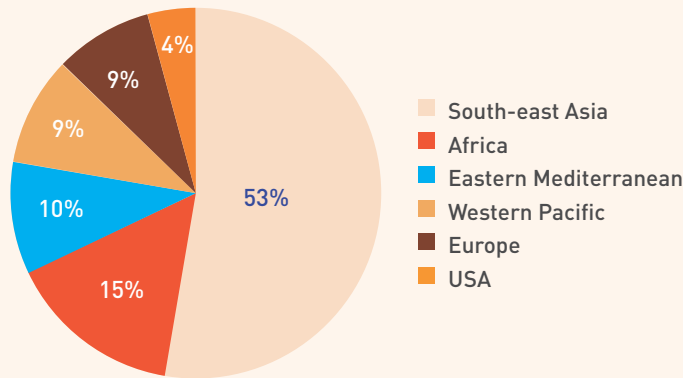


**FAST HEALING...
IN BURNS & WOUND
MANAGEMENT**



SLVRGEN[®]
Recombinant Human Epidermal Growth Factor, Silver Sulfadiazine & Chlorhexidine Gluconate Cream

REGIONAL DISTRIBUTION OF FIRE BURNS MORTALITY¹



INDIA CONTRIBUTES TO >50% OF GLOBAL BURNS MORTALITY

Global²⁻⁴

- ~11 million injuries²
- Loss of ~18 million DALYs⁴ (disability-adjusted life years)
- >265,000 deaths⁴

India^{3,5}

- ~1 million injuries³
- 240,000 suffer with disabilities⁵
- 140,000 deaths⁵

SLVRGEN® is an innovative fusion of biotechnological & pharmaceutical components.⁶

Recombinant Human Epidermal Growth Factor (rhEGF)

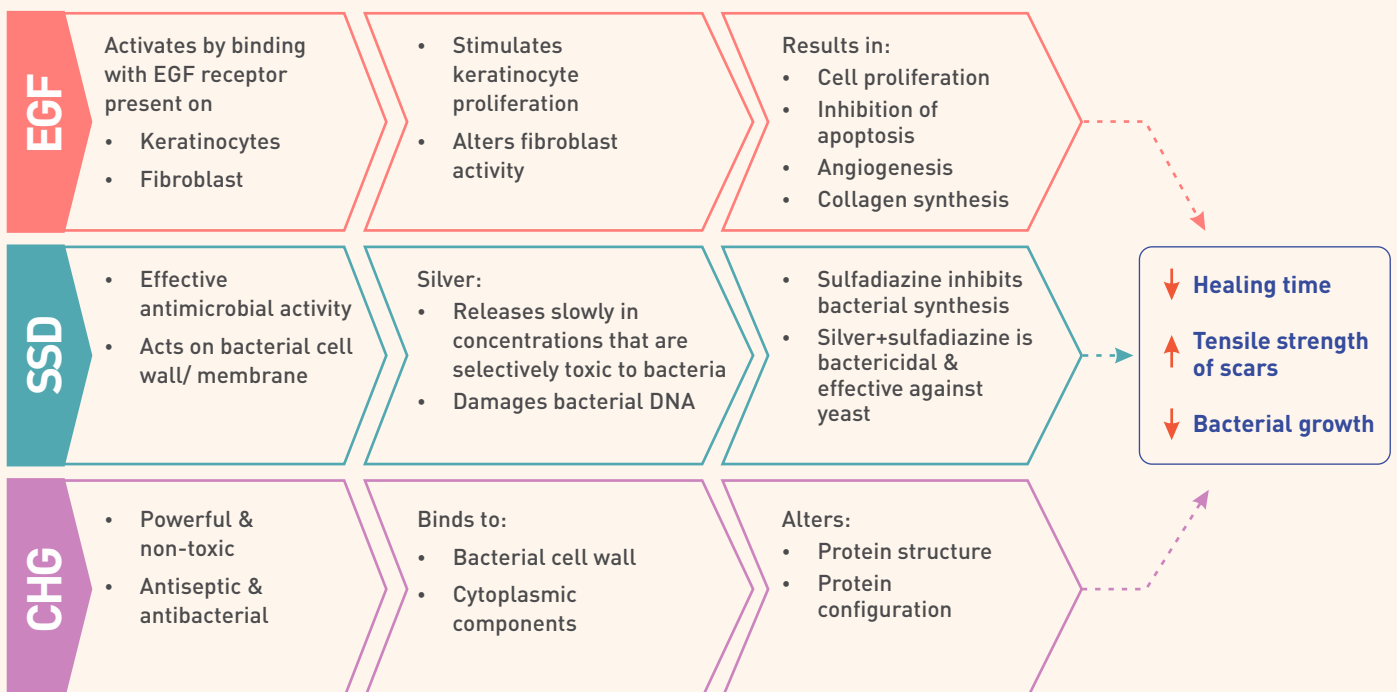


Silver Sulfadiazine (SSD)



