

Antimicrobial DDS

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2024

Targeted antibiotic therapy

Infection prevention (HIV/STD)

Lipid vesicles

SEDDS

Intrapocket Drug Delivery

Antibiotic beads

Oral DDS

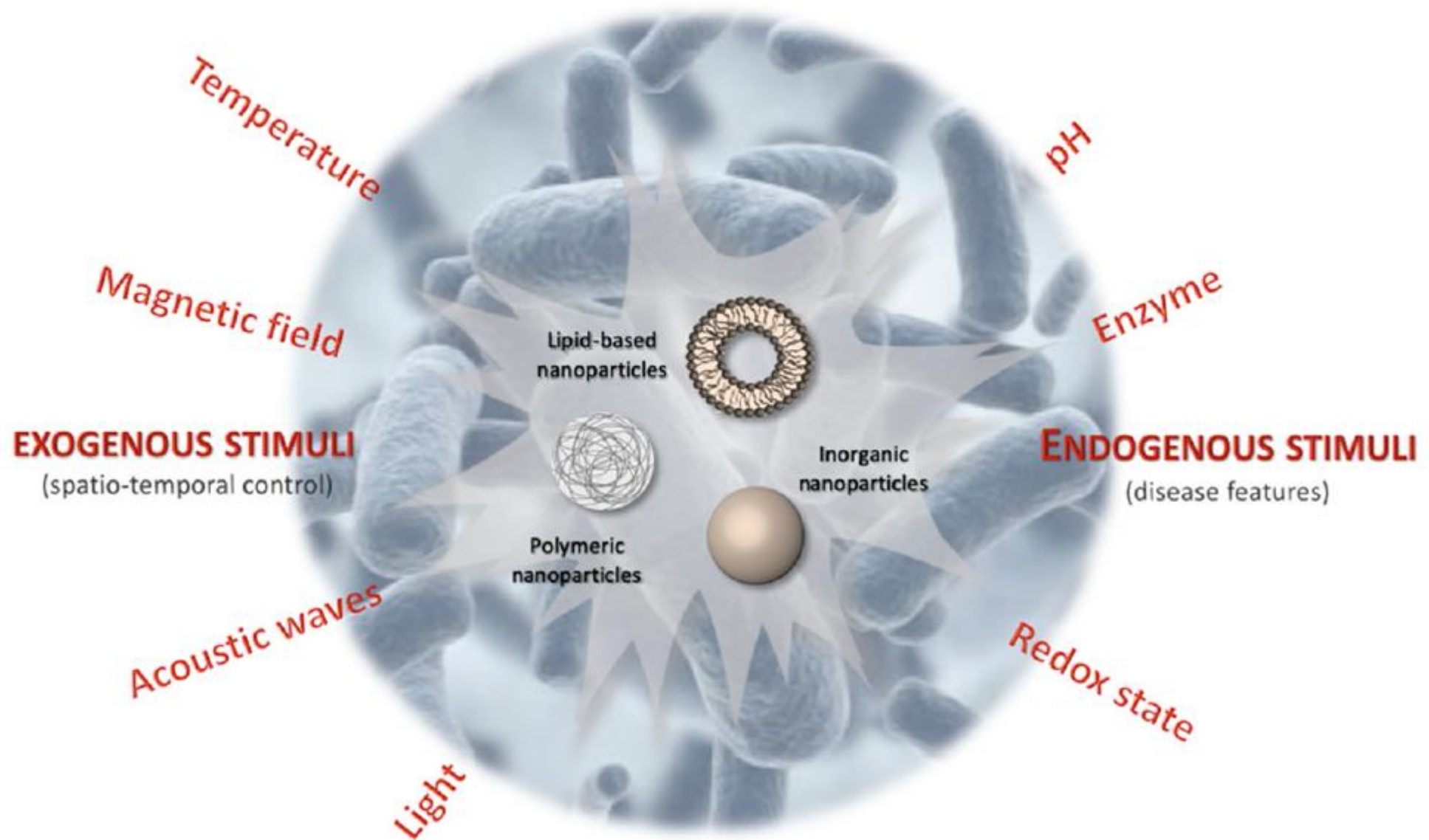
Antibiotic inhalation

Ophthalmic DDS

Implants

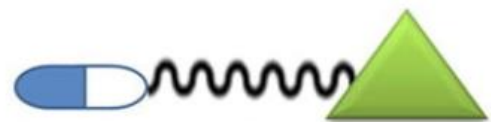
Targeted antibiotic therapy

Stimuli-responsive antibiotic drug-delivery systems





Erythrocytes Bacteriophage
Biological-Carriers



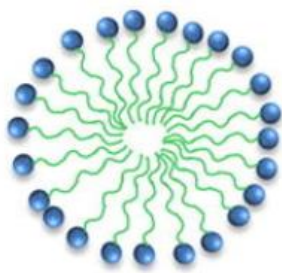
Antibiotic-Promoiety

Prodrug Strategy



Antibiotic-Siderophore

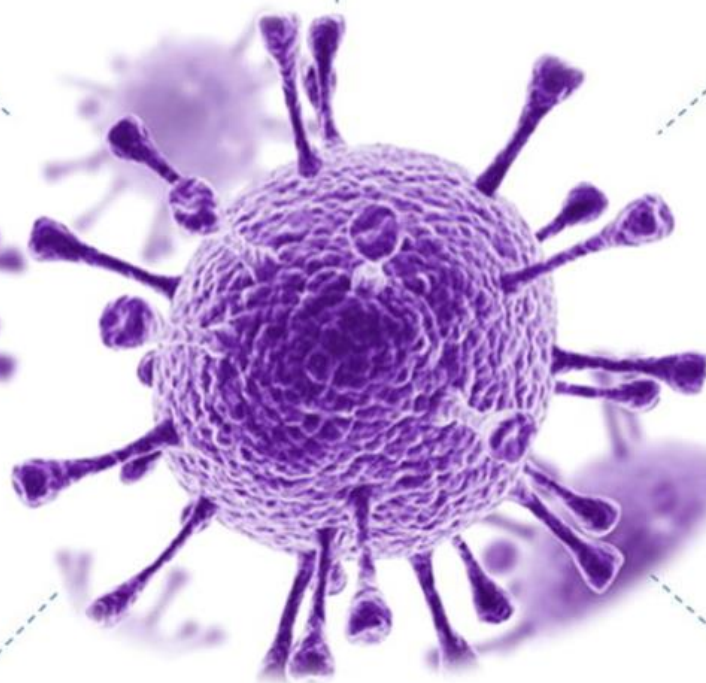
Antibiotic Conjugates



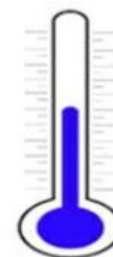
Dendrimers

Micelles

Nanoparticles



INFECTION-SITE



Temperature



pH

Stimuli-Responsive

1. HIV & STD Prevention

Multipurpose prevention technologies (MPTs)

- **Prevention of HIV/STIs and Unplanned Pregnancy**

MULTIPURPOSE PREVENTION TECHNOLOGIES (MPTs)

ARE NEW METHODS **IN DEVELOPMENT** THAT COMBINE FAMILY PLANNING, HIV & STI PREVENTION

86 MILLION
UNPLANNED
PREGNANCIES
AROUND THE WORLD
EVERY YEAR

EVERY **60** SECONDS
A YOUNG WOMAN IS
INFECTED WITH **HIV**

1 MILLION PEOPLE
CONTRACT AN
STI EVERY
DAY



FOR WOMEN'S HEALTH



- ⊕ EASY TO USE
- ⊕ EFFICIENT
- ⊕ FEMALE INITIATED



RING & ONE-SIZE-
FITS-ALL
DIAPHRAGMS



GELS
& FILMS



MULTIPURPOSE
VACCINES &
INJECTABLES



DRUG
COMBINATIONS

MPTs

Table 1. MPTs in clinical development.

Product Name/Developer	Indication	Delivery Platform	Development Stage	Active Pharmaceutical Ingredients	Duration of Action
International Partnership for Microbicides (originally developed by Karl Malcolm at Belfast University)	HIV, Pregnancy	Intravaginal ring	Clinical—Phase 1	Dapivirine, levonorgestrel	90 days
