

Our Antimicrobial Polymer Technology (APT™)

Live bacteria

Dead bacteria

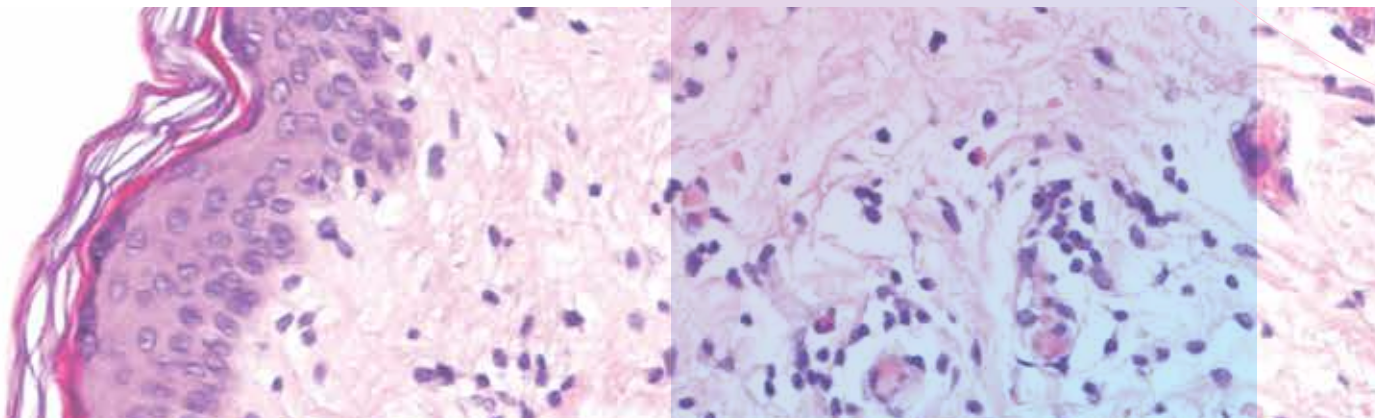
Antimicrobial Polymer^{1,2}

Mode of Operations^{1,2}:

The antimicrobial polymer is binding and inactivating bacteria due to electrostatic interaction between cationic polymer and negatively charged bacterial outer cell membrane.

Antimicrobial Polymer (APT™) key characteristics are^{1,2}:

- High Antibacterial Efficiency against wide ranging and resistant strains (Gram + and Gram -)
- Immediate Activity
- Long Acting
- Non Toxic, Non Irritant, Non Inflammatory
- Non Volatile
- Antimicrobial Resistance Stewardship



PTx Antimicrobial Polymer Technology & Gelling Fiber

Our first APT™-integrated Advanced Wound Care Dressing- Gelling Fiber^{1,2}

PolTx_Fibers™

Soft and conformable non-woven dressings made from sodium carboxymethyl cellulose (CMC) fibers and strengthening cellulose fibers with antimicrobial polymer quaternary polyethylene-imine (QPEI). When dry, PolTx_Fibers™ can easily be cut to the size of the wound. Even when the dressing is moist, as gelled fiber, its structure remains intact.

The APT™ polymer when incorporated into the wound dressing, and in contact with wound exudate, prevents bacterial colonization in the dressing due to its antimicrobial activity. The high vertical absorption of exudate into the dressing forms a gel that assists in maintaining a moist wound environment and supports autolytic debridement and improves the wound edge and surrounding skin from maceration. Through the gel formation the structure of the dressing remains intact.

PolTx_Fiber™ with integrated antibacterial polymer (APT™)

The **CMC Fiber** layer absorbs wound exudate and forms a **gel** that locks in the moisture, helping to create an optimal environment for wound healing.

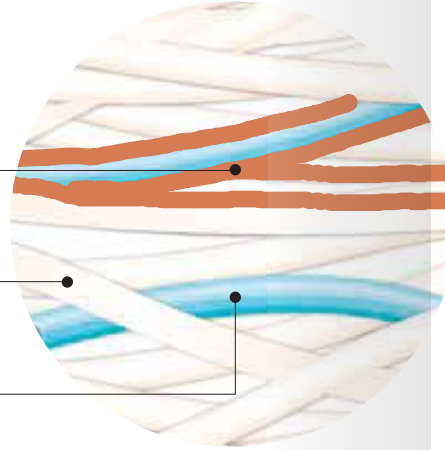
The APT™ is **integrated within the fibers**, ensuring that it **does not leach** out into the wound or affect the surrounding tissue.

