

Document Cover Page

**Official Title of Study:**

Comparative Study of Antimicrobial Effectiveness

**NCT Number:** NCT03817580

**Date of Document:** January 14, 2019

## CLINICAL STUDY PROTOCOL

<b>Study Number:</b>	ER 18/282
<b>Study Title:</b>	Comparative Study of Antimicrobial Effectiveness Evaluation of 26 ml Project X, 5.1 ml Project X and Prevantics® Maxi Swabstick following ASTM E1173
<b>Investigational Products:</b>	26 ml Project X (A)
	5.1 ml Project X (B)
<b>Positive Control:</b>	Prevantics® Maxi Swabstick 5.1 ml (C)
<b>Principal Investigator:</b>	Rozalia Olsavszky M.D. Dermatologist Registered Number (Romanian Ministry of Health): 461524 (specialist in dermato-venerology doctor, doctor in medical science)
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<b>Date</b>	14-JANUARY-2019

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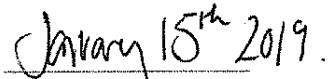
**SPONSOR (PROFESSIONAL DISPOSABLES INTERNATIONAL INC.) PROTOCOL APPROVAL**

The signatures of the representative below constitute the approval of this protocol and provide the necessary assurances that this study will be conducted according to all stipulations stated in the protocol, including all statements as to confidentiality. It is also agreed that the study will not be initiated without the approval of an appropriate IRB/IEC.

Approved by the following:

<b>Sponsor Representative</b>	James Clayton
<b>Sponsor</b>	Professional Disposables International Inc. Two Nice Pak Park Orangeburg, NY 10962

  
Signature of Sponsor Representative

  
Date

<b>Principal Investigator</b>	Rozalia Olsavszky M.D. Dermatologist
<b>Research Facility</b>	EUROFINS EVIC PRODUCT TESTING ROMANIA S.R.L. 64-66, Marasesti Boulevard Bucharest 040256 Romania

I have read this protocol and agree to conduct this study in accordance with all stipulations of the protocol and in compliance with all applicable Good Clinical Practices and regulations.

  
Signature of Principal Investigator

  
Date

## Synopsis

<b>Study Number:</b>	ER 18/282
<b>Protocol Title:</b>	Comparative Study of Antimicrobial Effectiveness Evaluation of 26 ml Project X, 5.1ml Project X and Prevantics® Maxi Swabstick following ASTM E1173
<b>Planned Sample Size:</b>	This evaluation will be performed with an estimated of a minimum of 75 evaluable subjects corresponding to 50 evaluable sites per product with qualifying treatment day microbial baseline counts per body area (abdomen and groin).
<b>Study Design:</b>	This is a randomized, single-center, single blind study in healthy subjects. The staff member(s) performing bacterial enumeration will be blinded from the identification of treatment assignment.
<b>Study Methodology:</b>	ASTM Standard Test Method E1173-15
<b>Study Population:</b>	Healthy subjects at least 18 years of age and of any race. Screening Day Baseline microbial count requirements are at least $3.11 \log_{10}$ CFU/cm <sup>2</sup> bilaterally on the abdomen, and at least $5.00 \log_{10}$ CFU/cm <sup>2</sup> bilaterally on the groin except for subjects enrolled for Neutralization study. Treatment Day Baseline microbial count requirements are in the range of $3.11$ to $5.50 \log_{10}$ CFU/cm <sup>2</sup> , inclusive, on the abdomen, and $5.00$ to $7.50 \log_{10}$ CFU/cm <sup>2</sup> , inclusive, on the groin except for subjects enrolled for Neutralization study.
<b>Objectives:</b>	<p><b>Efficacy objectives</b></p> <p>The objective of this study is to demonstrate immediate (30 seconds and 10 minutes) and persistent (6 hours) antimicrobial efficacy for patient preoperative skin preparation of product A and product B compared with product C. To demonstrate the immediate antimicrobial efficacy at 10 minutes post-application the following criteria should be met on both body area (abdomen and groin):</p> <ul style="list-style-type: none"> <li>- non-inferiority of the ATE of the product A and product B compared to product C (the upper two-sided 95% confidence bound of the post-application microbial counts corrected for Baseline of the A-C or B-C should be less than <math>0.5 \log_{10}</math>).</li> </ul> <p>To demonstrate the persistent efficacy for patient preoperative skin preparation, the microbial counts (<math>\log_{10}</math> CFU/cm<sup>2</sup>) at 6 hours post-application should be lower than or equal to the baseline for 100 percent of the subjects in each body area.</p> <p><b>Safety objectives</b></p> <p>Safety will also be evaluated based on the incidence of adverse events reported during the study and assessment of skin irritation ratings.</p>
<b>Study Endpoints:</b>	<ul style="list-style-type: none"> <li>- <math>\log_{10}</math> CFU/cm<sup>2</sup> of skin flora at the abdominal and groin sites before and after each treatment at 30 seconds, 10 minutes and 6 hours.</li> <li>- Skin irritation scores (Erythema, Edema, Rash, and Dryness) at each time interval and the incidence of AEs reported during the study.</li> </ul>

Study Products:	<table border="1" data-bbox="488 399 1456 1208"> <thead> <tr> <th>Treatment</th><th>Description</th><th>Body Site</th><th>Application Time</th><th>Drying Time</th><th>Treatment Area</th></tr> </thead> <tbody> <tr> <td data-bbox="525 586 631 714">A – 26 ml Project X</td><td data-bbox="668 518 826 714">3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol, applied back and forth</td><td data-bbox="879 518 937 579">Abdomen</td><td data-bbox="1006 518 1080 579">30 seconds</td><td data-bbox="1164 518 1223 579">min. 180 seconds</td><td data-bbox="1334 518 1445 624">5.0" x 5.0" (12.7 cm x 12.7 cm)</td></tr> <tr> <td data-bbox="525 810 631 938"></td><td data-bbox="668 743 826 938"></td><td data-bbox="879 653 937 714">Groin</td><td data-bbox="1006 653 1080 714">120 seconds</td><td data-bbox="1164 653 1223 714">min. 180 seconds</td><td data-bbox="1334 624 1445 729">1.5" x 5.0" (3.81 cm x 12.7 cm)</td></tr> <tr> <td data-bbox="525 990 631 1140">B – 5.1 ml Project X</td><td data-bbox="668 743 826 938">3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol, applied back and forth</td><td data-bbox="879 743 937 804">Abdomen</td><td data-bbox="1006 743 1080 804">30 seconds</td><td data-bbox="1164 743 1223 804">30 seconds</td><td data-bbox="1334 729 1445 835">5.0" x 5.0" (12.7 cm x 12.7 cm)</td></tr> <tr> <td data-bbox="525 990 631 1140"></td><td data-bbox="668 743 826 938"></td><td data-bbox="879 878 937 938">Groin</td><td data-bbox="1006 878 1080 938">120 seconds</td><td data-bbox="1164 878 1223 938">90 seconds</td><td data-bbox="1334 835 1445 963">1.5" x 5.0" (3.81 cm x 12.7 cm)</td></tr> <tr> <td data-bbox="525 990 631 1140">C – 5.1ml Prevantics® Maxi Swabstick</td><td data-bbox="668 968 826 1140">3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol, applied back and forth</td><td data-bbox="879 968 937 1028">Abdomen</td><td data-bbox="1006 968 1080 1028">30 seconds</td><td data-bbox="1164 968 1223 1028">30 seconds</td><td data-bbox="1334 963 1445 1069">5.0" x 5.0" (12.7 cm x 12.7 cm)</td></tr> <tr> <td data-bbox="525 990 631 1140"></td><td data-bbox="668 968 826 1140"></td><td data-bbox="879 1102 937 1163">Groin</td><td data-bbox="1006 1102 1080 1163">120 seconds</td><td data-bbox="1164 1102 1223 1163">90 seconds</td><td data-bbox="1334 1069 1445 1174">1.5" x 5.0" (3.81 cm x 12.7 cm)</td></tr> </tbody> </table>						Treatment	Description	Body Site	Application Time	Drying Time	Treatment Area	A – 26 ml Project X	3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol, applied back and forth	Abdomen	30 seconds	min. 180 seconds	5.0" x 5.0" (12.7 cm x 12.7 cm)			Groin	120 seconds	min. 180 seconds	1.5" x 5.0" (3.81 cm x 12.7 cm)	B – 5.1 ml Project X	3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol, applied back and forth	Abdomen	30 seconds	30 seconds	5.0" x 5.0" (12.7 cm x 12.7 cm)			Groin	120 seconds	90 seconds	1.5" x 5.0" (3.81 cm x 12.7 cm)	C – 5.1ml Prevantics® Maxi Swabstick	3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol, applied back and forth	Abdomen	30 seconds	30 seconds	5.0" x 5.0" (12.7 cm x 12.7 cm)			Groin	120 seconds	90 seconds	1.5" x 5.0" (3.81 cm x 12.7 cm)
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Statistical Methods:	<p>Subjects with treatment day baseline bacterial count in the range of 3.11 to 5.50 <math>\log_{10}/\text{cm}^2</math>, inclusive, on the abdomen and 5.00 to 7.50 <math>\log_{10}/\text{cm}^2</math>, inclusive, on the groin will be included in the analysis.</p> <p>An alpha level of 5% will be used for all analyses.</p> <p>The following descriptive statistics for <math>\log_{10} \text{CFU}/\text{cm}^2</math> and for <math>\log_{10} \text{CFU}/\text{cm}^2</math> reductions from Baseline will be computed for each treatment, grouped by body area and each post application sampling time point (30 seconds, 10 minutes and 6 hours): mean, median, standard deviation, minimum, maximum, and count.</p> <p><b>Efficacy Analysis</b></p> <p>A linear regression model for each body area (abdomen and groin) and each post-treatment sampling time point of immediate efficacy (30 seconds and 10 minutes post-application) will be used. In the model, the dependent variable used will be the post-treatment bacterial count (<math>\log_{10} \text{CFU}/\text{cm}^2</math>) and predictors will be the treatment as a fixed effect and the Baseline as a covariate. The ATE corrected for Baseline will be estimated from the model and compared to non-inferiority criteria.</p> <p>To evaluate the persistent efficacy (6 hours post-application) of the product A and B, microbial counts (<math>\log_{10} \text{CFU}/\text{cm}^2</math>) at 6 hours post-application for each product application site will be converted to a binary (success/failure), "success" defined as having microbial counts less than or equal to the baseline counts. Responder rates</p>																																															