Chlorhexidine Gluconate (CHG)

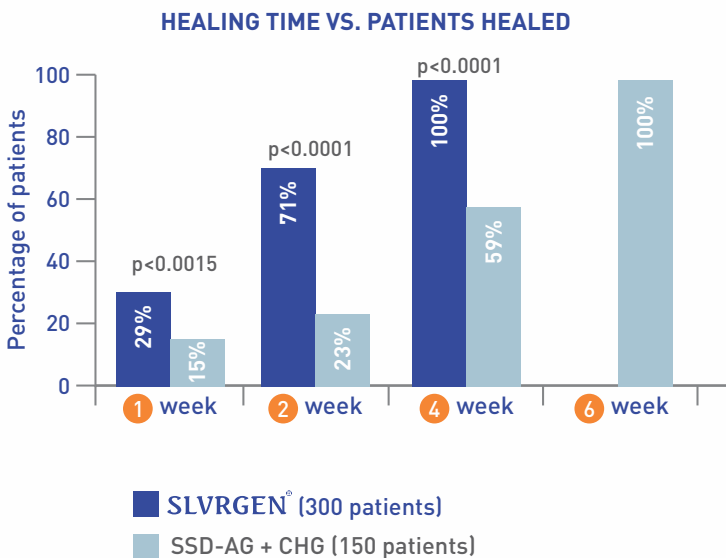
SLVRGEN® - MECHANISM OF ACTION⁶



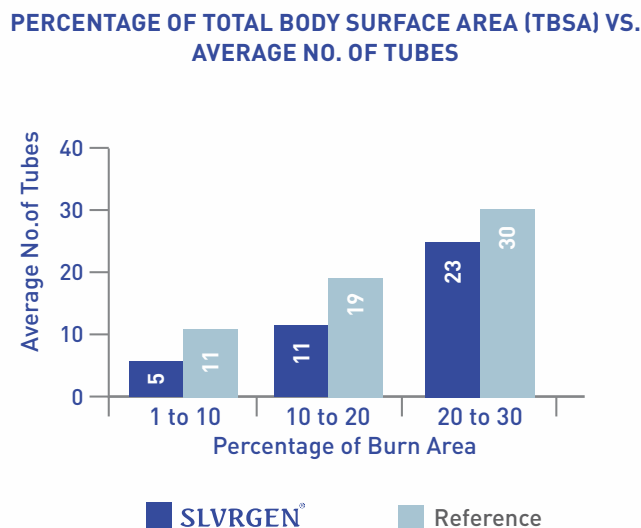
1. Best practice guidelines: effective skin and wound management of non-complex burns. *Wounds International*. 2014.
 2. Stokes M. Burns in the third world: an unmet need. *Annals of Burns and Fire Disasters*. 2017; 30(4), 243-246.
 3. WHO Factsheet on Burns. Available at: <https://www.who.int/en/news-room/fact-sheets/detail/burns>. Accessed August 13, 2019.
 4. Rybarczyk MM. Prevention of burn injuries in low and middle-income countries: A systematic review. *Burns*. 2016;42(6):1183-1192.
 5. Burns. NHP India. National Health Portal. 2019. <https://www.nhp.gov.in/disease/skin/burns>. Accessed August 13, 2019.
 6. SLVRGEN. Product Monograph. BBIL. 2014.

Efficacy & safety of SLVRGEN® in comparison with commercially available silver sulfadiazine preparation in healthy participants with superficial & partial thickness burns

