

Killing It: A Novel Biofilm-Disrupting Antimicrobial Wound Cleanser Improves Wound Healing

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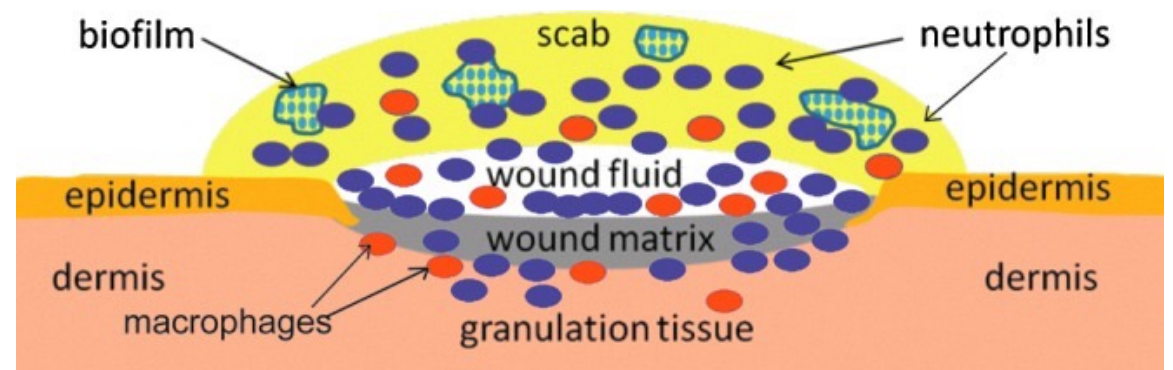
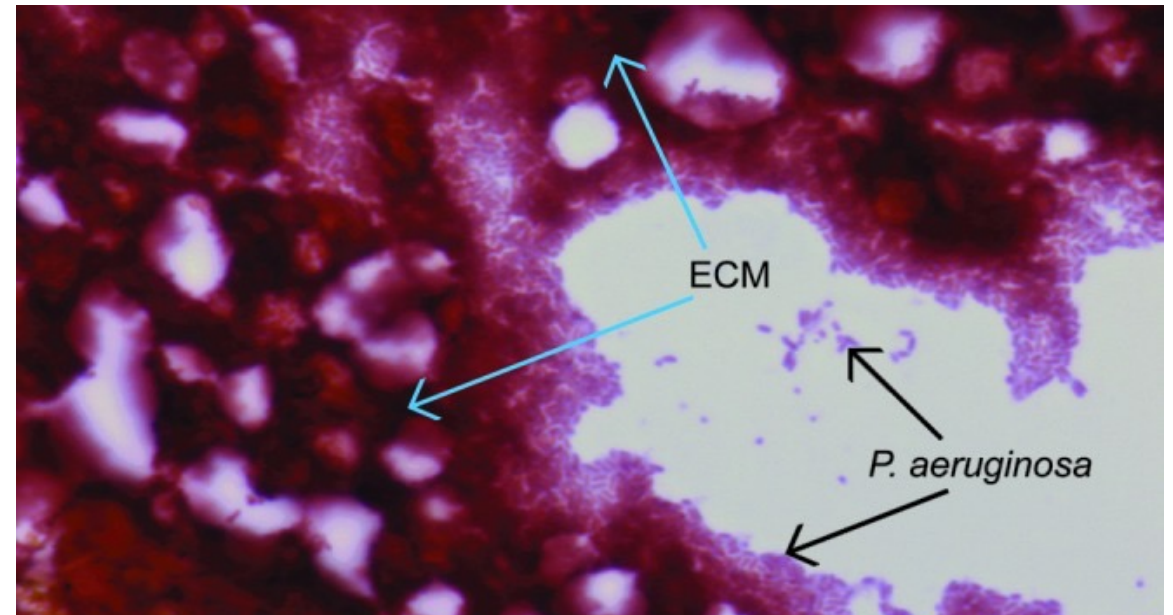
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Disclosures

- PKB, AEO, PC, JP, JSR, RAH, VGS: no conflicts of interest to disclose
- REM, ABS, CA: Rochal Industries
- Funding source: Naval Medical Research & Development (NMRD) Medical Technology Enterprise Consortium (MTEC) and the 59th Medical Wing (US Air Force)