Population Council	HIV, Pregnancy	Oral capsule	Clinical—Phase 3	Tenofovir, emtricitabine, levonorgestrel, ethinyl estradiol	24 h
	HIV, HSV-2, HPV	Vaginal gel	Clinical—Phase 1	carrageenan, MIV-150, zinc acetate	24 h
CONRAD Program (originally developed by Patrick Kiser at University of Utah and Northwestern)	HIV, Pregnancy	Intravaginal ring (Segmented)	Clinical—Phase 1	levonorgestrel, tenofovir	90 days
CONRAD Program	HIV, HSV-2	Vaginal insert	Clinical—Phase 1	tenofovir, elvitegravir	4–72 h
	HIV, HSV-2	Vaginal gel	Clinical—Phase 3	1% tenofovir	12 h
MAPP Biopharmaceutical (originally developed by Deborah Anderson at Boston University)	HIV, HSV-2, Pregnancy	Vaginal film	Clinical—Phase 1	MB66 (monoclonal antibody)	24 h
Evoform Inc.	Chlamydia, Gonorrhea, Pregnancy	Vaginal gel	Clinical—Phase 2	Amphora [®] gel (L-lactic acid, citric acid, Potassium bitartrate)	Pre-coital
StarPharma	HIV, HSV-2	Vaginal gel	Clinical—Phase 1	SPL7013-VivaGel [™]	24 h

HIV پیشگیری انتقال

The future of HIV prevention

The HIV prevention pill uses the antiretroviral (ARV) Truvada to cut a person's risk of contracting HIV by about 96% — but only if you take it as prescribed and for some people, that can be tricky. That's why science is figuring out new and discreet ways of using ARVs to prevent HIV infection. Here's how:



The vaginal ring



The HIV prevention pill



The injection



The implant

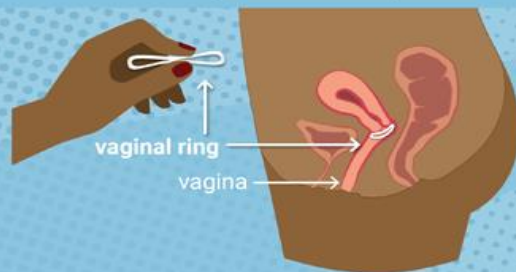
Vaginal ring for HIV prevention

THE HIV PREVENTION RING

South Africa's medicines regulator, SAHPRA, has approved the new vaginal HIV prevention ring for women over 18.

