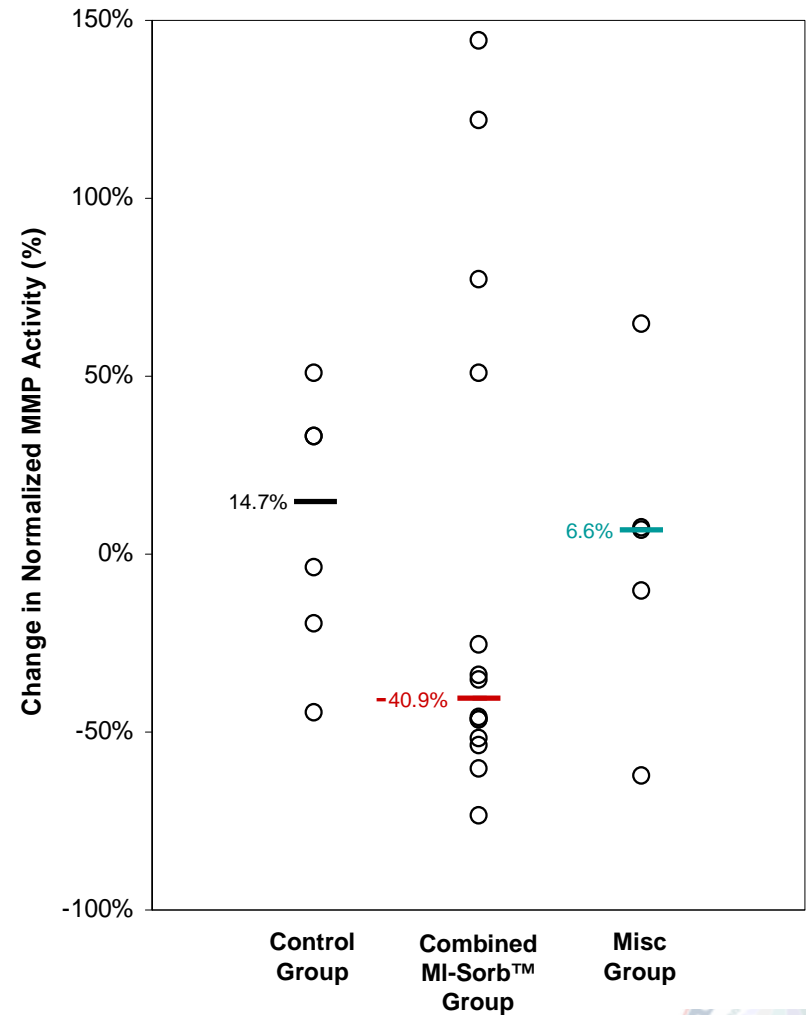
- Weekly MMP activity profiles are expressed relative to MMP-8 concentrations using an 'equivalence' factor calculated during lead-in phase



# Clinical MMP Inhibition

## Patient-Based MMP Results:

Study Arm	Indication	MMP Activity Reductions
Control	---	3 of 6
MI-Sorb™	Diabetic Ulcer	5 of 7
	Venous Stasis Ulcer	4 of 6
	Pressure Ulcer	1 of 1
	Misc. Ulcers	2 of 5



# MI-Sorb™ Summary

## Unique technology & mechanism of action

- targeted binding and inactivation of MMPs
- removes excess active MMPs from wound

## Highly MMP inactivating

- compares favorably with marketed protease modulating dressings

## Clinically tested

- clinical data supports novel mechanism of action
- MMP activity reduced in wound exudate