	<p>at 6 hours post product application will be summarized descriptively for each product on each body area.</p> <p><b>Safety Analysis</b></p> <p>All treated subjects will be considered evaluable for safety. Skin irritation scores will be reported for any subject who is scored with a 1 or more at any observation (baseline screening day, baseline treatment day, post-application/prior to 30 seconds, 10 minutes, and 6 hours sampling procedures), in any category for any site. Adverse events (including post treatment skin irritation scores of 3), will also be summarized. Summary tables will present incidence rates of adverse events by treatment group for all subjects who enter the treatment period. Listings of adverse events will be provided.</p>
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## Abbreviations

AE	Adverse event
AIDS	Acquired immune deficiency syndrome
ASTM	American Society for Testing Materials
ATCC	American Type Culture Collection
ATE	Average treatment effects
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CHG	Chlorhexidine gluconate
cm <sup>2</sup>	Square centimeter
CRF	Case Report/Record Form
ER	EUROFINS EVIC PRODUCT TESTING ROMANIA S.R.L.
FDA	Food and Drug Administration
GCP	Good Clinical Practice
HIV	Human immunodeficiency virus
IB	Investigator's brochure
ICF	Informed consent form
ICH	International Conference on Harmonization
IEC	Institutional Ethics Committee
IPA	Isopropyl Alcohol
IRB	Institutional or Independent Review Board
MRSE	methicillin-resistant <i>Staphylococcus epidermidis</i>
MSSE	methicillin-sensitive <i>Staphylococcus epidermidis</i>
PBW	Phosphate Buffered Water
PDI	Professional Disposables International Inc.
PI	Principal Investigator
SAE	Serious adverse event
SOP	Standard Operating Procedure
SSF++	Stripping Suspending Fluid with product neutralizers
TSA	Trypticase Soy Agar
TSA+N	Trypticase Soy Agar containing neutralizers
TSB	Tryptic Soy Broth
US	United States of America

## 1 Introduction

Topical antimicrobial products are used prior to surgery in order to reduce the risk of nosocomial infection by reducing the number of microorganisms on the skin. Chlorhexidine gluconate (CHG) was first introduced in the United States in the 1970s as a hand washing agent for healthcare workers. Today, CHG is widely used as an effective antimicrobial for hand washing and patient skin antisepsis. The use of CHG for patient skin antisepsis was studied clinically by Maki et al. in the early 1990s. Maki compared the use of 2% aqueous CHG, 70% alcohol, and 10% povidone-iodine (a common iodophor) for patient skin preparation prior to placement of a central-line catheter. Aqueous 2% CHG formulation was found to significantly reduce the incidence of catheter-related infections, as compared to either 70% alcohol or 10% povidone-iodine. Moreover, Mimoza et al. showed CHG was more efficacious than povidone-iodine skin preparation in reducing contamination of blood cultures. In 2000, the first CHG and 70% isopropyl alcohol (IPA), was approved by the US FDA for patient pre-operative skin preparation. Since that time, numerous clinical studies support the use of the alcoholic CHG formulations, driving its wide adoption by clinicians worldwide.

The immediate and persistent antimicrobial efficacy of the investigational products will be evaluated in this study according to US FDA analysis criteria.

## 2 Study Objectives

### 2.1 Efficacy objectives

The objective of this study is to demonstrate immediate (30 seconds and 10 minutes) and persistent (6 hours) antimicrobial efficacy for patient preoperative skin preparation of product A and product B compared with product C.

To demonstrate the immediate antimicrobial efficacy at 30 seconds and 10 minutes post-application the following criteria should be met on both body area (abdomen and groin):

- non-inferiority of the ATE of the product A and product B compared to product C (the upper two-sided 95% confidence bound of the post-application microbial counts corrected for Baseline of the A-C or B-C should be less than  $0.5 \log_{10}$ ).

To demonstrate the persistent efficacy for patient preoperative skin preparation, the microbial counts ( $\log_{10}$  CFU/cm<sup>2</sup>) at 6 hours post-application should be lower than or equal to the baseline for 100 percent of the subjects in each body area.

### 2.2 Safety objectives

Safety will also be evaluated based on the incidence of adverse events reported during the study and assessment of skin irritation ratings from [Appendix 17.8](#).

### **3 Study Design**

#### **3.1 Study Type**

This is a randomized, single-center, single blind study in healthy subjects. The staff member(s) performing bacterial enumeration will be blinded from the identification of treatment assignment.

#### **3.2 Endpoints**

- $\text{Log}_{10}$  CFU/cm<sup>2</sup> of skin flora at the abdominal and groin sites before and after each treatment at 30 seconds, 10 minutes and 6 hours.
- Skin irritation scores (Erythema, Edema, Rash, and Dryness) at each time interval and the incidence of AEs reported during the study.

#### **3.3 Randomization and Blinding**

The randomization scheme for the study will be provided by the Research facility.

Each subject will receive two treatments per body area. Assignment of products to the left or right side for each body area will be per a computer-generated randomization schedule.

Specific sites of sampling for baseline and post application sampling time points will be randomized on each body site (abdomen/groin and left/right).

Randomization will continue until required number of subjects with required treatment day baseline counts is enrolled.

The PI is responsible for ensuring that the randomization is followed. The randomization schedule for the abdominal and groin sites will be provided in a separate document. The study products will be labeled with the appropriate codes as designated by the study randomization.

Each subject will be identified by their initials and a subject number for which they qualify. Inclusion subject numbers will not be assigned until a subject has passed the screening criteria, including screening bacterial counts.

- Screening subjects will be assigned numbers starting with 001 and the letter "P": P001
- Treatment subjects will be assigned numbers with 001 and the letter "I": I001

The study products will not be blinded from the PI or other study staff performing the study material application or bacterial sample collections. The staff member(s) performing bacterial enumeration will be blinded from the identification of treatment assignment. The study staff performing the bacterial enumeration will not be involved in the study products application or the collection of samples. The Raw Data Sheet sections of the CRF will be maintained separately (from the pages within the CRF which include study treatment identifications) during the conduct phase of the study. The study staff performing the bacterial enumeration will record counts directly onto the Raw Data Sheet pages of the CRF without accessing the subject study documentation folder containing the other CRF pages. The Raw Data Sheets will be compiled with the entire CRF after all data recording have been completed.

### 3.4 Study Products

The products identified in [Table 1](#) will be used in the study. Specific product identification codes and lot numbers will be included with the clinical supplies when they are shipped to the Research facility.

PDI is responsible for analytically testing (content and purity) the study products to ensure they comply with their specifications and both released as per approved specifications of the marketed control product.

**Table 1: Study Products**

Treatment	Denomination	Volume	Description
A	26 ml Project X	26 ml	3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol
B	5.1 ml Project X	5.1 ml	3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol
C	Prevantics® Maxi Swabstick	5.1 ml	3.15 % w/v chlorhexidine gluconate / 70% v/v isopropyl alcohol

#### 3.4.1 Study Products Labeling

PDI will label, package, and ship the study products to the research facility. ER personnel will document receipt and storage of the study materials.

#### 3.4.2 Study Supplies Provided by Sponsor

- Study Products

#### 3.4.3 Study Supplies Provided by Research facility

- Product kits (toiletry items to be used by subjects during study)
- Stripping Suspending Fluid with product neutralizers (SSF++) containing 1.01% Na<sub>2</sub>HPO<sub>4</sub>, 0.04% KH<sub>2</sub>PO<sub>4</sub>, 0.1% Triton X-100, 1.167% Lecithin, 10% Polysorbate 80, 0.5% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>•5H<sub>2</sub>O, and 1% Tamol™.
- Butterfield's sterile phosphate-buffered water (PBW), (312 µM KH<sub>2</sub>PO<sub>4</sub>, pH 7.2 ± 0.4)
- High-purity deionized water
- Trypticase Soy Agar (TSA) (for the Neutralization Validation Procedure only – See [Appendix 17.7](#))
- Trypticase soy agar containing 0.5% Tween 80 and 0.07% lecithin (TSA+N)
- Serological pipettes (10 ml), sterile
- Disposable Pasteur Pipettes, sterile
- Tubes with sealable caps, polypropylene or glass, sterile
- Petri dishes, 90 mm, sterile
- Gloves, sterile

- Gauze, sterile
- Non-toxic marking pen: Chemo Skin Marker- Regular™
- Rubber policemen, sterile
- Scrub cups (2.20 cm I.D., 3.80 cm<sup>2</sup>), sterile
- Timers
- Pipette Aid or similar apparatus
- Vortex mixer
- Surgical Clipper & clipper blades: 3M Surgical Clipper
- Culture Media Preparator
- Peristaltic Pump
- Incubator (30 ± 2°C)
- Disposable underwear for subjects
- Sterile, Non-Occlusive dressing (to cover treated test sites for 6 hours post treatment): 3M Tegaderm™
- urine pregnancy test (UPT)
- Tryptic Soy Broth (for the Neutralization Validation Procedure only – See [Appendix 17.7](#)) (TSB)
- *Staphylococcus epidermidis* MRSE, ATCC 51625 (for the Neutralization Validation Procedure only – See [Appendix 17.7](#))
- *Staphylococcus epidermidis* MSSE, ATCC 12228 (for the Neutralization Validation Procedure only – See [Appendix 17.7](#))
- Biological safety cabinet
- Manual colony counter
- pH-meter
- 70% IPA swabs (for the Neutralization Validation Procedure only – See [Appendix 17.7](#))

### **3.5 Study Duration**

The expected duration of this study for each subject is up to 3 weeks. Subjects will undergo at least a 14-day washout period followed by a qualification screening baseline visit. Subjects whose screening baseline samples meet the minimum values described in the Inclusion Criteria ([Section 4.1](#)) will be notified and invited to participate in the treatment phase of the study. The treatment phase will be scheduled no sooner than 72 hours from the screening baseline collection. Each subject who chooses to participate in this study will be required to stay in the test facility for one scheduled Treatment Day to include a 6 hours post-prep sampling.

### **3.6 Study Termination/Subject Discontinuation or Withdrawal**

#### **3.6.1 Study Termination**

PDI or the PI has the right to discontinue the study at any time for medical and/or administrative reasons. As much as possible, this should occur after mutual consultation.

### **3.6.2 Subject Discontinuation and Withdrawal**

The PI may discontinue individual subjects from the study at any time. Subjects may voluntarily withdraw from the study at any time without reason or consequence. A reason will be reported, if provided. The PI will provide a written report on the appropriate CRF including the date and reason for discontinuance. Subjects who qualify on Screening Day and begin the treatment phase may not be re-entered into the study, regardless of whether or not they completed the study.

Additional subjects will be recruited and screened, as necessary, to meet the required number of evaluable treatment sites per body area, per treatment, per collection time.