HOW DOES IT WORK?

The ring is put into the vagina every month and slowly releases dapivirine into the body to help prevent HIV infection. It works to prevent HIV in people who are HIV negative in the same way as the PrEP pill.



REMEMBER...

The ring only works to prevent HIV, it doesn't prevent other STIs or pregnancy so always use condoms and lubricant every time you have sex.

Developed by NACOSA 2022

WHAT IS IT?

The Vaginal Ring is a flexible, silicon band containing the antiretroviral medicine (ARV) dapivirine. It was developed by the International Partnership for Microbicides.

WHY IS IT GOOD NEWS?

Women bear the burden of the global HIV/AIDS epidemic. The ring is a great new prevention option designed specially for women:

- ✓ It is discrete – women can use it without anyone knowing.
- ✓ There are fewer side-effects because it is absorbed slowly into the body.
- ✓ The ring is easy to use – you don't have to remember to take a pill every day.
- ✓ It works really well: studies have found it is effective at preventing HIV.



www.nacosa.org.za

Dendrimer gel

- VivaGel BV is the Company's non-antibiotic, water-based vaginal gel for the treatment of bacterial vaginosis and prevention of recurrent bacterial vaginosis. The product is approved in Europe and Australia.



starpharma

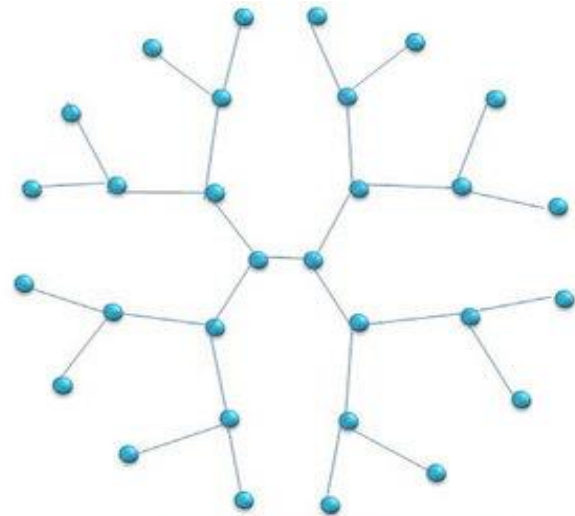
Fleurstat[™]
BVgel

VivaGel[®] Vaginal Gel

CONTAINS 1% W/W ASTODRIMER SODIUM (VivaGel[®])

See pack insert for detailed instructions for use.

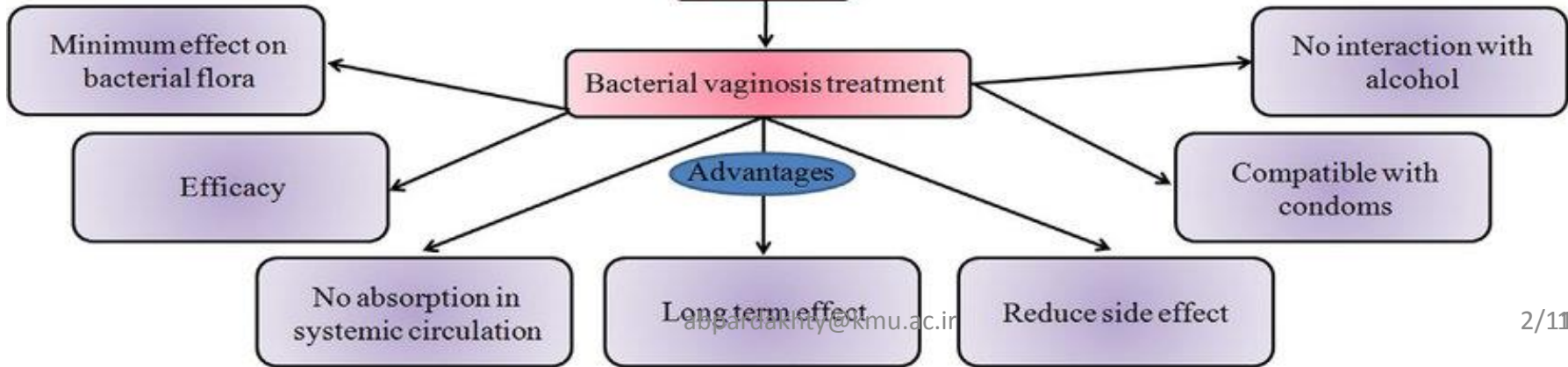
Ingredients: Purified water, carbomer 941,
sorbitol, sodium hydroxide, 1% VivaGel[®].