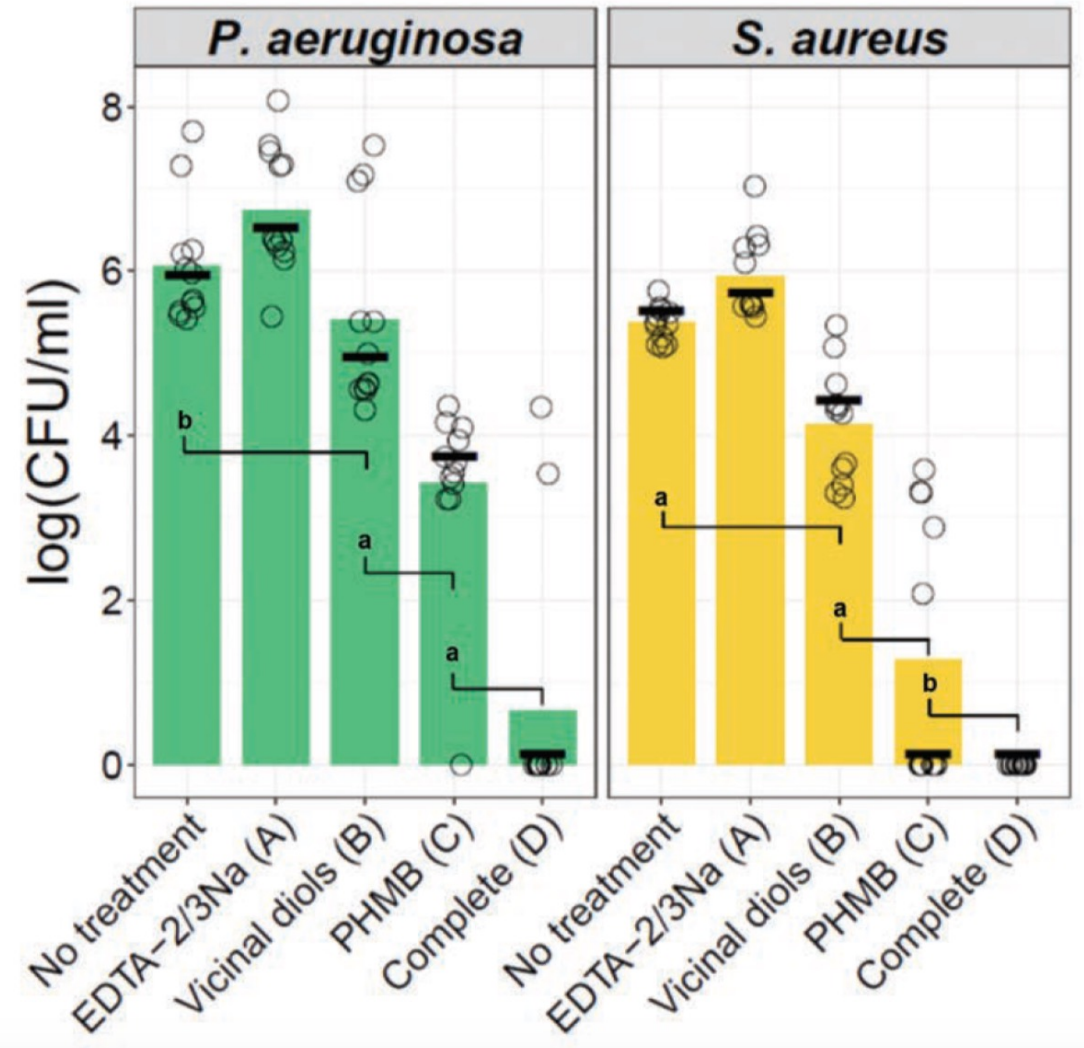
Background

- Traumatic, burn, and chronic wounds are frequently grossly contaminated
- Failure of wounds to heal is associated with biofilm formation and bacterial load
- Biofilms present on >75% of chronic wounds.