### **3.7 Study Product Accountability**

PDI requires PI to maintain accountability and adequate inventory security of the study material at all times. The PI or designated sub-investigator trained by the PI will:

- complete the Confirmation of Receipt form upon receipt of the shipment and maintain and account for inventory on the Study Material Disposition form.
- keep study materials in a secure storage area, accessible only to authorized individuals.
- dispense study material only to subjects properly enrolled into the study.
- return or destroy all unused study materials to PDI at the end of technical execution of the study upon Sponsor agreement.

Before starting the study, investigational products and positive control product will be supplied and shipped to the site by PDI and stored at controlled room temperature between 20-25 °C (68-77°F). Excursions permitted to 15-30°C (59-86°F) in the product storage area and a retain sample for each product kept in the sample storage area of the Research facility for at least 3 years after the end of the study, then destroyed, according to the corresponding procedure of the Research facility.

### **3.8 Source Data**

Source data includes any original documents, data and records where any data are first recorded (e.g., ICFs, laboratory notes, etc) used for study traceability. If data are recorded for the first time directly onto the CRF, then the CRF is considered the source document for these data.

### **3.9 Protocol Modifications**

#### **3.9.1 Protocol Amendments**

Protocol Amendments will not be implemented without prior agreement between the PI and PDI and prior submission and approval from the IRB/EC, except when necessary to eliminate an immediate hazard to the subject and to protect the safety and well-being of the subject.

Will constitute Protocol Amendments for administrative inputs and changes: correction of typing mistakes, changes in study personnel (other than the PI) or contact information. Protocol Amendments for administrative inputs and changes has to be agreed between the PI and PDI and will be submitted to the IRB/EC but implementation may proceed without prior IRB/EC approval, unless so required by the IRB/EC or site SOPs.

### 3.9.2 Protocol Deviations

A deviation is a departure from the protocol that will likely affect the safety, rights or welfare of subjects, the scope of the investigation, the integrity of the data or the scientific quality of the study. Protocol deviations are documented on a Protocol Deviation Form.

Deviations that potentially affect 1) subject safety, rights or welfare, 2) data integrity or 3) compromise the statistical analysis of the study require communication to PDI at the earliest convenience.

A Protocol Deviation Form must be completed by the PI or designated sub-investigator trained by the PI and checked and approved by PI and include a description of the circumstances surrounding and the reason for the deviation, any actions taken, and whether or not the subject was allowed to continue in the study.

If during monitoring visits a deviation is identified, the Study Monitor will report it to the PI and PDI

## 4 Study Population

The trial will utilize ER's subject database and would not require the recruitment of subjects through study-specific advertisement.

Subjects must satisfy all Screening Day and Treatment Day Inclusion/Exclusion Criteria prior to screening sample collection and Treatment Day procedures.

Screening Day Baseline microbial count requirements are at least  $3.11 \log_{10}$  CFU/cm<sup>2</sup> bilaterally on the abdomen, and at least  $5.00 \log_{10}$  CFU/cm<sup>2</sup> bilaterally on the groin except for subjects enrolled for Neutralization study.

Treatment Day Baseline microbial count requirements are in the range of  $3.11$  to  $5.50 \log_{10}$  CFU/cm<sup>2</sup>, inclusive, on the abdomen, and  $5.00$  to  $7.50 \log_{10}$  CFU/cm<sup>2</sup>, inclusive, on the groin except for subjects enrolled for Neutralization study.

Subjects must qualify on both body area (abdomen and/or groin) to be admitted into testing, except for Neutralization study.

Both the right and left sides of the abdomen and groin must meet the minimum Screening Day values stated in the Inclusion Criteria to qualify, except for Neutralization study and except when one anatomical area (abdomen or groin) has completed the valid cases for all the products, then additional subjects will be screened only for the leftover area.

Additional subjects will be recruited and screened, as necessary, to meet the required number of evaluable treatment sites per body area, per collection time.

All subjects will be given verbal and written information about the study procedures - Subject Instructions for Main Study ([Appendix 17.5.1](#)) will be provided to each subject for the Washout phase of the study and Subject Instructions for Neutralization ([Appendix 17.5.2](#)) will be provided to each subject for the Neutralization Study.

#### **4.1 Subject Inclusion Criteria**

Subjects will be included in this study if they meet the following requirements:

1. Male or female at least 18 years of age and of any race
2. In good general health
3. Read, understand and sign the ICF
4. If female of child-bearing potential, are willing to use an acceptable method of contraception to prevent pregnancy (i.e. oral contraceptive, intra-uterine device, diaphragm, condom, abstinence, bilateral tubal ligation, or are in a monogamous relationship with a partner who has had a vasectomy)
5. Female subjects of child-bearing potential, must have a negative Urine Pregnancy Test (UPT) on Treatment Day prior to any applications of the study products
6. Screening Day Baseline microbial counts are at least 3.11 CFU/cm<sup>2</sup> bilaterally from the skin of the abdomen, and 5.00 log<sub>10</sub> CFU/cm<sup>2</sup> bilaterally from the skin of the groin (*not applicable for Neutralization study*)

#### **4.2 Subject Exclusion Criteria**

Potential subjects will be excluded from participation if the following criteria apply to them.

1. Exposure of test sites to antimicrobial agents, medicated soaps, medicated shampoos, or medicated lotions, use of biocide-treated pools or hot tubs, use of tanning beds, or sunbathing during the 14-day washout conditioning period and during the test period (*7-day for Neutralization study*)
2. Exposure of the test sites to strong detergents, solvents, or other irritants during the 14-day washout conditioning period and during the test period (*7-day for Neutralization study*)
3. Wear fabric softener, bug repellent or UV-treated clothing during the 14-day washout conditioning period and during the test period (*7-day for Neutralization study*)
4. Receive an irritation score of 1 (any redness, swelling, rash, or dryness present at any treatment area) for any individual skin condition prior to the Screening Day baseline or Treatment Day baseline sample collection or Neutralization study
5. Use of systemic or topical antibiotic medications, steroid medications (other than for hormonal contraception or post-menopausal reasons), or any other product known to affect the normal microbial flora of the skin during the 14-day washout conditioning period and during the test period (*7-day for Neutralization study*)
6. Known allergies or sensitivities to vinyl, latex (rubber), alcohols, metals, inks, or tape adhesives, or to common antibacterial agents found in soaps, lotions, or ointments, particularly isopropyl alcohol or chlorhexidine gluconate
7. A medical diagnosis of a physical condition, such as a current or recent severe illness, asthma, diabetes, hepatitis, an organ transplant, mitral valve prolapses, congenital heart disease, internal prostheses, or any immunocompromised conditions such as AIDS (or HIV positive)
8. Pregnancy, plans to become pregnant within the washout and test periods of the study, or nursing a child
9. Any tattoos or scars within 2" (5.08 cm) of the test sites
10. Dermatoses, cuts, lesions, active skin rashes, or breaks or other skin disorders within 6" on or around the test sites
11. A currently active skin disease or inflammatory skin condition (for example, contact dermatitis) anywhere on the body that, in the opinion of the Consulting Physician or PI, would compromise subject safety or study integrity
12. Showering, bathing, or swimming within the 72-hour period prior to sampling for baseline screening, Treatment Day, and throughout the test period (*not applicable for Neutralization study*)

13. Participation in another clinical study in the past 30 days or current participation in another clinical study at time of signing informed consent
14. Any medical condition or use of any medications that, in the opinion of the PI, should preclude participation
15. Unwillingness to fulfill the performance requirements of the study.

#### **4.3 Subject Consent**

The PI or designated sub-investigator trained by the PI must ensure that written informed consent to participate in the investigation is obtained before including any individual as a subject in the investigation. The PI or designated sub-investigator trained by the PI must provide the prospective subject sufficient opportunity to consider whether or not to participate and minimize the possibility of coercion or undue influence.

The process is designed to:

- 1) give the subject all the information needed,
- 2) ensure that the subject understands the information,
- 3) give the subject a chance to consider study participation.

The process should permit the subject to ask questions and exchange information freely.

Specifically, the PI or designated sub-investigator trained by the PI is to explain to each subject all elements of ICF as specified in 21 CFR 50.25. After the explanation, subjects will voluntarily sign and date the ICF if they wish to participate in the study. A copy of the ICF must be provided to the subject. A signed and dated ICF must be maintained in the PI study documentation file at all times.

### **5 Study Treatment**

These study procedures are based on the American Society for Testing and Materials (ASTM) "Standard Test Method for Evaluation of Preoperative, Precatheterization, or Preinjection Skin Preparations" (E1173-15).

#### **5.1 Study Procedures**

##### **5.1.1 Washout Period**

The Inclusion/Exclusion Criteria will be reviewed with each subject to ensure eligibility for the study after subjects has signed the ICF.

A skin irritation assessment using the scale from [Appendix 17.8](#) will be performed by the PI or designated sub-investigator trained by the PI. If an irritation score of 1 for any individual skin condition is observed, the subject will be excluded from the study.

Prior to the scheduled Screening Day, subjects will undergo a minimum 14- day restriction period (*7-day for Neutralization study*). The subjects will be instructed to avoid contact with any topical or systemic antimicrobial products or any other product known to affect the normal microbial flora of the skin for the duration of their involvement in the study as written in the Subject Instructions for Main Study ([Appendix 17.5.1](#)) or Subject Instructions for Neutralization ([Appendix 17.5.2](#)).

If it becomes necessary to take systemic antibiotics or to apply topical medications to the test areas within this Washout period, the subject must contact the PI or designated sub-investigator whom will inform the PI as soon as reasonably possible so that another volunteer may be recruited.

Restrictions include, but are not limited to:

- Use of antimicrobial soaps, shampoos, lotions, perfumes, after shaves, colognes, antiperspirants, deodorants
- Contact with materials such as acids, bases, solvents
- Swimming in chemically treated pools and bathing in hot tubs, spas and/or whirlpools
- Use of tanning beds, hot waxes or depilatories (including shaving)

Subjects will be provided a kit with non-antimicrobial personal care products for exclusive use during the study.

If subjects require hair removal to facilitate sample collection, the subject will be asked to return to the test facility at approximately 48-96 hours before the Screening Day or Neutralization Day for clipping/re-clipping.

Prior to performing the clipping/re-clipping before the Screening Day or Neutralization Day, a skin irritation assessment using the scale from [Appendix 17.8](#) will be performed by the PI or designated sub-investigator trained by the PI. If an irritation score of 1 for any individual skin condition is observed, the subject will be excluded from the study.

Subjects will be required to refrain from bathing or showering for 72 hours prior to Screening Day.

### **5.1.2 Screening Day**

After the restriction period and at least 3-days before Treatment Day, the PI or a designated sub-investigator will complete the Screening Day Inclusion/Exclusion Criteria page in each subject's CRF.