SPL7013 Dendrimer



VivaGel®



پیشگیری از سوزاک، کلامیدیا و بارداری

*phexxi*TM

(lactic acid, citric acid, and potassium bitartrate) Vaginal Gel
1.8%, 1%, 0.4%



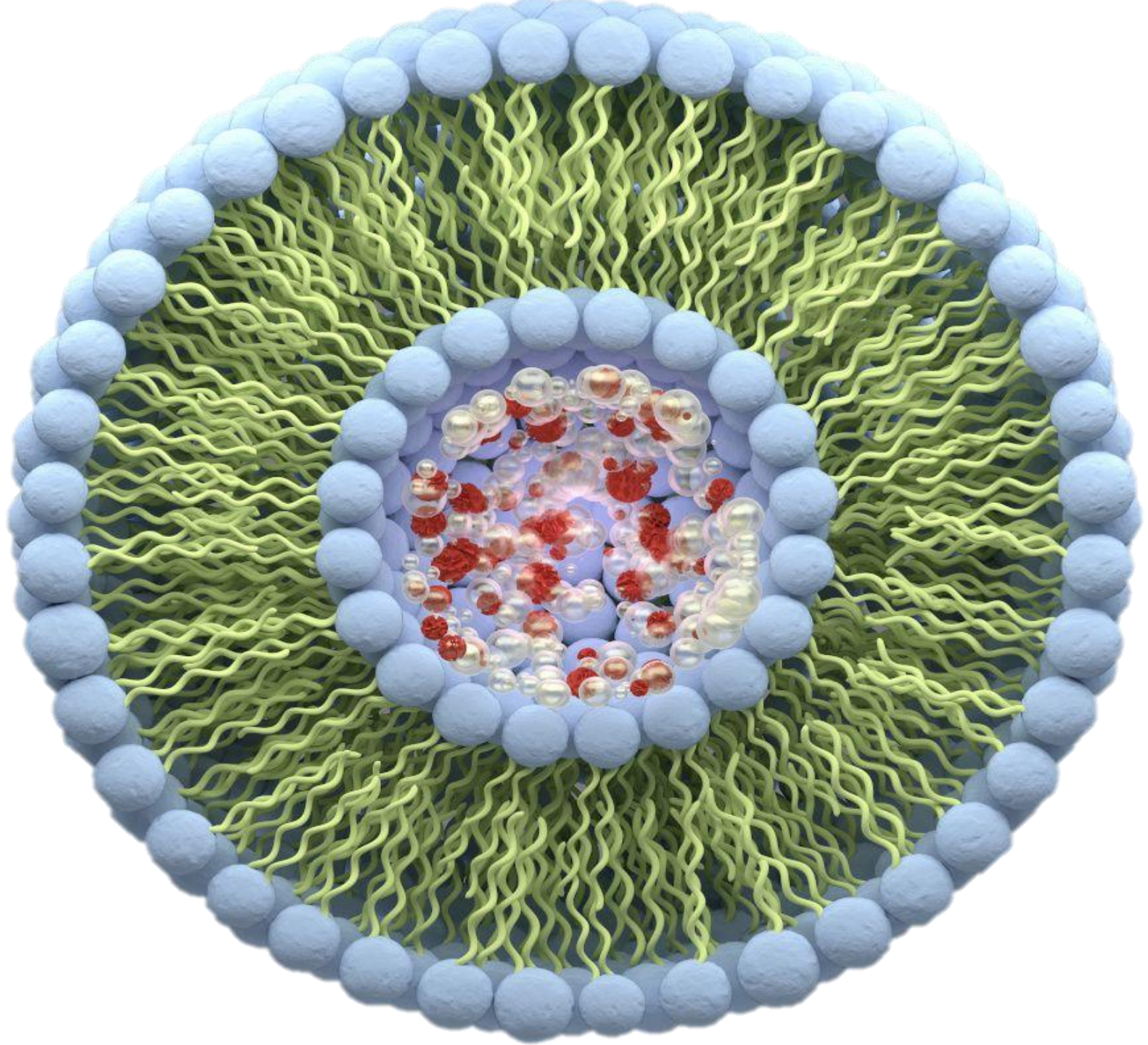
2. Lipid vesicles

Lipid bilayers

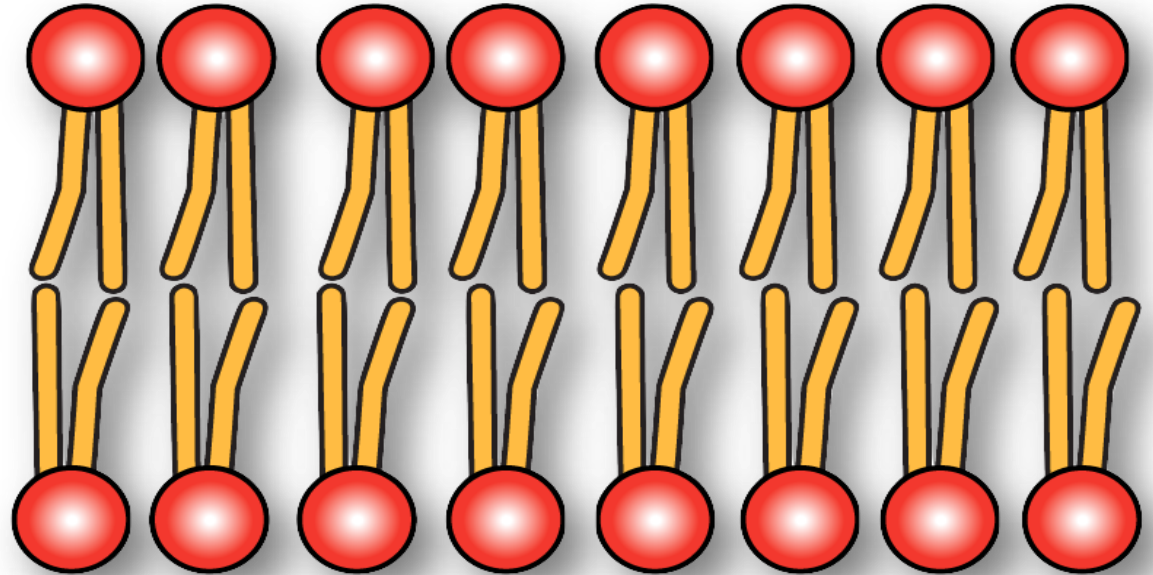
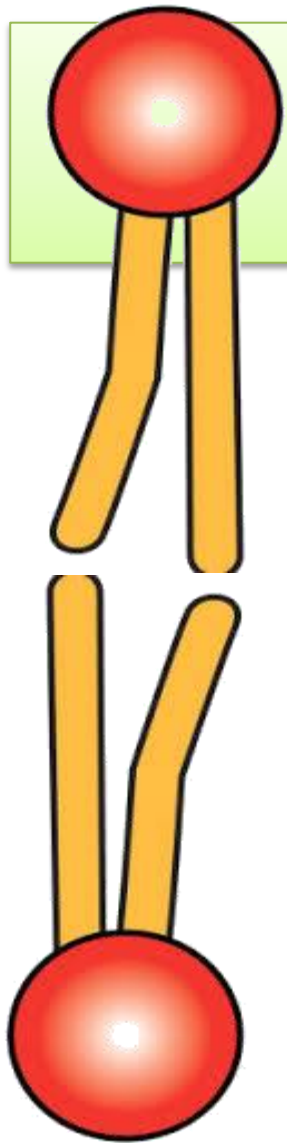
- **Phospholipids:** Liposomes
- **Non-ionic surfactants:** Niosomes
- **Unsaturated fatty acids:** Ufasomes
- **Phospholipids+ botanicals:** Phytosomes

Lipid vesicles

- **Liposome:** Phospholipids + Cholesterol
- **Niosome:** Non-ionic surfactants + Cholesterol
- **Ufasome:** Unsaturated fatty acids + Cholesterol
- **Ethosome:** Phospholipids + Cholesterol + Ethanol
- **Transfersome:** Phospholipids + Cholesterol + Surfactant
- **Invasome:** Phospholipids + Cholesterol + Terpen