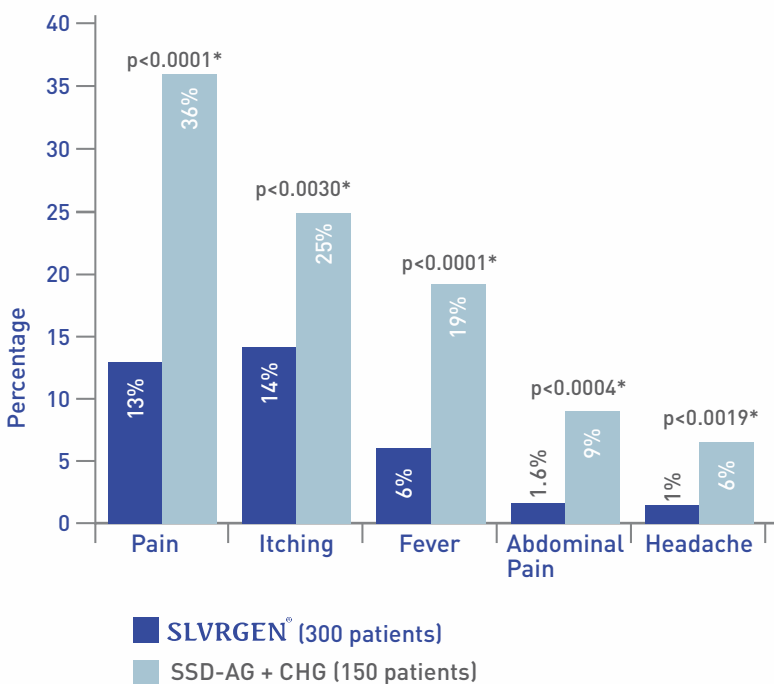
WOUND HEALING TIME IN SLVRGEN® & REFERENCE GROUP



BURN AREA & AVERAGE NO. OF TUBES PER SUBJECT



PERCENTAGE OF ADVERSE EVENTS BETWEEN TWO TREATMENT GROUPS



*The p values were calculated for the above events using Chi-square without yates correction.

GLOBAL PATENT

Patent No. PCT/IN 2010/000468
(publication number: 2011/151835 AI)
Title: A novel synergistic pharmaceutical composition for topical application

- (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)
- (19) World Intellectual Property Organization International Bureau
- (43) International Publication Date 8 December 2011 (08.12.2011)



(10) International Publication Number
WO 2011/151835 AI

- (71) Applicant (for all designated States except US):
BHARAT BIOTECH INTERNATIONAL LIMITED
[IN/IN]; Genome Valley, Turkapally, Shameerpet,
Hyderabad 500 078, Andhra Pradesh (IN).

KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TI, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

PHOTOGRAPHS SHOWING FAST HEALING WITH SLVRGEN[®]



Healing Time: 4 weeks



Healing Time: 4 weeks



WHY SLVRGEN® ?

The conventional SSD usage delays wound healing process by⁷⁻⁹:

- Absorption of silver from burn wounds leading to cytotoxicity
- Causing bacterial resistance
- Insufficient or delayed production of growth promoting factors and their receptors

Studies show that cytoprotective effect offered by EGF against SSD-exposed cell leads to reversal of impaired wound healing, early cell proliferation & epithelization.⁷

DIFFERENTIATING SLVRGEN® FROM OTHER TOPICAL REGIMENS

Parameters	SLVRGEN®	Silver Sulfadiazine	Colloidal Silver
Composition	Recombinant human Epidermal Growth Factor + Silver Sulfadiazine + Chlorhexidine Gluconate	Silver Sulfadiazine + Chlorhexidine Gluconate	Colloidal Silver
Pharmaceutical form	Topical cream	Topical cream	Topical gel
Therapeutic indication	Indicated for 1 st & 2 nd degree burns. Can also be used for minor cuts, abrasions, incisions & wounds.	Burns, wound sepsis, lesions of the skin, wounds & injuries.	Burns, wounds & ulcers.
Silver content	Silver sulfadiazine 1% w/w	Silver sulfadiazine 1% w/w	Colloidal silver 32 ppm
Frequency of application	Reapplied at least every 24 hours	Multiple times a day	Multiple times a day
Storage temperature	Stable at room temperature	Stable at room temperature	Stable at room temperature
Observation	The cytotoxic property of SSD in retarding the wound healing can be reversed with the addition of rhEGF. ^{† 7,10} SLVRGEN® synergistically plays a vital role in controlling infection & also promoting fast wound healing.	Adsorption of silver from burn wounds leads to impairment of dermal regeneration & decreases the mechanical strength of dermal tissue. ^{† 7,11}	Silver poisoning is a well-known issue. ¹²

ppm, parts per million; w/w, weight by weight; † As per several studies conducted on rhEGF & SSD.

SLVRGEN® is cost effective in comparison with commercially available silver sulfadiazine as it significantly decreases the time of burn wound closure, follow-up visits & number of tubes required.