Prior to performing the Screening Day baseline sample collection, a skin irritation assessment using the scale from [Appendix 17.8](#) will be performed by the PI or designated sub-investigator trained by the PI. If an irritation score of 1 for any individual skin condition at the Screening Day baseline is observed, the subject will be excluded from the study.

A baseline screening sample will be collected from each test area using the Williamson-Kligman scrub cup technique. The baseline screening samples will be taken from the center of each contra-lateral test area within each body area (abdomen and groin). Samples from both body areas and from both left and right sides must meet the minimum value indicated in the Inclusion Criteria for the subject to be enrolled into the treatment phase of the study.

Subjects who qualify for the study will be notified and will continue to follow the subject instructions for the duration of the study.

Subjects will again be required to refrain from bathing or showering 72 hours prior to Treatment Day.

If subjects require hair removal to facilitate sample collection, the subject will be asked to return to the test facility at approximately 48-96 hours prior to Treatment Day for clipping/re-clipping.

Prior to performing the clipping/re-clipping before the Treatment Day, a skin irritation assessment using the scale from [Appendix 17.8](#) will be performed by the PI or designated sub-investigator trained by the PI. If an irritation score of 1 for any individual skin condition is observed, the subject will be excluded from the study.

### 5.1.3 Treatment Day

The PI or a designated sub-investigator will complete the Treatment Day Inclusion/Exclusion Criteria CRF. If these criteria are satisfied, a skin irritation assessment using the scale from [Appendix 17.8](#) will be performed prior to performing the Treatment Day baseline sample collection, by the PI or designated sub-investigator trained by the PI. If an irritation score of 1 for any individual skin condition at the Treatment Day baseline is observed, the subject will be excluded from the study.

#### 5.1.3.1 Preparation of Test Areas on Treatment Day

A Test Site Diagram for the abdominal and groin test areas is shown in [Appendix 17.3](#).

##### 5.1.3.1.1 Preparation of Abdomen Test Area

The test site within the abdominal region (abdominal test area) is defined as the area to the right and left sides of the abdomen, adjacent to the umbilicus that appear to be similar in condition and above the groin. The corners of each abdominal test area will be marked directly on the skin using a non-toxic skin marker. Four sampling sites will be numbered within each abdominal test area, on each side of the abdominal region. The positioning and numbering of the abdominal sampling sites are standard for all subjects. Sampling sites on the contra-lateral side of the abdomen will be numbered in a mirror-image orientation.

The four sampling sites within each abdominal test area represent one baseline (pre-prep) site and three post-prep sample sites (30 seconds, 10 minutes and 6 hours).

Test sites for study products and active control application on the abdomen will be 5" x 5" (12.7 cm x 12.7 cm) in area, occur on areas of skin to the right and left side of the navel, and should appear to be similar in condition.

After abdominal test areas are marked and sample sites numbered, baseline samples will be collected from the appropriate site per the randomization schedule in each test area using the scrub cup technique ([section 5.2.1](#)).

##### 5.1.3.1.2 Preparation of Groin Test Area

The test site within the groin region (groin test area) is defined as the inner aspect of the uppermost thigh within and parallel to the inguinal crease. The corners of each groin test area will be marked directly on the skin using a non-toxic skin marker. Four sampling sites will be numbered within each groin test area, on each side of the groin region. The positioning and numbering of the groin sampling sites are standard for all subjects. Sampling sites on the contra-lateral side of the groin will be numbered in a mirror-image orientation. The four sampling sites within each abdominal test area represent one baseline (pre-prep) site and three post-prep sample sites (30 seconds, 10 minutes and 6 hours).

Test sites for the investigational product and active control applicator on the groin will be 1.5" x 5" (3.81 cm x 12.7 cm) in area, occur at the uppermost inner aspects of both thighs, and appear to be similar in condition.

After groin test areas are marked and sample sites numbered, baseline samples will be collected from the appropriate site per the randomization schedule in each test area using the scrub cup technique ([section 5.2.1](#)).

### 5.1.3.2 Study Products Application

The randomization schedule will designate the treatment to each side of the abdomen and groin.

Following baseline sample collection, randomly assigned contra-lateral test areas will be treated with the applicable study products. The post-application sampling times will be randomized among the sampling sites within a test area.

The study products will be applied and the sampling configurations will be performed per the randomization scheme and the Treatment Application Instructions ([Appendix 17.6](#)). The duration of each application procedure will be recorded on the appropriate CRF. The study products, body sites, application and dry times and treatment area are summarized in [Table 2](#)[Table 2](#).

**Table 2: Study products, body sites, application and dry times and treatment area**

Products	Body Site	Application Time	Drying Time	Treatment Area
A – 26 ml Project X	Abdomen	30 seconds	min. 180 seconds	5.0" x 5.0" (12.7 cm x 12.7 cm)
	Groin	120 seconds	min. 180 seconds	1.5" x 5.0" (3.81 cm x 12.7 cm)
B – 5.1 ml Project X	Abdomen	30 seconds	30 seconds	5.0" x 5.0" (12.7 cm x 12.7 cm)
	Groin	120 seconds	90 seconds	1.5" x 5.0" (3.81 cm x 12.7 cm)
C – 5.1ml Prevantics® Maxi Swabstick	Abdomen	30 seconds	30 seconds	5.0" x 5.0" (12.7 cm x 12.7 cm)
	Groin	120 seconds	90 seconds	1.5" x 5.0" (3.81 cm x 12.7 cm)

### 5.1.3.3 Timing of Post Application Sample Collection

Microbial samples will be collected at 30 seconds (+5 seconds), 10 minutes ( $\pm$  30 seconds), and 6 hours ( $\pm$  30 minutes) post treatment application for both body areas, the abdomen and the groin. Post application timing begins upon completion of the study product application, including drying time. Microbial samples will be collected using the scrub cup technique ([section 5.2.1](#)).

After the 30 second and 10 minute samples have been collected, a piece of sterile gauze and a non-occlusive dressing will be secured over the remaining sample site to allow subjects unrestricted mobility and to protect the sites from contamination between sampling times. The subjects will stay in the clinical test facility, for the final post-application sample collection.

A skin irritation assessment using the scale from [Appendix 17.8](#) will be performed by the PI or designated sub-investigator trained by the PI prior to collection of each post treatment microbial sample collection (30 seconds, 10 minutes and 6 hours) and a corresponding rating score for each individual skin condition will be recorded in the subject's CRF.

If an irritation score of 3 for any individual skin condition at any post treatment observation is assigned, the subject will be discontinued from the study and an adverse event will be recorded. See [Section 8.3](#) (Adverse Events).

Following final sample collection, the remaining study material will be removed from the subjects' skin with water and soap as necessary and dried with paper towels.

## 5.2 Microbiological Methods

### 5.2.1 Microbial Sample Collection / Scrub Cup Technique

Quantitative cultures (screening baselines, treatment day baselines and post treatment samples) will be obtained by a modification of the cylinder sampling technique of Williamson-Kligman scrub cup technique following ASTM E1874-14 "Standard Test Method for Recovery of Microorganisms from Skin using the Cup Scrub Technique". To collect the samples, a sterile scrub cup (2.20 cm I.D.) will be placed on the site and held firmly to the skin. 3.0 ml of SSF++ will be pipetted into the cup and the skin will be scrubbed in a circular motion with moderate pressure for 1 minute using a sterile rubber policeman. Using a sterile transfer pipette, the SSF++ will be removed and placed in a sterile test tube. An additional 3.0 ml of fresh SSF++ will be pipetted into the cup and the scrub procedure will be repeated. This solution will be pooled with the first solution collected.

### 5.2.2 Bacterial Enumeration Methods

Following sample collection, vortex the sample for 15 seconds and 10-fold serial dilutions will be prepared using PBW. One ml aliquots of appropriate dilutions will be pour-plated in TSA+N. Samples must be plated within 30 minutes of collection.

Serial dilutions of collected baseline screening samples as follows:

- for groin sites: 1 serial dilution ( $10^{-3}$ )
- for abdomen sites: 1 serial dilution ( $10^{-1}$ )

Serial dilutions of collected treatment day (D0) samples as follows:

for groin sites:

- Baseline: 3 serial dilutions ( $10^{-3}$ ,  $10^{-4}$  and  $10^{-5}$ )
- 30 seconds: 4 serial dilutions ( $10^0$ ,  $10^{-1}$ ,  $10^{-2}$  and  $10^{-3}$ )
- 10 minutes: 4 serial dilutions ( $10^0$ ,  $10^{-1}$ ,  $10^{-2}$  and  $10^{-3}$ )
- 6 hours: 4 serial dilutions ( $10^0$ ,  $10^{-1}$ ,  $10^{-2}$  and  $10^{-3}$ )

for abdomen sites:

- Baseline: 3 serial dilutions ( $10^{-1}$ ,  $10^{-2}$  and  $10^{-3}$ )
- 30 seconds: 3 serial dilutions ( $10^0$ ,  $10^{-1}$  and  $10^{-2}$ )
- 10 minutes: 3 serial dilutions ( $10^0$ ,  $10^{-1}$  and  $10^{-2}$ )
- 6 hours: 3 serial dilutions ( $10^0$ ,  $10^{-1}$  and  $10^{-2}$ )

After  $72 \pm 4$  hours of aerobic incubation at  $30 \pm 2^\circ\text{C}$ , colonies will be manually counted and viable cells in the original sample will be calculated according to SOPs. After incubation, plates may be refrigerated up to 48 hours prior to counting.

Bacterial colonies enumerated manually within the countable range 25-250 from each dilution will be recorded on the appropriate CRFs for each subject. The average number of microorganisms recovered (CFU/cm<sup>2</sup>) from the skin during screening and treatment day will be calculated using the formula to convert the volume of sample collected into  $\log_{10}\text{CFU}/\text{cm}^2$  of skin:

$$R = \log_{10} \left[ \frac{F \left( \frac{\sum_{i=1}^3 c_i}{n} \right) D}{A} \right]$$

Where:

$R$  = the average colony-forming unit count in  $\log_{10}$  scale per  $\text{cm}^2$  of sampling surface

$F$  = total number of ml of stripping fluid added to the sampling cylinder; in this study,  $F = 6$  ml

$\frac{\sum_{i=1}^3 c_i}{n}$  = average of the triplicate colony counts used for each sample collected

$D$  = dilution factor of the plate counts

$A$  = inside area of the cylinder in  $\text{cm}^2$ ; in this study,  $A = 3.80 \text{ cm}^2$  for the 2.2-cm diameter cylinder.