Bilayer formation

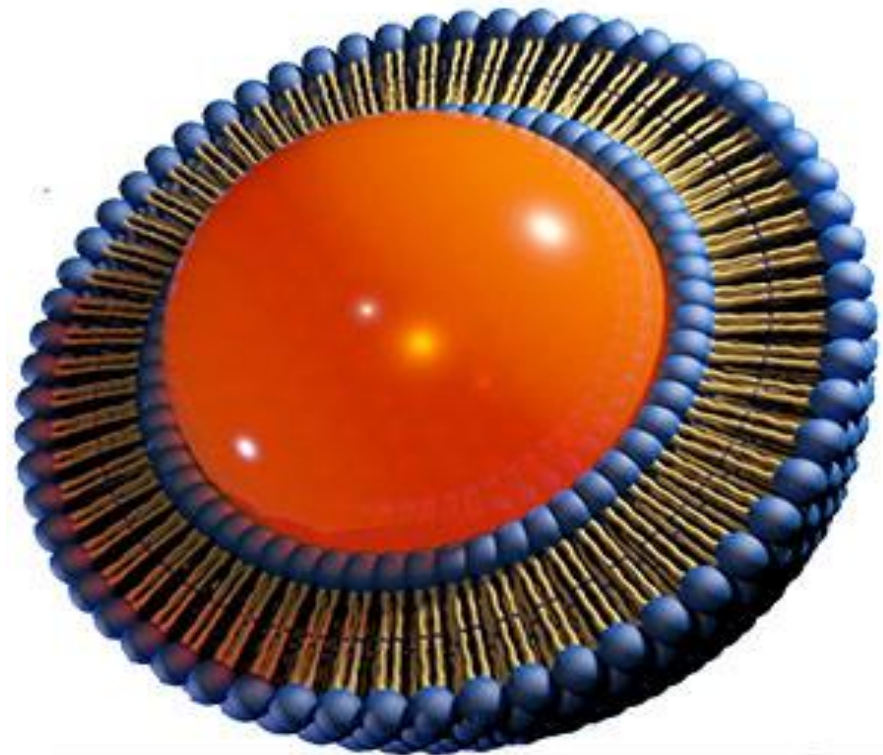


Lipid Vesicle

- **Shell or Coat**

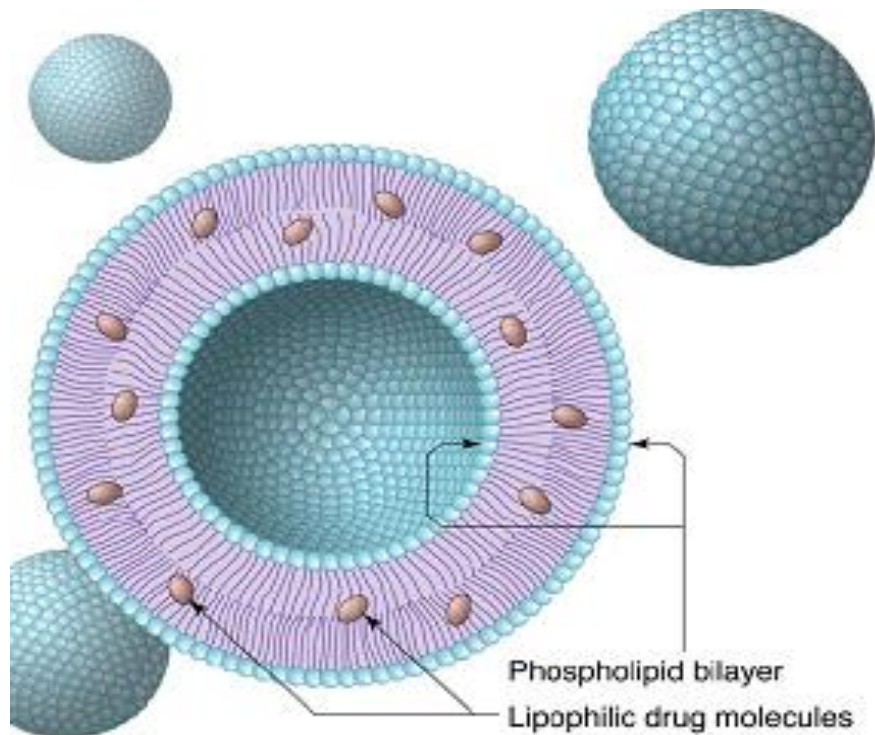


- **Core**

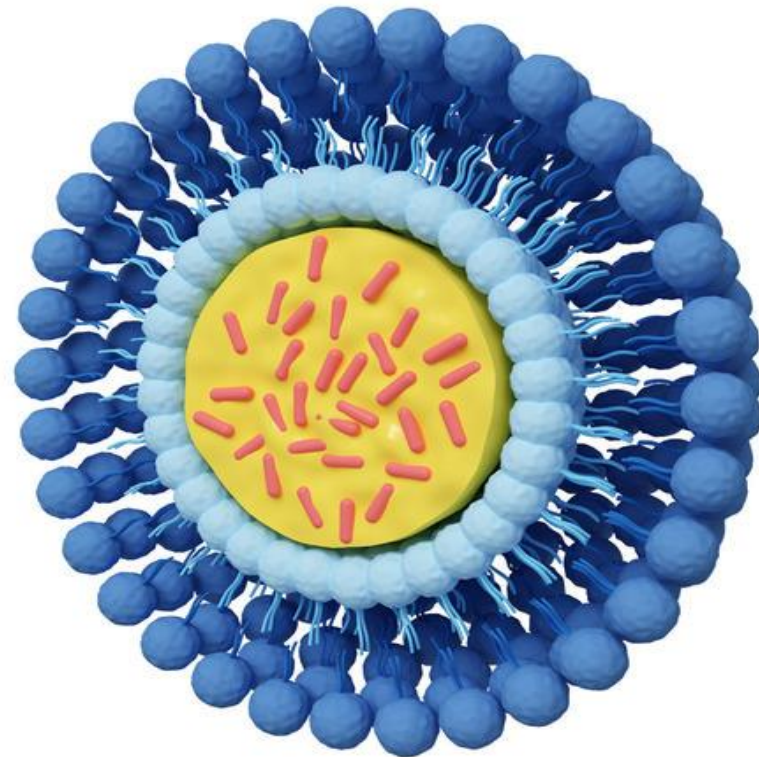


Encapsulated Compound

- **Lipid soluble**

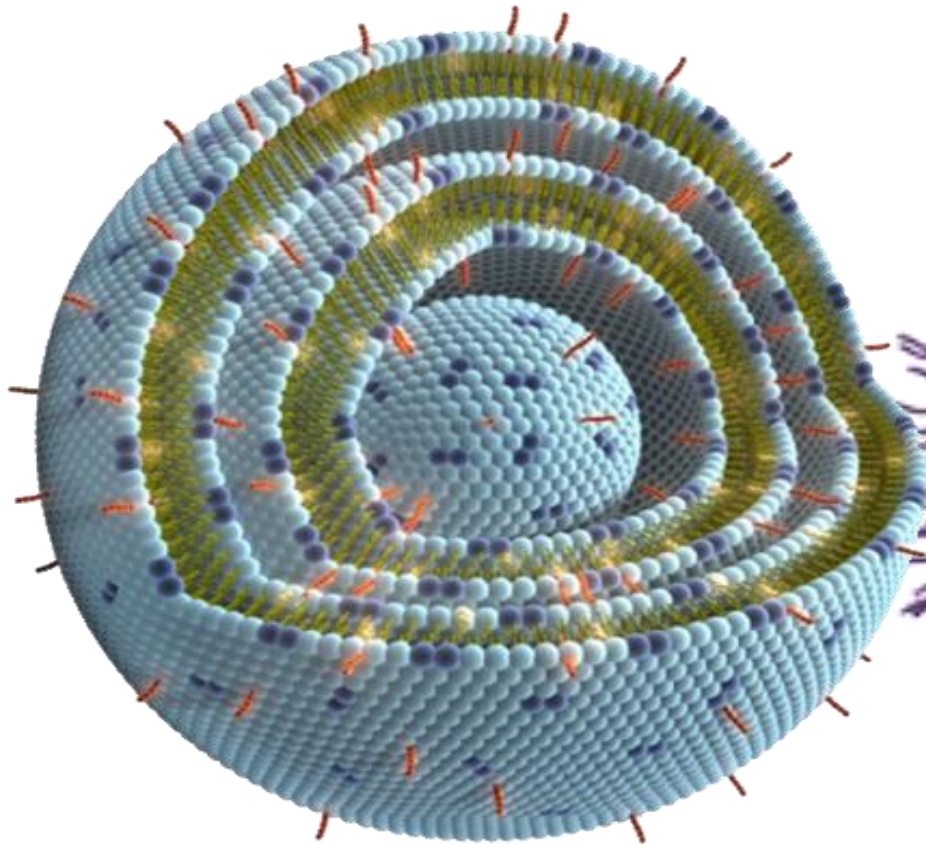