*evenly distributed coating of polymer on fiber

APT™ polymer integrated to the fibers^{1,2}

80% Carboxymethyl Cellulose gelling fiber

20% reinforced fibers (Lyocell®)



Unique Product Features^{1,2*}



Broad spectrum Antimicrobial Efficacy



Antimicrobial Resistance Stewardship



Silver-free Antimicrobial Protection



CE-Marked Fiber base product

*Polaroid Therapeutics internal report available upon request

The intended use

PolTx_Fiber™
120, 160, 200 gsm*
Pads:

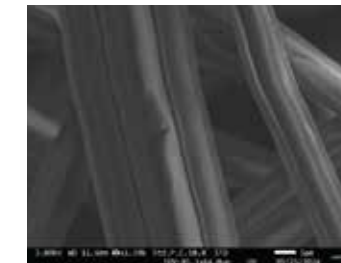
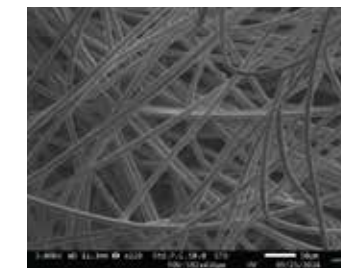
Size (cm x cm)	Units/box
5x5	10
10x10	10
15x15	10
12.5x10	10
12x10	10
10x20	5
15x20	5
20x20	5
20x30	5

PolTx_Fiber™
120, 160, 200 gsm*
Rope:

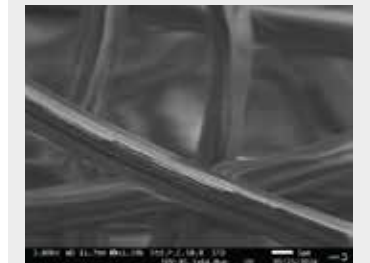
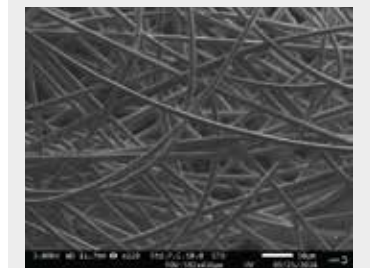
Size (cm x cm)	Units/box
1x30	5
1x45	5
4x10	5
4x20	5
4x30	5
2x30	5
2x45	5

New and novel integration method^{1,2}

Standard CMC Fibers

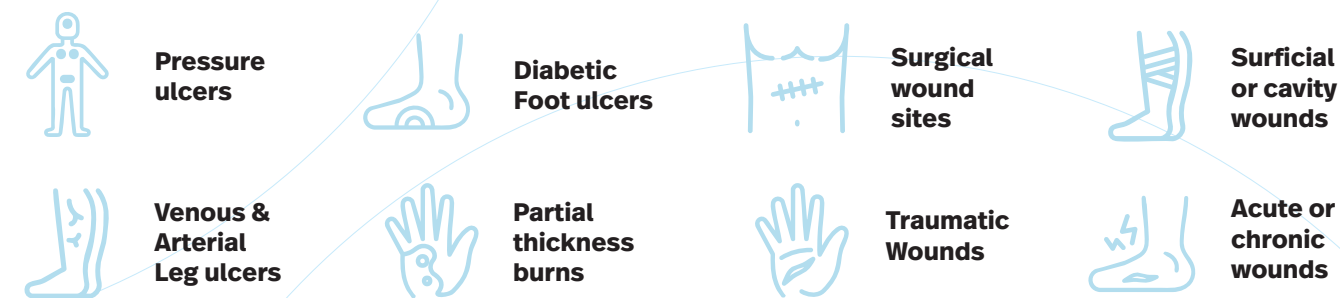


APT™ + CMC Fibers

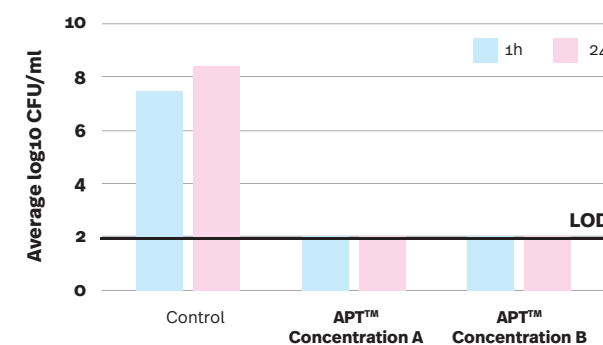


POLTx_Fibers™ with integrated APT™ technology shows strong and sustained antimicrobial response to both Gram-positive and Gram-Negative bacteria^{1,2}