### 5.2.3 Neutralization Validation

A Neutralization study will be conducted to demonstrate that the neutralizers used in the sampling solution and media are effective in inhibiting the antimicrobial properties of the test products without impairing the recovery of challenge microorganisms. *Staphylococcus epidermidis*, ATCC 12228 (MSSE), *Staphylococcus epidermidis*, ATCC 51625 (MRSE) will be used as challenge microorganisms.

Neutralization procedures will follow guidelines provided by ASTM E1054-08 (reapproved 2013), "Standard Test Methods for Evaluation of Inactivators of Antimicrobial Agents". The full procedure is attached as [Appendix 17.7](#).

## 6 Assessment of Efficacy

### 6.1 Efficacy Parameters

The measure of antimicrobial efficacy will be the  $\log_{10}$  CFU/cm<sup>2</sup> of skin flora at the abdominal and groin sites 30 seconds, 10 minutes and 6 hours following study products application relative to the Treatment Day baseline  $\log_{10}$  counts.

### 6.2 Assessment Methods

Efficacy will be assessed by sampling the skin using the cup scrub method and analysis methods described in [Section 5.2](#).

## 7 Risk / Benefit Assessment

### 7.1 Potential Risks

Subjects participating in this study could experience side effects to the skin such as:

- Redness
- Swelling
- Burning, stinging and itching
- Cracking
- Peeling
- Small blisters or sores (in uncommon cases)
- Rash or other allergic reaction including in rare cases anaphylaxis
- Irritation
- Pain
- Localized rash or inflammation (dermatitis)
- Impetiginized eczema (infected eczema or infected dry skin and recurring skin rashes)
- Application site hypopigmentation (lightening of skin) or hyperpigmentation (darkening of skin).

Subjects may also experience folliculitis from clipping.

There may be risks from participating in this study that are unknown.

### 7.2 Potential Benefits

There are no direct benefits to the subject for participation in this study.

## 8 Assessment of Safety

### 8.1 Safety Parameters

The principal measures of safety will be skin irritation scores and the incidence of adverse events reported during the study.

Adverse events will be captured from the time screening baseline samples are taken to the time of subject discharge from the study. Adverse events will be categorized in relationship to the product that was applied to the specific skin site. All local and systemic adverse events observed or reported to the investigator will be evaluated.

The severity, duration, causal relationship to the study product and study procedure, action taken (study related and subject related), study impact, outcome of the event; will be described for all adverse events.

## 8.2 Assessment Methods for Skin Irritation

All randomized subjects will be considered evaluable for safety. Skin irritation scores based on the scale from [Appendix 17.8](#) will be reported for any subject who is scored with a 1 or more at any observation [baseline (screening day and treatment day), clipping/re-clipping (prior to screening day, treatment day or neutralization day), prior/post-application to 30 seconds, 10 minutes, and 6 hours sampling procedures], in any category for any site.

Adverse events (including post treatment skin irritation scores of 3), will also be summarized. Summary tables will present incidence rates of adverse events by treatment group for all subjects who enter the treatment period. Listings of adverse events will be provided.

A corresponding rating score for each individual skin condition, for each site will be recorded in the subject's CRF. (See [Appendix 17.8](#), which includes the following four independent evaluation categories: Erythema, Edema, Rash, and Dryness).

If an irritation score of 1 or greater for any individual skin condition prior to the baseline sample collection (at either the screening or treatment day phases) is assigned, the subject will be excluded from the study (no study treatment will be applied).

If an irritation score of 3 for any individual skin condition at any observation period is assigned, the subject will be discontinued from the study and an adverse event will be recorded. See [Section 8.3](#) (Adverse Events).

## 8.3 Adverse Events

The PI is responsible for identifying adverse events that occur to each subject throughout the study and follow-up period. An adverse event can occur at any time during the conduct of the study, in any phase of the study or after the study is completed. An adverse event can be identified by the PI or reported by the subject.

Definitions:

### Adverse Event/Experience

An Adverse Event/Experience is any unexpected or undesirable experience occurring to a subject during a study, which may or may not be related to the test product.

All adverse events, regardless of severity or the causal/effect relationship, will be recorded. The severity of the effect will be noted as *Mild*, *Moderate*, or *Severe* according the following definitions:

Mild Awareness of signs or symptom, but easily tolerated.

Moderate Discomfort to a degree as to cause interference with normal daily life activities and /or requiring medication.

Severe Incapacity with inability to work or do usual daily life activities and requiring medical attention/intervention.

### Causal Relations of Adverse Event/Experience

When determining the causal/effect relationship to the test product, the relationship will be described as *Not related*, *Unlikely related*, *Possibly related* or *Related*.

The following definitions will be utilized:

<u>Not related</u>	No association to the test product. Related to other etiologies such as concomitant medications or conditions or subject's known clinical state.
<u>Unlikely related</u>	Uncertain association. Other etiologies are also possible.
<u>Possibly related</u>	Clear-cut association with improvement upon withdrawal of the test product. Not reasonably explained by the subject's known clinical state.
<u>Related</u>	An adverse event with a clear-cut temporal association with exposure to study materials and cannot reasonably be explained by the subject's known clinical state. Association with study material is confirmed by laboratory testing if possible.

#### Serious Adverse Event/Experience

A Serious Adverse Event/Experience is any adverse experience occurring at any dose that results in any of the following outcomes:

- Death;
- A life-threatening adverse drug experience;
- Inpatient hospitalization or prolongation of existing hospitalization;
- A persistent or significant disability/incapacity;
- Congenital anomaly/birth defect;
- An important medical event that may require medical or surgical intervention to prevent one of the previously listed outcomes.

#### Unexpected Adverse Event/Experience

An Unexpected Adverse Event/Experience is any adverse drug event/experience not listed in the current labeling for the test product or the current IB. Where test product labeling or IB is not available, anticipated experiences will be based on the known pharmacological/toxicological properties of the test product or ingredients.

#### Follow-up:

If an adverse event/experience occurs, the subject under the direction of the PI or designated sub-investigator trained by the PI may be referred to the nearest acute care facility for treatment. Serious or Unexpected Drug Event/Experience will be followed to resolution. Any adverse event will be documented on an Adverse Event Report Form.

#### Recording and Reporting

The PI or designee records all adverse events on an Adverse Event Form in the subject's CRF.

The PI must promptly report all treatment related adverse events to the PDI study monitor.

All SAE must be reported to the:

- Sponsor within 24 hours of the PI awareness/notification of the event.
- IRB/IEC within 10 working days of the PI awareness/notification of the event.

If a subject has no adverse event during the study, the absence of such must be recorded on the CRF.

## 9 Statistics

### 9.1 Data sets analyzed

Subjects with treatment day baseline bacterial count in the range of 3.11 to 5.50  $\log_{10}/\text{cm}^2$ , inclusive, on the abdomen and 5.00 to 7.50  $\log_{10}/\text{cm}^2$ , inclusive, on the groin will be included in the analysis.

### 9.2 Sample Size

This evaluation will be performed with an estimated of a minimum of 75 evaluable subjects corresponding to 50 evaluable sites per product with qualifying treatment day microbial baseline counts per body area (abdomen and groin). No sample size calculation was performed to provide statistically-powered evidence of efficacy as part of this study.

### 9.3 Efficacy Analyses

An alpha level of 5% will be used for all analyses.

The following descriptive statistics for  $\log_{10}$  CFU/cm<sup>2</sup> and for  $\log_{10}$  CFU/cm<sup>2</sup> reductions from Baseline will be computed for each treatment, grouped by body area and each post application sampling time point (30 seconds, 10 minutes and 6 hours): mean, median, standard deviation, minimum, maximum, and count.

#### 9.3.1 Efficacy Analysis

A linear regression model for each body area (abdomen and groin) and each post treatment sampling time point of immediate efficacy (30 seconds and 10 minutes post-application) will be used. In the model, the dependent variable used will be the post treatment bacterial count ( $\log_{10}$  CFU/cm<sup>2</sup>) and predictors will be the treatment as a fixed effect and the Baseline as a covariate. The ATE corrected for Baseline will be estimated from the model and compared to non-inferiority criteria.

To evaluate the persistent efficacy (6 hours post-application) of the product A and B, microbial counts ( $\log_{10}$  CFU/cm<sup>2</sup>) at 6 hours post-application for each product application site will be converted to a binary (success/failure), "success" defined as having microbial counts less than or equal to the baseline counts. Responder rates at 6 hours post product application will be summarized descriptively for each product on each body area.

### 9.4 Safety Analysis

All treated subjects will be considered evaluable for safety. Skin irritation scores will be reported for any subject who is scored with a 1 or more at any observation (baseline screening day, baseline treatment day, post-application/prior to 30 seconds, 10 minutes, and 6 hours sampling procedures), in any category for any site.

Adverse events (including post treatment skin irritation scores of 3), will also be summarized. Summary tables will present incidence rates of adverse events by treatment group for all subjects who enter the treatment period. Listings of adverse events will be provided.

## **9.5 Procedures for Accounting for Missing, Unused, and Spurious Data**

Missing microbiological data at 30 seconds, 10 minutes, or 6 hours, such as due to laboratory error or subject lost to follow-up, will be reported as missing and will not be imputed. Inclusion of these subjects in the per-protocol data set will be based on the criteria defined above. Details of any missing data and rationale for inclusion/exclusion in the per-protocol data set will be described in the study report.

## **10 PI Responsibilities**

The PI is responsible for ensuring that this clinical investigation is conducted according to this protocol; protecting the rights, safety, and welfare of subjects; and controlling the study products under investigation. The PI has overall responsibility for the technical conduct of the study, as well as for the interpretation, analysis, documentation and reporting of results, and represents the single point of study control.

## **11 Monitoring**

PDI, as sponsor of this study along with the PI, is responsible for ensuring the proper conduct of the study with regard to protocol adherence and validity of the data recorded on the CRFs. PDI has, therefore, assigned a study monitor to this study. The progress of the study will be monitored by:

- Periodic on-site review
- Telephone communications and e-mail
- Review of CRFs and source documents

The PI will give the PDI study monitor direct access to source documents that support data on the CRFs and make available such records to authorized PDI personnel, quality assurance, IRB/IEC, and regulatory personnel for inspection and/or copying.

## **12 Quality Control and Quality Assurance**

PDI, and the PI are responsible for implementing and maintaining Quality Assurance and Quality Control systems through written SOPs to ensure that this study is conducted and data are generated, documented and reported in compliance with the protocol, GCP and regulations cited in [Section 14](#) of this protocol. Study monitoring may be carried out to accomplish this.