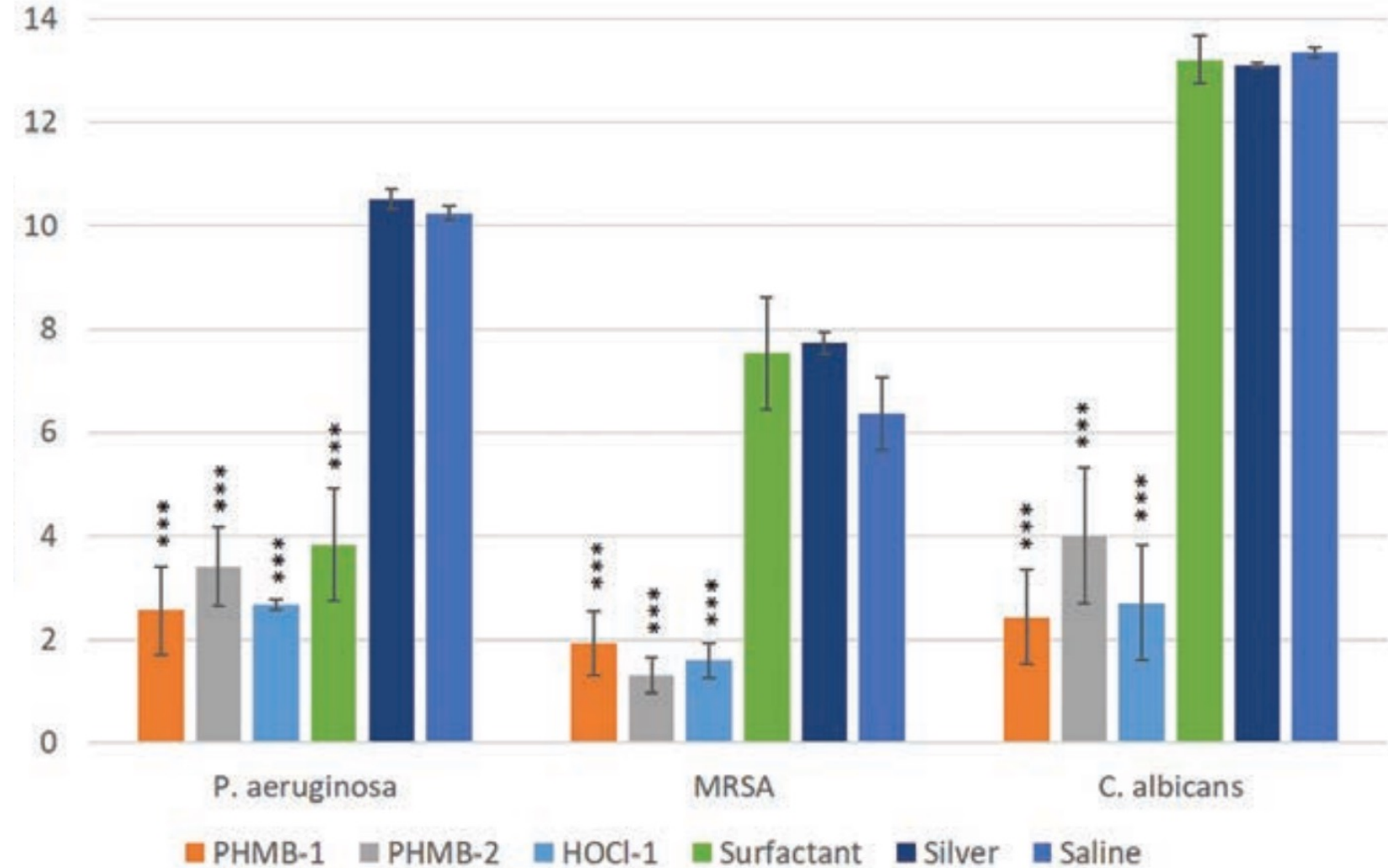
Background

- Prior research: components of BIAKOS are synergistic
 - 0.1% polyhexamethylene biguanide (PHMB): antimicrobial
 - Vicinal diols (ethylhexylglycerin and octane-1,2-diol): cell wall disruption, antimicrobial
 - Ethylenediamine tetraacetic acid sodium salts: matrix destabilization, cell wall disruption, antimicrobial



Background

- Prior research: BIAKOS in *in vivo* and *in vitro* studies produces results comparable to Vashe (0.033% hypochlorous acid, HOCL)



Objectives

- Compare the effectiveness of BIAKOS and Vashe wound cleansers at facilitating wound healing and reducing biofilm formation in wound bed in an outpatient clinical setting

Study Design

- Retrospective review of 30 patients with wounds of various stages of healing
- 15 patients per treatment group (BLAKOS, Vashe)
- Demographic, medical history, and wound-specific variables were collected
 - Wound size
 - Bates-Jensen scores
 - MolecuLight imaging