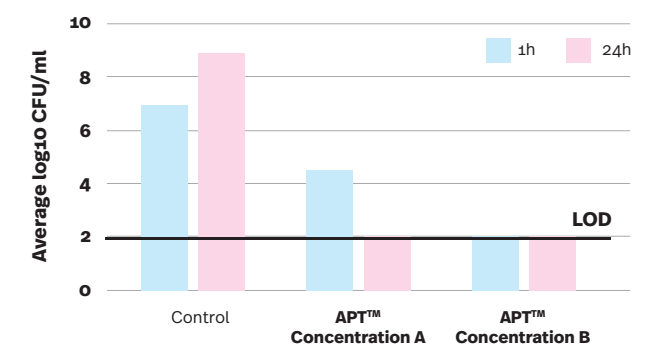
Indications



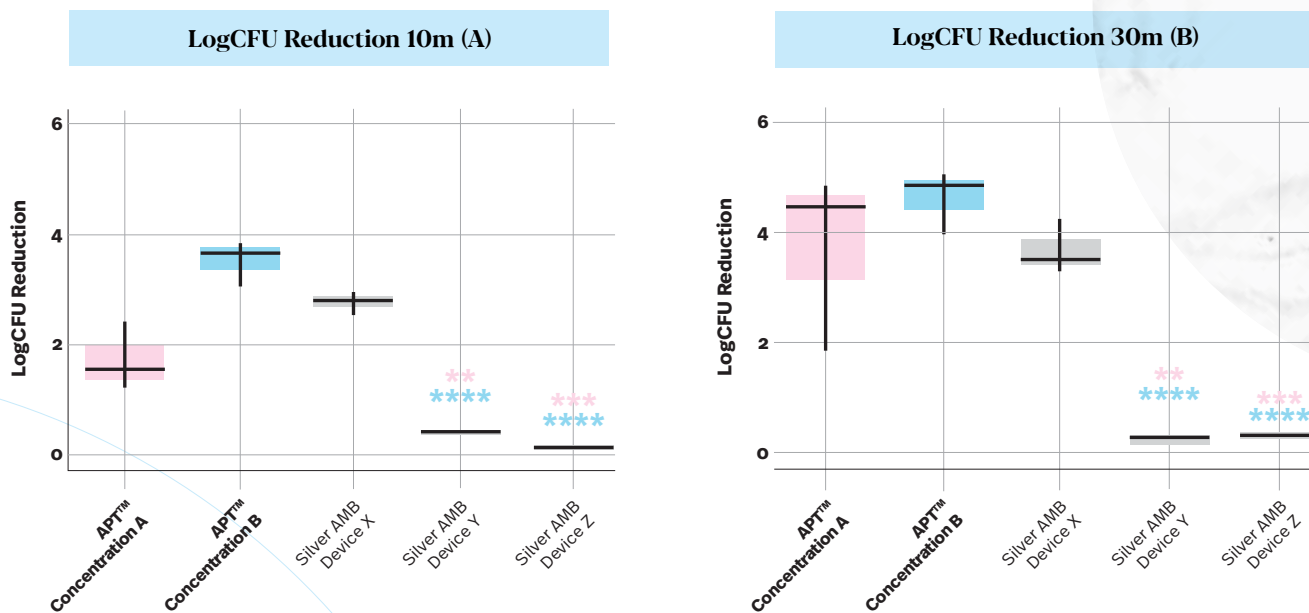
(MRSA) - Gram positive



Pseudomonas aeruginosa - Gram negative



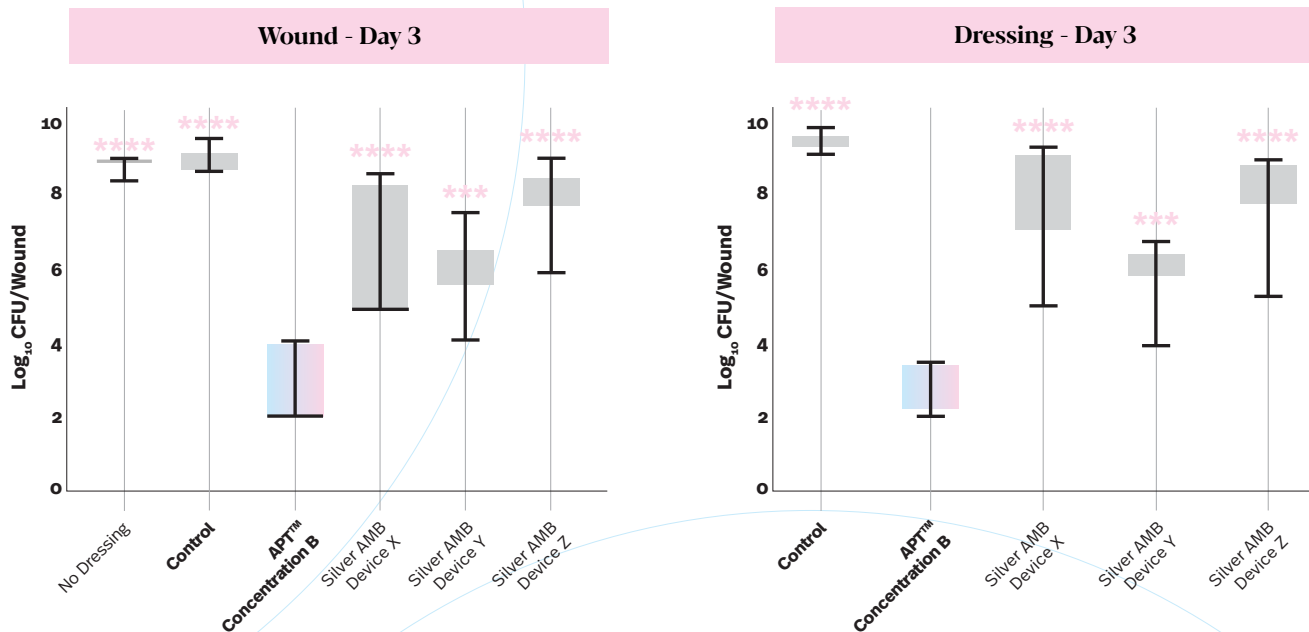
APT™-integrated POLTx_Fiber™ dressing rapidly reduced bacterial load of *S. aureus* (NRS384) compared to commercialized Silver dressings^{1,2}



Log reduction for all groups relative to the control dressings at (A) 10 minutes and (B) 30 minutes post-incubation.

(A) Log reduction for all groups relative to the control dressings at 10 minutes and (B) 30 minutes post-incubation. 1×10^6 CFU/mL was seeding onto 6mm dressing biopsies and incubated at 35°C in humid conditions. After each timepoint, dressing biopsies were enumerated by placing in bead tubes containing Dey/Engley to inactivate any antimicrobials and serially diluted on TSA. The boxplots depict the log CFU reduction for different dressings at (A) 10m and (B) 30m time points. Each box represents the distribution of the log reduction values across biological replicates ($n=3$), with the median shown as a horizontal line and individual points as jittered dots. Significant differences between groups are marked with asterisks (* $p < 0.05$, ** $p < 0.01$, **** $p < 0.001$), only significant values are highlighted (APT Concentration A, APT Concentration B, coloured according to group).

POLTx_Fiber™ dressing with APT™ technology outperforms silver dressings at day 3, in reducing bacterial load of *s. aureus* in vivo^{1,2}



The shown products are currently under development and not for sale.

References: 1. Ferrari S, Rey JM, Rothmaier M, Thornicroft J, Wynn-Jones G, Kettlewell G, Frenkel R. (2025, March 26-28). Novel antimicrobial quaternary polyethyleneimine compounds for the treatment of infected wounds. The Joint EWMA-GNEAUPP 2025 Conference- The 35th Conference of the European Wound Management Association. Barcelona, Spain. 2. Rudden M, Wilkinson H, Bell A, Frenkel R, Hart J, Hardman MJ. (2024, April 16-17). Utilizing Antimicrobial Polymer Technology-Derived Compounds in the Treatment of Bacterially-Infected Wounds. Advanced Wound Care Summit USA 2024. Boston, MA, USA.

Polaroid Therapeutics Internal Reports available upon request.