## **13 Audits and Inspections**

If the study is selected for audit by the Sponsor or if there is an inspection by the appropriate Health Authorities, then the PI and her team will make themselves available during the visit. The PI must agree to the inspection of all study related records and give the auditor/inspector direct access to source documents for verification of data on CRFs. The subject's anonymity must be safeguarded and data checked during the audit remain confidential.

As soon as the PI is aware of an upcoming inspection/audit by the Health Authorities, she will promptly inform PDI. As agreed with the PI, PDI personnel might be present at the site during the inspection.

## **14 Ethical and Regulatory Standards**

The study will be conducted in compliance with this protocol, the regulatory guidelines of the US FDA regulations, 21 CFR 50 (Protection of Human Subjects), 56 (IRB), the ethical principles of the Declaration of Helsinki, the ICH-GCP Guidelines as currently amended, and all applicable SOPs of ER

The study will start only after approval of the protocol and ICF including Subjects instruction and Subjects calendar (Main study and Neutralization study) by the IRB/IEC. The approval letter or notice must contain the IRB name and identification number, meeting date, and sufficient information to identify the protocol and ICF form by name and number that were reviewed. PDI prior to study initiation, must receive a copy of the IRB/IEC approval letter.

The IRB used for this study will be:

Name: Advarra, Inc

Address: 6940 Columbia Gateway Drive, Suite 110, Columbia, MD 21046, USA

The IEC used for this study will be:

Name: Institutional ethics committee

Address: 64-66, Marasesti Boulevard, 040256 - Bucharest, Romania

Subject confidentiality is strictly held in trust by the PI, the study staff, and PDI. This confidentiality is extended to cover testing of biological samples in addition to the clinical information relating to participating subjects. Subject confidentiality and anonymity will be maintained at all times by removal of all identifiers from any data, clinical samples or documentation submitted for this study.

Any data collected meeting the definition of protected health information will be collected and maintained using the designated authorizations and following all privacy procedures as specified in the applicable health authority regulations.

PDI will maintain the security and confidentiality of all clinical study data received.

PDI clinical study databases will not be shared with any third party without the express written consent of the PI and/or Research facility.

## **15 Data Handling and Record Keeping**

### **15.1 Completion of Case Report Forms**

The PI or sub-investigator will review all CRF entries for completeness and accuracy. If a correction is required, a single line must be drawn through the error. The person making the correction will initial, date, and provide a reason for the error (if not self-evident).

The PI or sub-investigator must review and sign each CRF in a timely fashion following completion and make them available to the PDI study monitor for monitoring. Before acceptance, the monitor will review the CRFs to ensure accuracy and completeness. The original CRFs will be kept at the Research facility and electronic/scanned copies will be sent to PDI. In addition, any data queries prepared after the original CRFs have been completed must be answered promptly.

## 15.2 Final Clinical Study Report

Final Clinical Study report will be produced by Research facility in collaboration with PDI team.

## 15.3 Records, Reports and Retention Requirements

The PI will maintain study records for a minimum of 10 years following completion of the study. Sponsor will be notified in written regarding the due date of the record retention time.

Records that must be maintained by the PI include, but are not restricted to:

- Signed study protocol, amendments, deviations
- IRB/IEC approval of protocol, ICF including Subjects instruction and Subjects calendar (Main study and Neutralization study)
- Applications to the IRB/IEC
- Signed ICFs
- CRFs
- Adverse event reports
- Records of receipt, use or disposition of the study material
- Correspondence relating to the study
- Investigator Final Report
- Sponsor Final Report (if provided)

No formal presentation or publication of data from this study can be initiated without the sponsor's explicit written agreement and in direct collaboration with the sponsor.

## 16 References

1. ASTM E 1054-08, Standard Test Methods for Evaluation of Inactivators of Antimicrobial Agents, ASTM International, West Conshohocken, PA. 2013, [www.astm.org](http://www.astm.org)
2. ASTM E 1874-14, Standard Test Method for Recovery of Microorganisms from Skin using the Cup Scrub Technique, ASTM International, West Conshohocken, PA. 2014, [www.astm.org](http://www.astm.org)
3. ASTM E1173-15, Standard Test Method for Evaluation of Preoperative, Precatheterization, or Preinjection Skin Preparations, ASTM International, West Conshohocken, PA, 2015, [www.astm.org](http://www.astm.org)
4. Butterfield, C.T. The Selection of a Dilution Water for Bacteriological Examinations. *J. Bacteriol.* 23: 355-368, 1931.
5. Food and Drug Administration (FDA). Safety and Effectiveness of Health Care Antiseptics; Topical Antimicrobial Drug Products for Over-the-Counter Human Use; Final Rule. December 2017. Accessed at <https://www.gpo.gov/fdsys/pkg/FR-2017-12-20/pdf/2017-27317.pdf>
6. Maki DG, Ringer M, Alvarado CJ. Prospective randomized trial of Povidone-Iodine, alcohol, and Chlorhexidine for prevention of infection associated with central venous and arterial catheters. *The Lancet* 1991; Vol. 338: 339-343.
7. Mimoz O, Karim A, et al. Chlorhexidine compared with Povidone-Iodine as skin preparation before blood culture. *Annals of Internal Medicine* 1999; Vol.131; No. 11; 834-837.
8. Williamson, P., Kligman, A.M. A New Method for the Quantitative Investigation of Cutaneous Bacteria. *J. Invest. Dermatol.* 45:498-503, 1965.

## **17 Appendices**

### **17.1 Key Study Personnel, Titles, Responsibilities**

#### **PROFESSIONAL DISPOSABLES INTERNATIONAL INC.:**

James Clayton Sponsor Representative

#### **EUROFINS EVIC PRODUCT TESTING ROMANIA S.R.L.:**

Rozalia Olsavszky MD Principal Investigator

Dermatologist

#### **EUROFINS EVIC PRODUCT TESTING ROMANIA S.R.L.:**

Elena Chitoiu MD Sub-Investigator

Resident Dermatologist

#### **EUROFINS EVIC PRODUCT TESTING ROMANIA S.R.L.:**

Getuta Dopcea Microbiology Laboratory Manager

Microbiologist

## 17.2 Study Summary

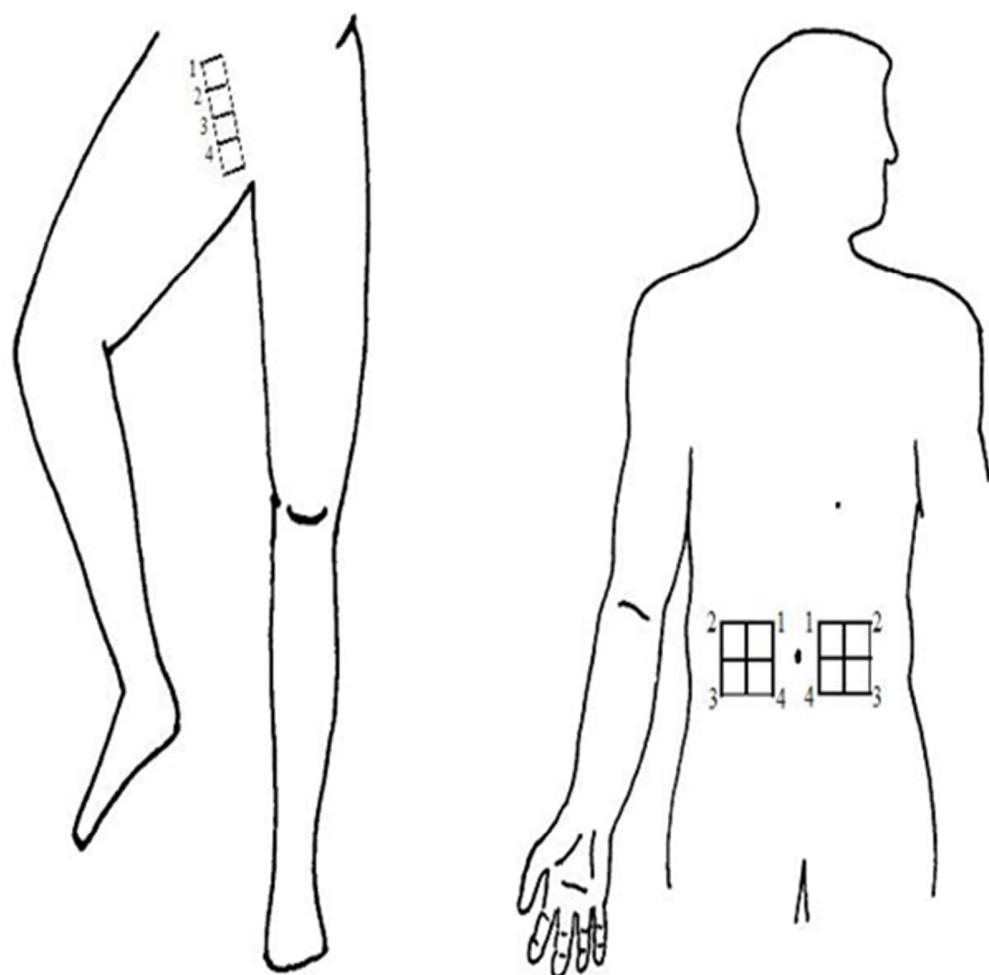
### 17.2.1 Main study

Pre-Study Preparation	Screening Phase		Treatment Phase	
	At least 14 Day Restriction Period	Screening Day	Abdominal Region	Groin Region
Staff reviews study protocol	Initiation of consenting process	Complete Screening Inclusion/ Exclusion Criteria form	Complete Treatment Inclusion/ Exclusion Criteria form	
Prepare ICF, Subjects instruction and Subjects calendar (Main study and Neutralization)	Review study ICF and Inclusion/ Exclusion Criteria	Visual skin assessment (abdominal and groin regions)	Visual skin assessment (abdominal and groin regions)	
Obtain IRB/ IEC approval	Review subject instructions	Collect screening baseline samples from abdominal and groin regions	Mark test areas, Collect baseline samples	
Recruit subjects	Subject signs ICF	Count screening plates, determine which subjects qualify for study	Apply test products	
Prepare subject kits	Visual skin assessment (abdominal and groin regions) and Inclusion/ Exclusion Criteria	Contact and enroll eligible subjects, schedule Treatment Day	Visual skin assessment, within 30 seconds post-prep sample	Visual skin assessment, within 30 seconds post-prep sample
Prepare CRFs and appendices to CRFs (Main study and Neutralization)	Dispense subject kits	Schedule for clipping/ re-clipping, if needed, approximately 48-96 hours prior to Treatment Day visit	Visual skin assessment, 10 minutes post-prep sample	Visual skin assessment, 10 minutes post-prep sample
	Schedule for clipping/re-clipping, if needed, approximately 48-96 hours prior to	No bathing / showering 72 hrs. prior to Treatment Day visit	Visual skin assessment, 6 hours post-prep sample	Visual skin assessment, 6 hours post-prep sample
	No bathing / showering 72 hrs. prior to screening visit		Count Treatment Day Baseline plates, determine qualification	Count Treatment Day Baseline plates, determine qualification

### 17.2.2 Neutralization study

Pre-Study Preparation	Neutralization day	
	At least 7 Day Restriction Period	Neutralization day Abdominal Region
Recruit subjects	Initiation of consenting process	Complete Treatment Inclusion/ Exclusion Criteria form
Prepare subject kits	Review study ICF and Inclusion/ Exclusion Criteria	Visual skin assessment (abdominal region)
	Review subject instructions	Mark test areas
	Subject signs ICF	Apply test products
	Visual skin assessment (abdominal and groin regions) and Inclusion/ Exclusion Criteria	Visual skin assessment, within 30 seconds post-prep sample
	Dispense subject kits	Count Neutralization Day plates
	Schedule for clipping/re-clipping, if needed, approximately 48-96 hours prior to neutralization day	

### 17.3 Abdomen and Groin Diagram



#### 17.4 Randomization Scheme Example

The randomization will be provided in a separate document.