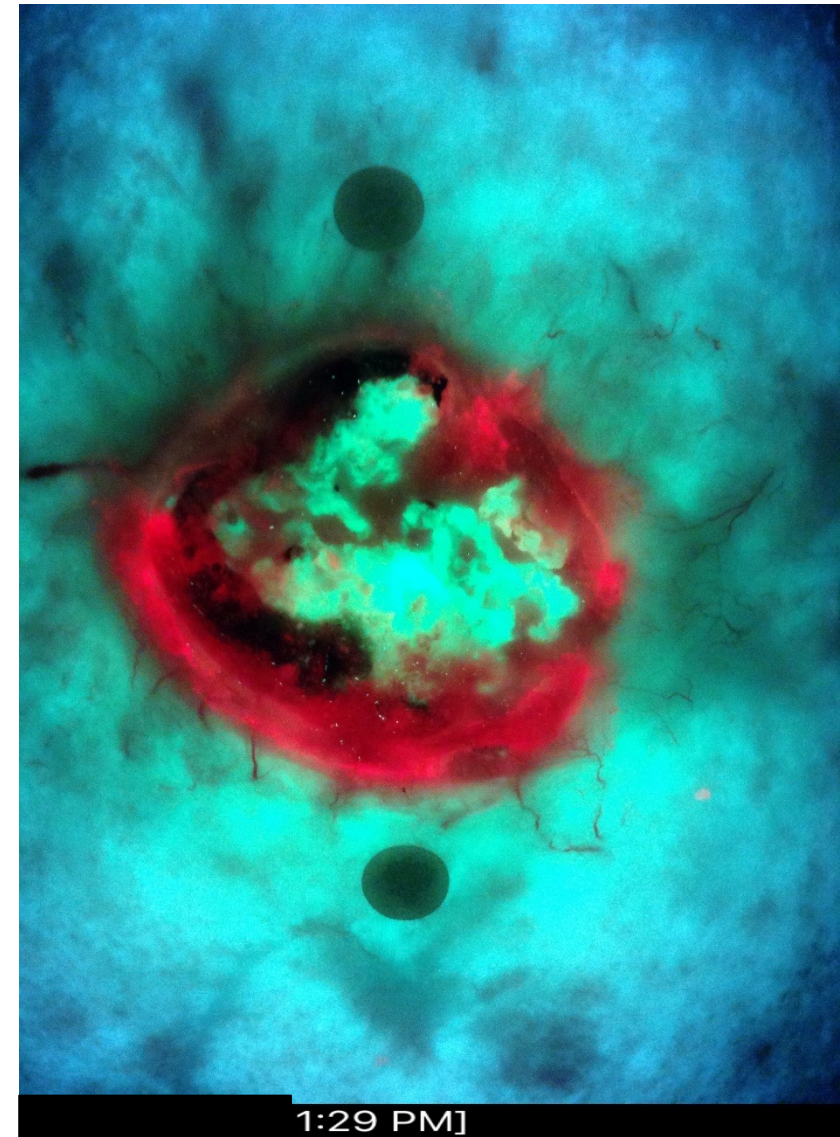
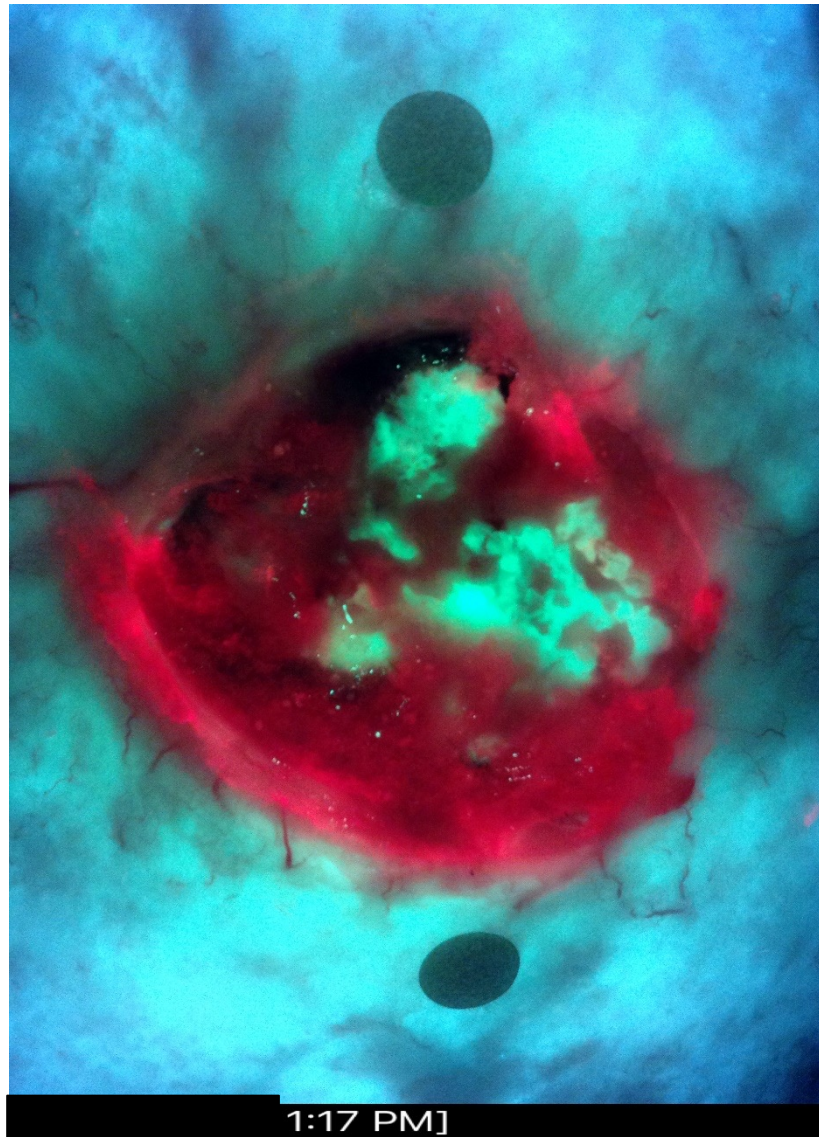
Results

Variable	BIAKOS (n=14)	Vashe (n=14)	p-value
Age, median (IQR)	70.5 (52.3, 72.0)	57.5 (50.3, 83.0)	0.77
Gender, n (%)			
Male	5 (35.7)	11 (78.6)	0.02
Female	9 (64.3)	3 (21.4)	
Comorbidities, n (%)			
Venous Insufficiency	4 (28.6)	5 (35.7)	0.69
Diabetes	6 (42.9)	1 (7.1)	0.03
Wound Type, n (%)			
Pressure Ulcer	1 (7.1)	2 (14.3)	0.51
Venous Stasis Wound	3 (21.4)	5 (35.7)	
Surgical Wound	10 (71.4)	7 (50.0)	
Treatment Duration (months), median (IQR)	0.9 (0.6, 2.1)	2.0 (1.4, 3.3)	0.09