- **Water Soluble**



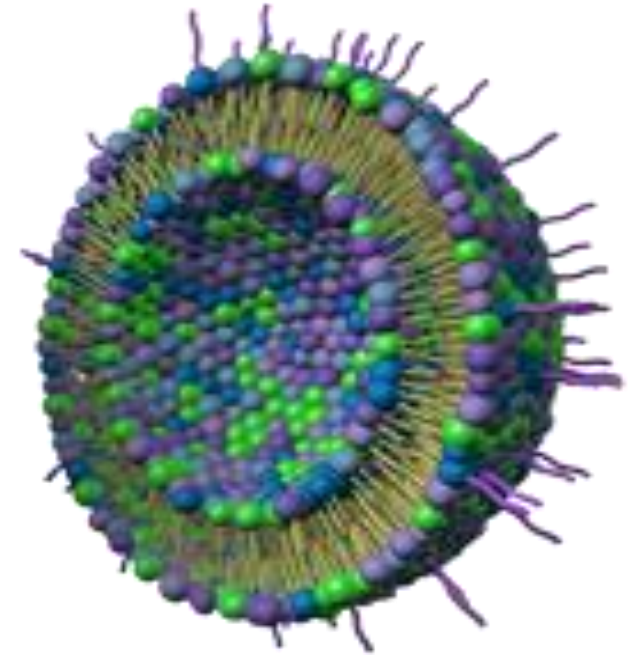
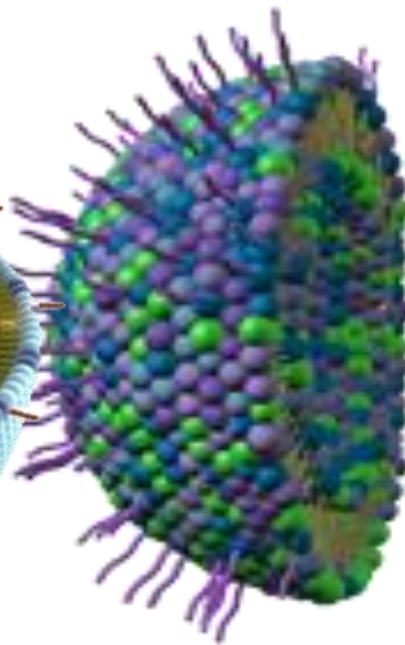
Number of Bilayers

- **Multilamellar (MLV)**



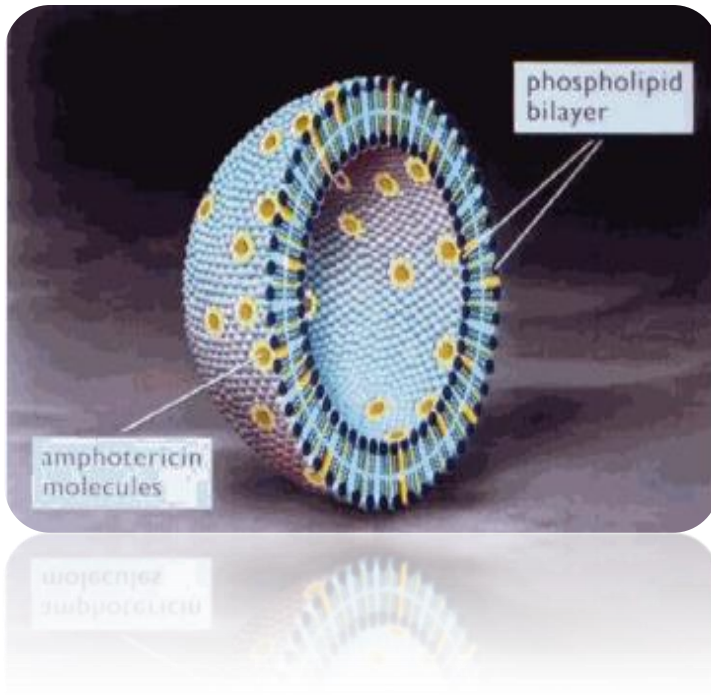
- **Unilamellar**

- Large UV (LUV)
- Small UV (SUV)