Randomization number	Body Area	Product Left Side	Product Right Side	Site 1	Site 2	Site 3	Site 4

## 17.5 Subject Instructions

### 17.5.1 Subject Instructions for Main Study

**The following instructions are to be followed until the completion of the study**

- Use only the soap provided for all bathing, sponge bathing and hand washing.
- Use only the shampoo provided when washing your hair.
- Do not use antiperspirants or deodorants (other than those provided to you in the kit), lotions, colognes, perfumes, after shaves or powders.
- Do not come in contact with solvents, acids, bases, fabric softener-treated clothing or other household chemicals in the abdominal and upper thigh body areas.
- Do not swim in chemically treated pools or bathe in hot tubs, whirlpools or spas.
- Do not use tanning beds.
- Do not shave, use depilatories or hot waxes on the abdomen or upper thigh areas. If hair is present, allow study staff to clip hair at a designated time.
- Do not apply any medicated creams or ointments to any area of your skin, nor should you take any antibiotics. If antibiotics are necessary due to illness, please report this to Chitoiu Elena, Dermatologist at Phone: +40213357090 (work), or Mobile: +40 721322073 (home) immediately.

**Additional Instructions for Screening Day Visit dd/mm/yyyy \_ / \_ / \_**

- Do not bathe or shower in the 72-hour period before your scheduled appointment. A sponge bath may be taken, but avoid the areas of the lower abdomen, and/or upper thigh.
- You may be required to return to the Research facility approximately 48-96 hours before your Screening day Visit for hair clipping.
- On the day of the Screening Day Visit, you will be required to return to the Research facility for the screening baseline sampling procedures.
- You will be contacted by telephone as to whether you have met the established criteria and therefore will be returning for a Treatment Day Visit (if selected). Remember to continue to use your kit products until you have been eliminated or have completed the study.

**Additional Instructions for Treatment Day Visit (if you are selected) dd/mm/yyyy \_ / \_ / \_**

- Do not bathe or shower in the 72-hour period before your scheduled appointment and for the rest of the study. A sponge bath may be taken, but avoid the areas of the lower abdomen, and/or upper thigh.
- You may be required to return to the Research facility at least approximately 48-96 hours before your Treatment Day Visit for hair clipping.
- On the Treatment Day Visit, you will return to the Research facility for treatment and the initial sampling.
- You will be required to stay in the test facility for the 6-hours ± 30 minutes post-prep skin sampling (as scheduled).

**If you have questions about this study or in case of emergency, contact any time during business hours or/and after business hours:**

**CHITOIU ELENA, Resident Dermatologist**

**Phone: +40213357090 (work)**

**Mobile: +40729066737 (home)**

### **17.5.2 Subject Instructions for Neutralization Study**

#### **The following instructions are to be followed until the completion of the study**

- Use only the soap provided for all bathing, sponge bathing and hand washing.
- Use only the shampoo provided when washing your hair.
- Do not use antiperspirants or deodorants (other than those provided to you in the kit), lotions, colognes, perfumes, after shaves or powders.
- Do not come in contact with solvents, acids, bases, fabric softener-treated clothing or other household chemicals in the abdominal and upper thigh body areas.
- Do not swim in chemically treated pools or bathe in hot tubs, whirlpools or spas.
- Do not use tanning beds.
- Do not shave, use depilatories or hot waxes on the abdomen or upper thigh areas. If hair is present, allow study staff to clip hair at a designated time.
- Do not apply any medicated creams or ointments to any area of your skin, nor should you take any antibiotics. If antibiotics are necessary due to illness, please report this to Chitoiu Elena, Dermatologist at Phone: +40213357090 (work), or Mobile: +40 721322073 (home) immediately.

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#### **Additional Instructions for Neutralization Study Visit (if you are selected) \_ / \_ / \_**

- You may be required to return to the Research facility at least approximately 48-96 hours before your Treatment Visit for hair clipping.
- On the Treatment Day Visit, you will return to the Research facility for treatment and sampling.

**If you have questions about this study or in case of emergency, contact any time during business hours or/and after business hours:**

**CHITOIU ELENA, Resident Dermatologist**

**Phone: +40213357090 (work)**

**Mobile: +40729066737 (home)**

## **17.6 Treatment Application Instructions**

### **Investigational Product: Treatment A (Project X 26 ml)**

#### Treatment Site Application Instructions – Abdomen

1. Peel open package and remove swabstick – do not touch swab.
2. Hold the swabstick with swab down.
3. Press down the antiseptic reservoir to release the antiseptic to the swab.
4. Wet the swab by repeated blotting against the treatment area until antiseptic is visible on the skin.
5. Thoroughly wet the treatment area with antiseptic using gentle back-and-forth strokes.
6. Repeat steps 4 & 5 for **30 seconds**
7. Do not apply swab beyond borders of marked skin areas by more than one swab width.
8. Allow antiseptic to completely dry (minimum of 3 minutes).
9. Do not blot or wipe dry

#### Treatment Site Application Instructions – Groin

1. Peel open package and remove swabstick – do not touch swab.
2. Hold the swabstick with swab down.
3. Press down the antiseptic reservoir to release the antiseptic to the swab.
4. Wet the swab by repeated blotting against the treatment area until antiseptic is visible on the skin.
5. Thoroughly wet the treatment area with antiseptic using gentle back-and-forth strokes.
6. Repeat steps 4 & 5 for **2 minutes**
7. Do not apply swab beyond borders of marked skin areas by more than one swab width.
8. Allow antiseptic to completely dry (minimum of 3 minutes).
9. Do not blot or wipe dry.

### **Investigational Product: Treatment B (Project X 5.1 ml)**

#### Treatment Site Application Instructions – Abdomen

1. Peel open package and remove swabstick – do not touch swab.
2. Hold the swabstick with swab down.
3. Press down the antiseptic reservoir to release the antiseptic to the swab.
4. Wet the swab by repeated blotting against the treatment area until antiseptic is visible on the skin.
5. Thoroughly wet the treatment area with antiseptic using gentle back-and-forth strokes.
6. Repeat steps 4 & 5 for **30 seconds**
7. Do not apply swab beyond borders of marked skin areas by more than one swab width.
8. Allow antiseptic to completely dry (30 seconds).

9. Do not blot or wipe dry.

**Treatment Site Application Instructions – Groin**

1. Peel open package and remove swabstick – do not touch swab.
2. Hold the swabstick with swab down.
3. Press down the antiseptic reservoir to release the antiseptic to the swab.
4. Wet the swab by repeated blotting against the treatment area until antiseptic is visible on the skin.
5. Thoroughly wet the treatment area with antiseptic using gentle back-and-forth strokes.
6. Repeat steps 4 & 5 for **2 minutes**
7. Do not apply swab beyond borders of marked skin areas by more than one swab width.
8. Allow antiseptic to completely dry (90 seconds).
9. Do not blot or wipe dry.

**Positive Control: Treatment C (Prevantics® Maxi Swabstick)**

**Treatment Site Application Instructions – Abdomen**

1. Peel open package and remove swabstick – do not touch swab.
2. Place one flat side of the foam tip within the pre-measured treatment area, and prep with back-and-forth repeated strokes for 15 seconds.
3. Turn the Maxi-swabstick over and repeat the procedure for 15 seconds.
4. Do not apply swab beyond borders of marked skin areas by more than one swab width.
5. Allow the area to completely air-dry; approximately 30 seconds.
6. Do not blot or wipe dry.

**Treatment Site Application Instructions – Groin**

1. Peel open package and remove swabstick – do not touch swab.
2. Place one flat side of the foam tip within the pre-measured treatment area, and prep with back-and-forth repeated strokes for 60 seconds.
3. Turn the Maxi-swabstick over and repeat the procedure for 60 seconds
4. Do not apply swab beyond borders of marked skin areas by more than one swab width.
5. Allow the area to completely air-dry; approximately 90 seconds.
6. Do not blot or wipe dry.

## 17.7 Procedure for Neutralization Validation

### 17.7.1 Background

The sampling solution, SSF++ is a buffered detergent solution that is commonly used in studies where microbial sampling of skin is conducted. Neutralizers have been added to inactivate the antimicrobial, CHG, present in test treatments. The effectiveness and toxicity of this neutralizer system must be assessed to demonstrate that there is no effect on the growth of microorganisms and that the active ingredient is inactivated.

The density of normal human skin flora generally ranges from  $10^2$  to  $10^5$  CFU/cm<sup>2</sup> depending on the body site. However, since significant neutralizer or toxic effects are more easily detected at a lower cell density, the efficacy and toxicity of this neutralizer system will be assessed against a lower bacterial concentration.

This is a test where the study materials are applied to the abdomen and the treated areas will be sampled. After sampling, *Staphylococcus epidermidis*, a selected representative of normal skin flora will be added into a portion of each sample. Each sample will then be processed using procedures in accordance with ASTM E1054-08(2013). Two samples will be taken from each treatment area whereas one sample will be processed using a methicillin-sensitive *Staphylococcus epidermidis* (MSSE) (ATCC 12228) strain and the remaining sample will be processed using methicillin-resistant *Staphylococcus epidermidis* (MRSE) (ATCC 51625) strain of the test organism.

### 17.7.2 Objective

This control assay will determine the ability of the SSF++ to completely neutralize the active ingredients in the test treatments by recovering and quantifying microorganism populations on agar media and is appropriate for antimicrobial agents that can be chemically inactivated or diluted to sub-inhibitory levels. Each test will be performed in triplicate.