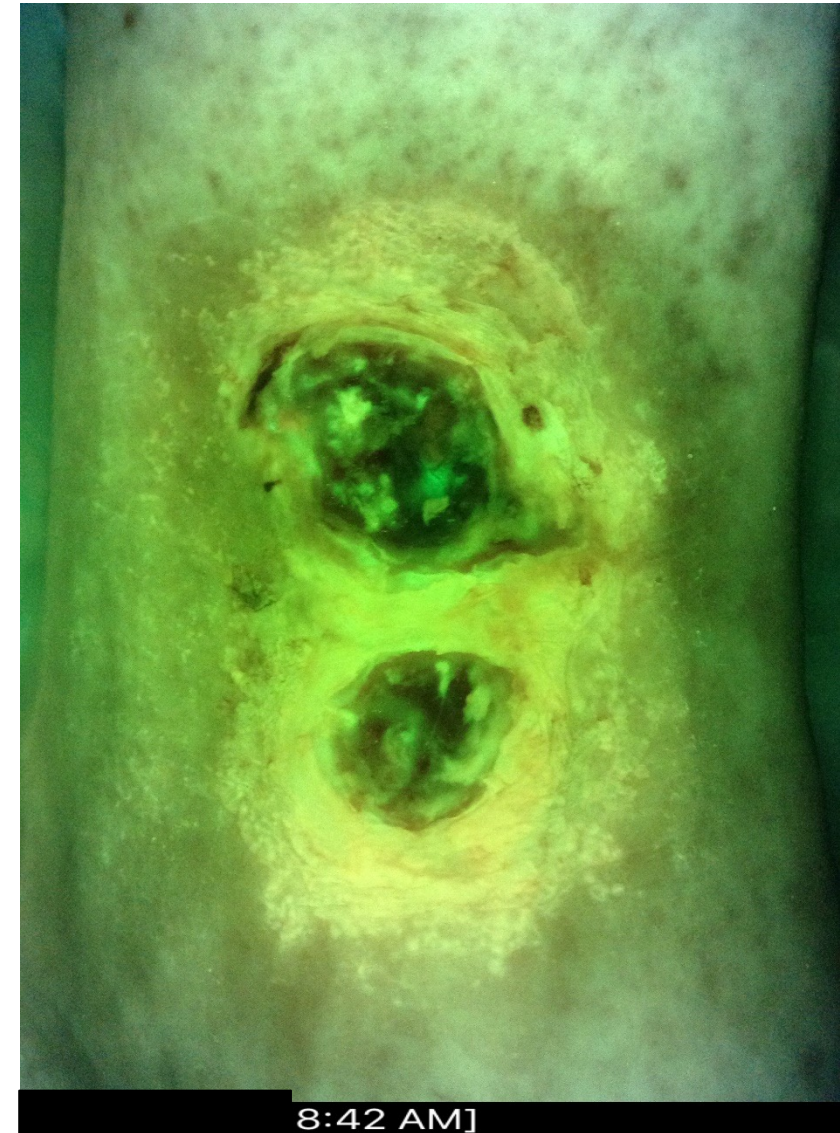
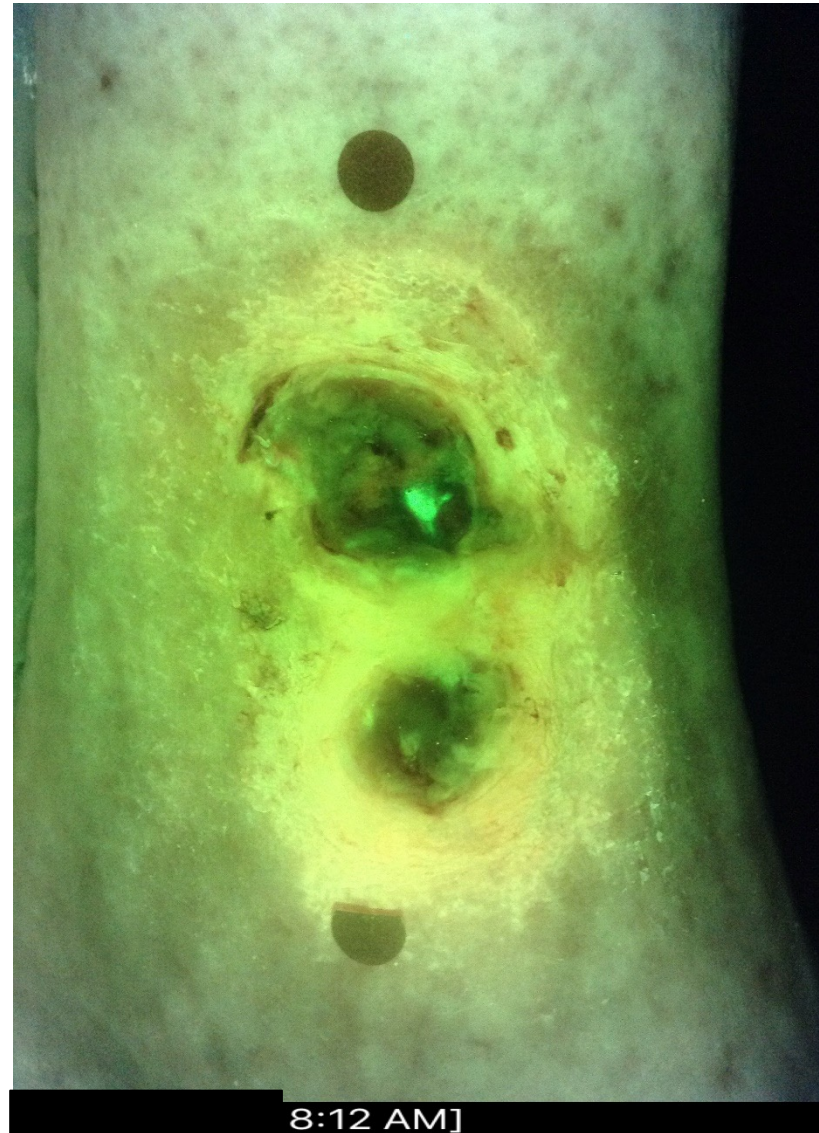
Results