7. Cho Lee, AR, et al. Reversal of silver sulfadiazine-impaired wound healing by epidermal growth factor. *Biomaterials*. 2005;26(22):4670-4676.
8. Hidalgo E. Study of cytotoxicity mechanisms of silver nitrate in human dermal fibroblasts. *Toxicol Lett*. 1998;98(3):169-179.
9. Poon VK. In vitro cytotoxicity of silver: implication for clinical wound care. *Burns*. 2004;30(2):140-147.
10. McCauley RL, et al. Cytoprotection of human dermal fibroblasts against silver sulfadiazine using recombinant growth factors. *J Surg Res*. 1994;56(4):378-84.
11. White RJ, et al. Silver Sulphadiazine: *A review of the evidence*. Wounds UK.
12. Niels Hadrup, et al. Oral toxicity of silver ions, silver nanoparticles and colloidal silver – A review. *Regul Toxicol Pharmacol*. 2014;68(1):1-7

SLVRGEN[®]

Recombinant Human Epidermal Growth Factor, Silver Sulfadiazine & Chlorhexidine Gluconate Cream



Available in
15 gms & 30 gms

ABRIDGED PRESCRIBING INFORMATION

Composition: Each gram of gel contains Recombinant Human Epidermal Growth Factor 10 µg/gm, 1.0% w/w silver sulfadiazine, 0.20% w/w chlorhexidine gluconate. **Indications:** SLVRGEN[®] is primarily used for treatment of 1st & 2nd degree burns and also can be used for abrasions, incisions, minor cuts and wounds. **Contraindications:** Sulfonamide therapy is known to increase the possibility of kernicterus; SLVRGEN[®] should not be used in pregnant females at term, in premature infants, or in newborn infants in the first month of life. rh-EGF is generally well tolerated. However, the product should not be used on patients with a known sensitivity to any of its components. **Dosage and administration:** The burn wounds should be cleaned and SLVRGEN[®] cream applied over all the affected areas. SLVRGEN[®] should be re-applied at least every 24 hours. **Precautions:** SLVRGEN[®] should be used with caution if hepatic or renal function is significantly impaired. Leukopenia has been reported following the use of SSD-Ag, especially on patients with large area burns. This may be a drug-related effect, and often occurs 2 to 3 days after treatment has commenced. It is usually self-limiting and therapy with SSD-Ag does not normally need to be discontinued, as the WBC count usually returns to the normal range in a few days. SLVRGEN[®] should only be used in badly burned pregnant women if the benefit to the patient outweighs the risk to the fetus. SSD-Ag should not be used when the patient is near term. **Storage and stability:** Store at room temperature (25°C.) Keep the cap tightly closed after use. After completion of treatment, any cream remaining in the tube should be discarded. **Adverse events:** Adverse events may occur such as pain, itching, rash, skin irritation, fever, abdominal pain and headache. **Clinical data:** A Phase 4, Post-marketing surveillance study was performed, on a total of 450 Patients with superficial and partial thickness burn were recruited at 11 clinical centres across India. The combination of silver sulfadiazine, chlorhexidine and recombinant epidermal growth factor in SLVRGEN[®] offers the advantage of the broad spectrum of activity, synergistic antimicrobial action, a very low potential for the development of resistant strains and early healing of wound due to an increased rate of Cell Proliferation, Maturation and Epithelization. **Pharmacodynamic properties:** Silver sulfadiazine acts on the cell membrane and cell wall of microorganisms to produce its bactericidal effect. Chlorhexidine gluconate is adsorbed onto the cell walls of microorganisms, which causes leakage of intracellular components. At low concentrations, chlorhexidine gluconate is bacteriostatic; at higher concentrations, it is bactericidal. Epidermal Growth Factor (EGF) peptide induces cellular proliferation through the EGF receptor, which has a tyrosine kinase cytoplasmic domain, a single transmembrane domain and an extracellular domain involved in EGF binding and receptor dimerization. **Pharmacokinetic properties:** The degree of silver sulfadiazine uptake will significantly depend upon the surface area of the wound and the dosing regimen. No silver deposits have been observed in renal tissues, usually, sulfadiazine is excreted in the urine.¹ Chlorhexidine is poorly absorbed through the intact skin; systemic absorption may occur from the broken skin. Chlorhexidine is metabolized in the liver; it is excreted largely unchanged in faces through the bile.² 1. <https://www.pdr.net/drug-summary/Silvadene-silver-sulfadiazine-2781>. 2. Product monograph[®] chlorhexidine alcohol free. Chlorhexidine Gluconate Oral Rinse, 0.12% w/w House Standard. Euro-Pharm International Canada Inc. 9400 Boul. Langelier Montreal, Quebec H1P 3H8.

ANAMAY
BIOTECH

MARKETED BY
Anamay Biotech Private Limited
Ground floor, Plot No.2,
Padmaja Cooperative Housing Society,
Kakaguda, Karkhana,
Hyderabad- 500015, Telangana
www.anamaybiotech.com

MANUFACTURED BY
Bharat Biotech International Ltd.
Genome Valley, Shameerpet Mandal,
Medchal District - 500078,
Telangana, India.
www.bharatbiotech.com

NOW AVAILABLE AT