### 17.7.3 Subject Entry Criteria

Six subjects will be used for the neutralization validation required for this study. Each subject must meet the inclusion and exclusion criteria described in Sections 4.1 and 4.2.

No minimum bacterial count is required and the washout period is only necessary for 7 days (not 14 days). The subjects will be asked to provide information on demographics and inclusion/exclusion criteria and sign the ICF before beginning the 7-day washout period. When the subjects return for clipping/re-clipping or to begin their participation in the study they will again be asked to provide information relative to inclusion/exclusion criteria.

If they meet all inclusion/exclusion criteria, they may be enrolled.

- At washout subjects will be assigned numbers starting with 01 to 06
- At Neutralization day subjects will be assigned numbers with 01 and the letter "N": N01

The test article and active control will be applied to the abdomen regions so that three applications are performed for each treatment using bilateral application. The treatments per subject will be randomized. One treatment area will be located on one side of the body and the remaining treatment area on the other side. Each treatment site will have two sampling sites.

### 17.7.4 Test Organism

The test organisms for this study are:

- Methicillin-resistant *Staphylococcus epidermidis* (MRSE), ATCC 51625
- Methicillin-sensitive *Staphylococcus epidermidis* (MSSE), ATCC 12228

### **17.7.5 Study Products**

See [section 3.4](#) of the protocol.

### **17.7.6 Materials, Supplies and Equipment**

See [section 3.4.3](#) of the Protocol. In addition, 70% IPA swabs.

### **17.7.7 In-vivo Test Procedures**

Preparation of Test Area and Post-Prep Sampling: Neutralization samples will be taken from the abdomen. The subject number, location of the prep application, location of the sites sampled within the prep area, and the time of sample collection will be documented on the CRF. The subject will be treated with the study product based on the following:

- For each side of the body, mark the abdominal test areas using the corresponding sterile template per study material. The 1.5" x 5.0" (3.81 cm x 12.7 cm) area will be delineated with each containing two 1" x 1" (2.54 cm x 2.54 cm) sampling sites (one each will be used for each test organism).
- After the test areas are marked, each area will be processed using three 70% IPA swabs for a total of one minute to prepare the site; the areas will be allowed to dry. This step is to prepare the skin for the neutralization test.
- Subjects participating in the neutralization portion of the study will be randomized using a randomization schedule which will be provided in a separate document.
- Prep the test areas with the appropriate treatment according to the randomization schedule and the instructions provided in [Appendix 17.6](#), (using groin treatment application procedures).
- Using the scrub cup technique at approximately 30 seconds post-prep, begin collecting samples from each site using SSF++. This technique is described in [Section 5.2.1](#). For the two sites within each area; the samples will be collected simultaneously by two technicians.

### **17.7.8 In vitro Test Procedures**

#### **17.7.8.1 Inoculum Preparation**

One day prior to beginning the neutralization assay, the test organisms from a working stock culture slant or plate will be inoculated onto TSA plates. The plates will be incubated for  $24 \pm 4$  hours at  $35^\circ \pm 2^\circ\text{C}$ . Immediately prior to initiating the neutralization assay, an inoculum suspension for each test organism will be prepared in PBW solution from the overnight culture on the TSA plate, and the concentration adjusted to approximately  $10^8 - 10^9$  CFU/ml. Bacterial suspension will be further diluted with PBW to achieve an appropriate concentration (approximately  $10^4$  CFU/ml) for inoculation of the test samples. The density of the test inocula will be verified by direct plating at the beginning and end of the study.

#### **17.7.8.2 Test**

(Note – the reference to test product applies to both the investigational products and the active control; all procedures outlined, where applicable will employ both products. In addition, using two samples taken within each treatment area; all procedures, as applicable will be performed using one sample for each of the two test organisms.)

#### **17.7.8.2.1 Neutralizer effectiveness (Test 1)**

- a) Out of the 6.0 mL aliquot of sampling solution taken from the volunteer, 5.0 mL will be transferred to a new sterile tube and inoculated with the challenge microorganism so that the final concentration will equal 30 – 100 CFU/ml of the challenge microorganism (the prepared inoculum will be diluted using PBW to achieve the desired concentration, a 0.1 mL aliquot from the 10<sup>-4</sup> dilution will be used).
- b) Within one min after the addition of the challenge microorganism, the microorganisms will be enumerated by standard microbiological methods extant in the laboratory.
- c) Triplicate 0.75 mL aliquots will be removed and plated using TSA+N pour plates.
- d) After 30 minutes, the microorganisms will be enumerated a second time using the same procedures.
- e) This procedure will be repeated two times for a total of three replicates per test product per time point.

#### **17.7.8.2.2 Sampling fluid (SSF++) toxicity (Test 2)**

- a) A 5.0 mL aliquot of sampling solution will be inoculated with the challenge microorganism so that the final concentration will equal 30 – 100 CFU/ml of the challenge microorganism in the same manner as Test 1.
- b) Within one min after the addition of the challenge microorganism, the microorganisms will be enumerated by standard microbiological methods extant in the laboratory.
- c) Triplicate 0.75 mL aliquots will be removed and plated using TSA+N pour plates.
- d) After 30 minutes, the microorganisms will be enumerated a second time using the same procedures.
- e) This procedure will be repeated two times for a total of three replicates per test product per time point.

#### **17.7.8.2.3 Test microorganism viability control (Test 3)**

- a) A 5.0 mL aliquot of PBW will be inoculated with a volume of the challenge microorganism so that the resulting suspension contains 30 – 100 CFU/ml in the same manner as Test 1.
- b) Within one min the microorganisms will be enumerated by standard microbiological methods extant in the laboratory.
- c) Triplicate 0.75 mL aliquots will be removed and plated using TSA pour plates.
- d) After 30 minutes, the microorganisms will be enumerated a second time using the same procedures.
- e) This procedure will be repeated two times for a total of three replicates per test product per time point.

#### 17.7.8.2.4 Test product control (Test 4)

- a) A 5.0 mL aliquot of the investigational product or active control will be inoculated with a volume of the challenge microorganism so that the resulting suspension contains 30 – 100 CFU/ml in the same manner as Test 1.
- b) Within one minute the microorganisms will be enumerated by standard microbiological methods extant in the laboratory.
- c) Triplicate 0.75 mL aliquots will be removed and plated using TSA pour plates.
- d) After 30 minutes, the microorganisms will be enumerated a second time using the sample procedures.
- e) This procedure will be repeated two times for a total of three replicates per test product.

#### 17.7.9 Incubation

All plates for Tests 1, 2, 3, and 4 will be incubated for  $48\pm 2$  hours at  $35\pm 2$  °C.

#### 17.7.10 Interpretation of data

- a) The number of surviving challenge microorganisms for each replicate from each test will be average count of the three plates.
- b) The number of survivor values will be transformed to  $\log_{10}$ .
- c) The number of survivors ( $\log_{10}$ ) from each test (1, 2, and 4) will be compared to the test microorganism viability population (Test 3).
- d) Neutralization aspects of the SSF++ will be considered adequate if the mean  $\log_{10}$  CFU/ml of Test 1 is not more than 0.20  $\log_{10}$  less than the mean  $\log_{10}$  CFU/ml of Test 3 (Mean  $\log_{10}$  CFU/ml from Test 4 – Mean  $\log_{10}$  CFU/ml from Test 1 using corresponding time points).
- e) The SSF++ will be considered non-toxic if the mean  $\log_{10}$  CFU/ml of Test 2 is not more than 0.20  $\log_{10}$  less than the mean  $\log_{10}$  CFU/ml of Test 3 (Mean  $\log_{10}$  CFU/ml from Test 3 – Mean  $\log_{10}$  CFU/ml from Test 2 using corresponding time points).
- f) The mean  $\log_{10}$  CFU/ml from Test 4 must be at least 0.20  $\log_{10}$  less than the mean  $\log_{10}$  CFU/ml of Test 3.
- g) The amount of CFU added for each aspect must be confirmed to yield a final suspension containing 30-100 CFU/ml (validated in test 3).
- h) The absence of growth controls must be negative for growth.

#### 17.7.11 Controls

Absence of growth control:

Triplicate plates of TSA and TSA+N used will be incubated with the test. In addition, triplicate 1.0 ml aliquots of SSF++ and PBW will be plated using TSA. All plates will be incubated with the test.

### 17.8 Skin Irritation Rating Scale

Skin Irritation Scoring System		
Condition	Rating	Description
Erythema	0	No reaction
	1	Mild and/or transient redness limited to sensitive area
	2	Moderate redness persisting over much of the product-exposed area
	3*	Severe redness extending over most or all of the product-exposed area
Edema	0	No reaction
	1	Mild and/or transient swelling limited to sensitive area
	2	Moderate swelling persisting over much of the product-exposed area
	3*	Severe swelling extending over most or all of the product-exposed area
Rash	0	No reaction
	1	Mild and/or transient rash limited to sensitive area
	2	Moderate rash persisting over much of the product-exposed area
	3*	Severe rash extending over most or all of the product-exposed area
Dryness	0	No reaction
	1	Mild and/or transient dryness limited to sensitive area
	2	Moderate dryness persisting over much of the product-exposed area
	3*	Severe dryness extending over most or all of the product-exposed area

\* A score of 3 in one or more of the conditions evaluated represents significant irritation and qualifies as an Adverse Event.

**17.9 Confirmation of Release and Receipt of Study Materials**

<b>CONFIRMATION OF RELEASE and RECEIPT OF STUDY MATERIALS</b>			
<b>Investigator:</b> Rozalia Olsavszky M.D. <b>Study No:</b> ER 18/282 <b>Research facility:</b> EUROFINS EVIC PRODUCT TESTING ROMANIA S.R.L.			
Quantity (Units)	Description	ID/Lot Number	Exp. Date

Supplies Released to Research facility by: \_\_\_\_\_

Sponsor Signature

Supplies Sent to Research facility (Date):\_\_\_\_\_

Supplies Checked and Verified by:\_\_\_\_\_

Signature

Date

\_\_\_\_\_  
Print Name, Title

Once the supplies have been verified and this form is signed / dated, a signature copy will be sent to the sponsor representative: [James.Clayton@pdipdi.com](mailto:James.Clayton@pdipdi.com).

## **17.10 Study Material Disposition Form**

Use one form for each study material.

<b>Study Number:</b> ER 18/282	
<b>Principal Investigator:</b> Rozalia Olsavszky M.D.	<b>Research facility:</b> EUROFINS EVIC PRODUCT TESTING ROMANIA S.R.L.

Study Material ID	Date Received	Quantity Received	Lot Number/ Serial Number	Date Returned to Sponsor