Outcome Measured	BIAKOS (n=14)	Vashe (n=14)	p-value
% Decrease in Wound Size, median (IQR)	68.5 (38.0, 87.5)	31.0 (0.0, 90.8)	0.67
% Decrease in Bates-Jensen Score, median (IQR)	26.5 (19.8, 31.8)	6.0 (0.0, 24.8)	<0.01

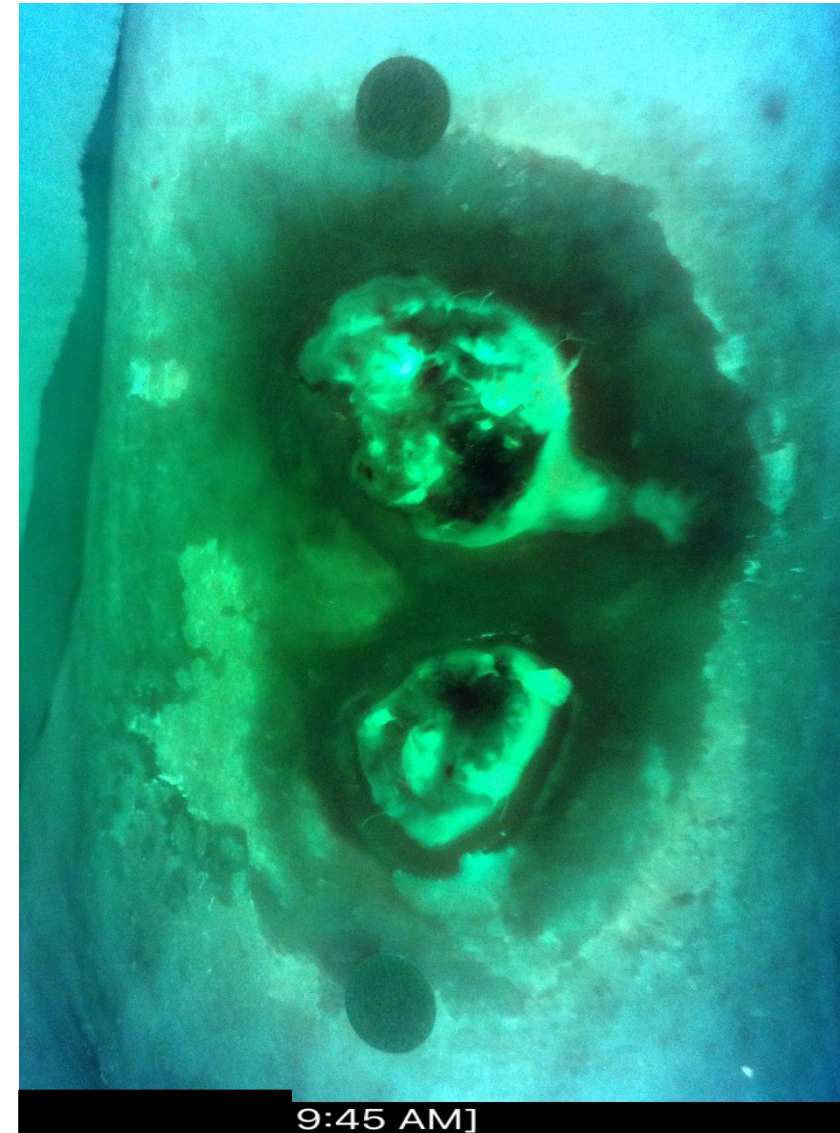
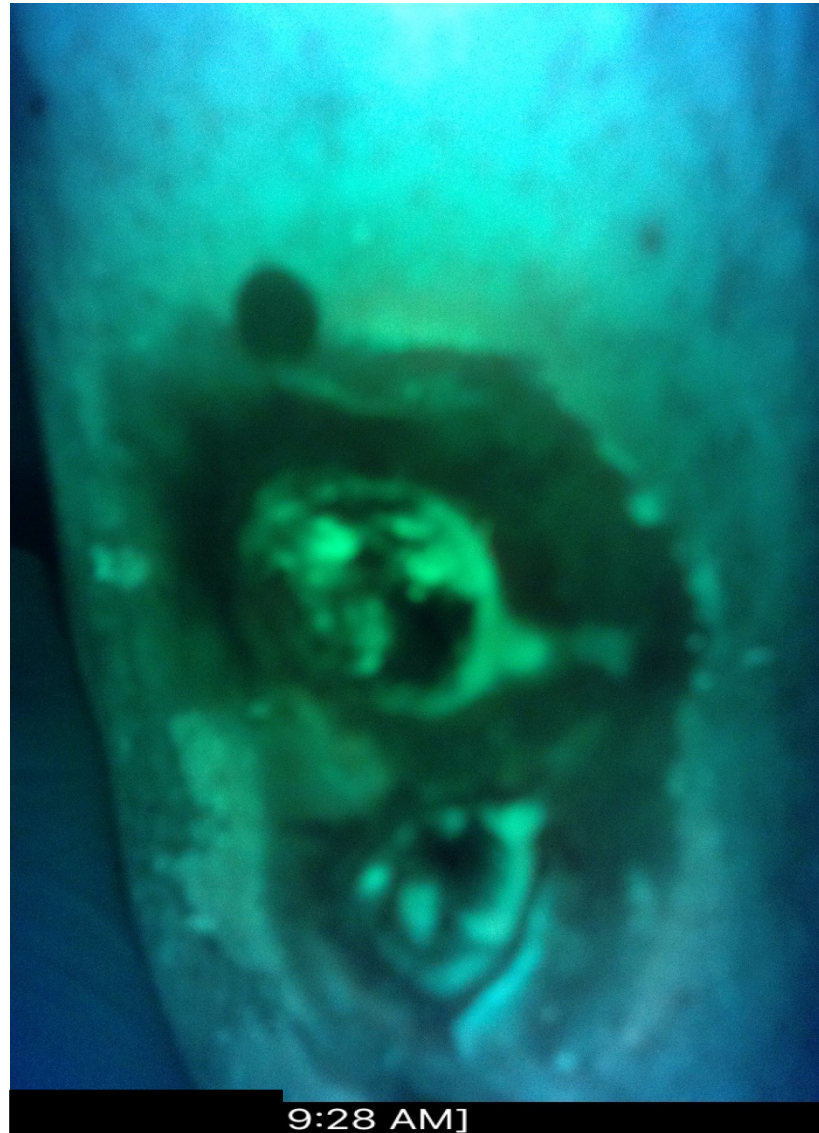
Results – BIAKOS 3



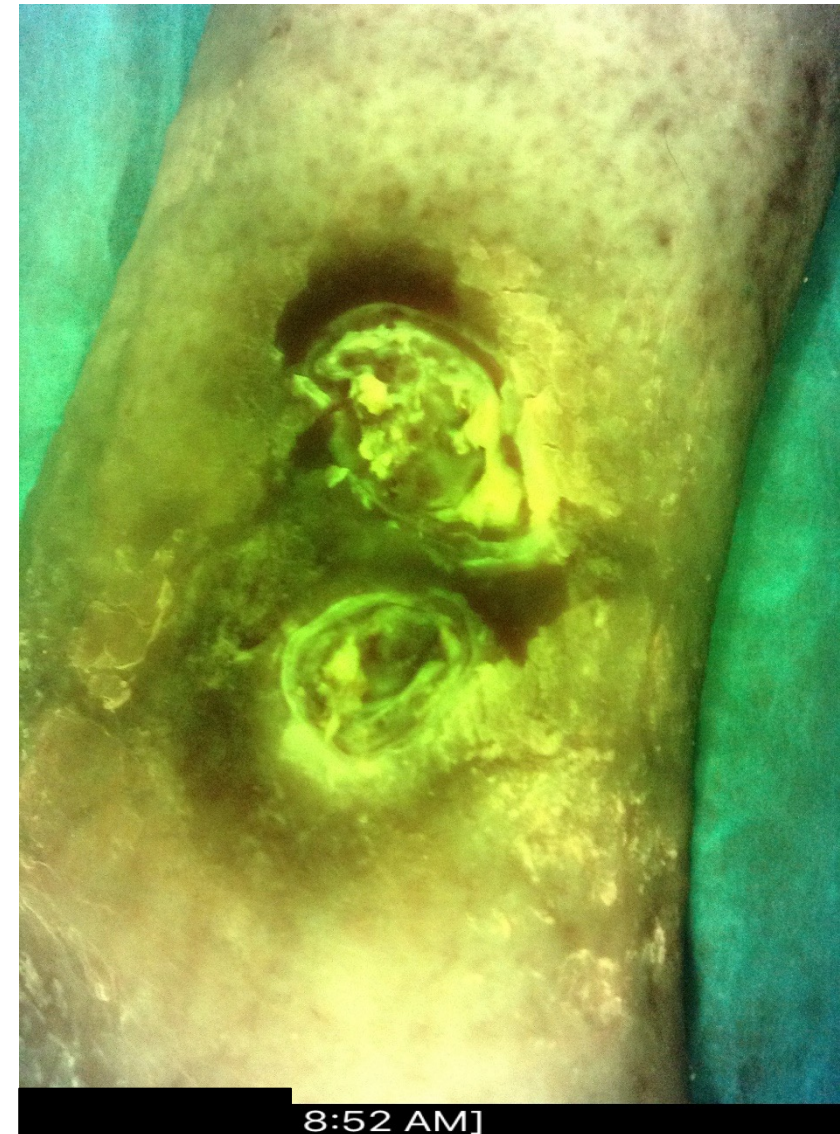
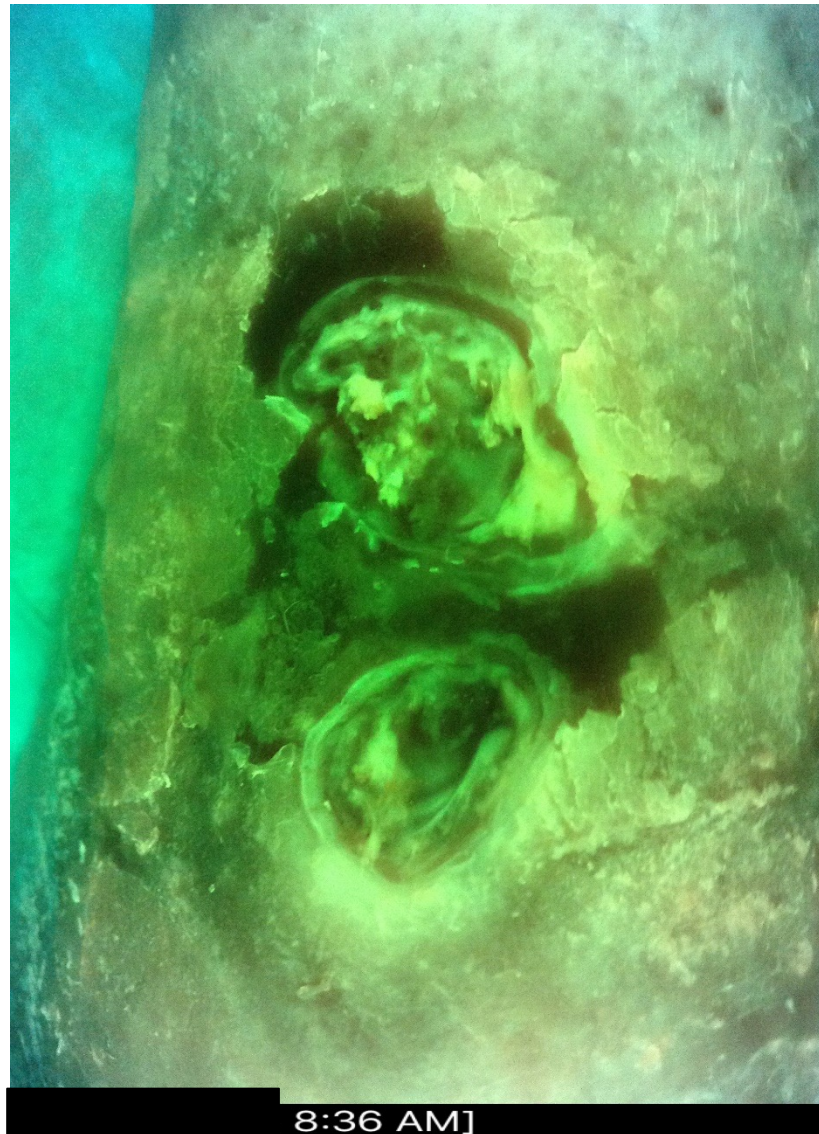
Results – BIAKOS 5, 1st Visit



Results – BIAKOS 5, 2nd Visit



Results – BIAKOS 5, 3rd Visit



Discussion

- BIAKOS treatment resulted in subjective improvement in wound appearance as well as a trend towards reduction in size
- Trend towards reduced treatment duration with BIAKOS treatment
- Benefits seen even among a significantly older and more frequently diabetic treatment group

Limitations

- Retrospective study with no randomization and limited power
- Uncontrolled variables
 - Wound stage and size at treatment initiation
 - Any prior treatments received
 - Number of treatments received
 - Comorbidities
 - Concurrent treatments

Future Directions

- In vitro, in vivo, and first-in-human studies complete
- Randomized controlled trial still needed to convincingly demonstrate benefit

Questions?