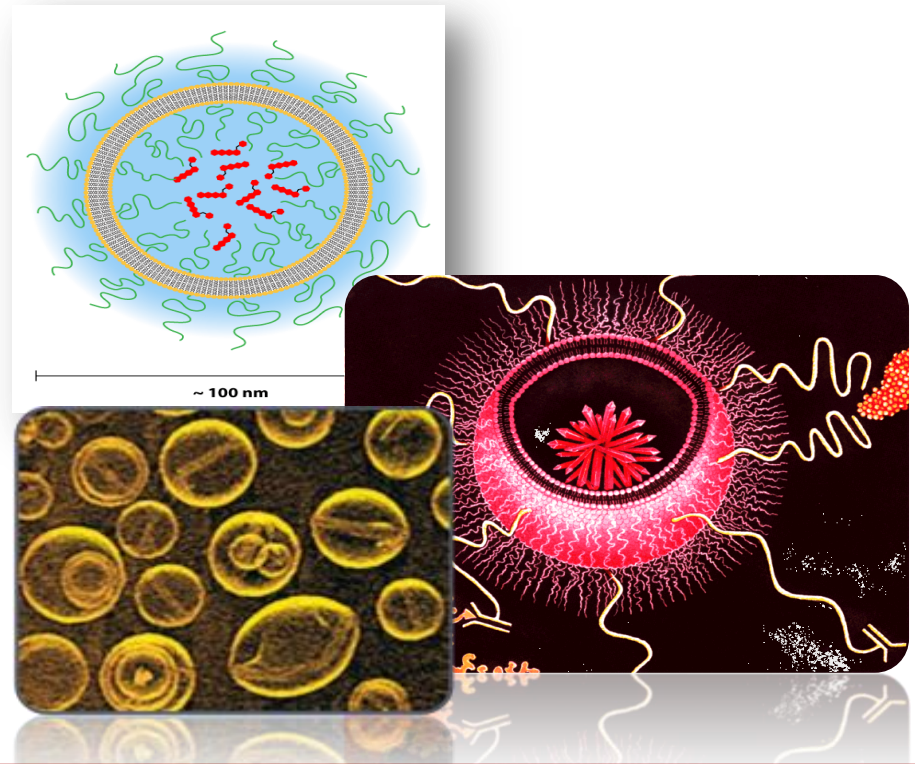


Entrapped drug position

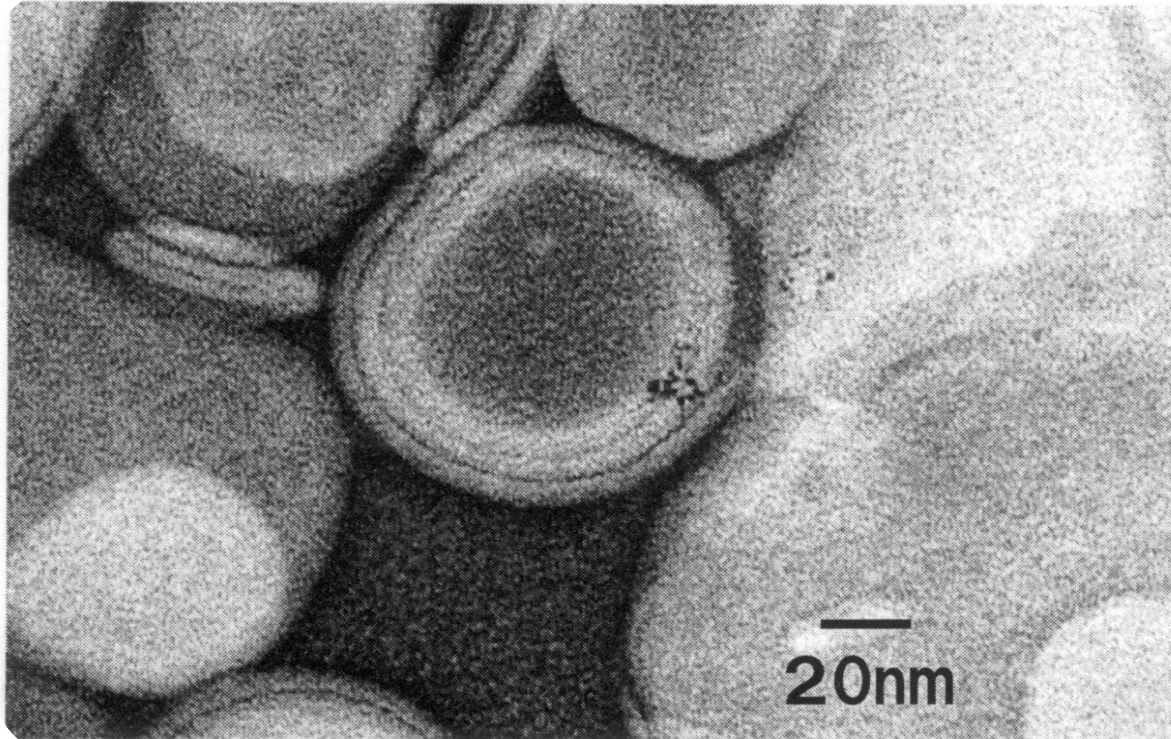
- Hydrophobic
 - Amphotericin B

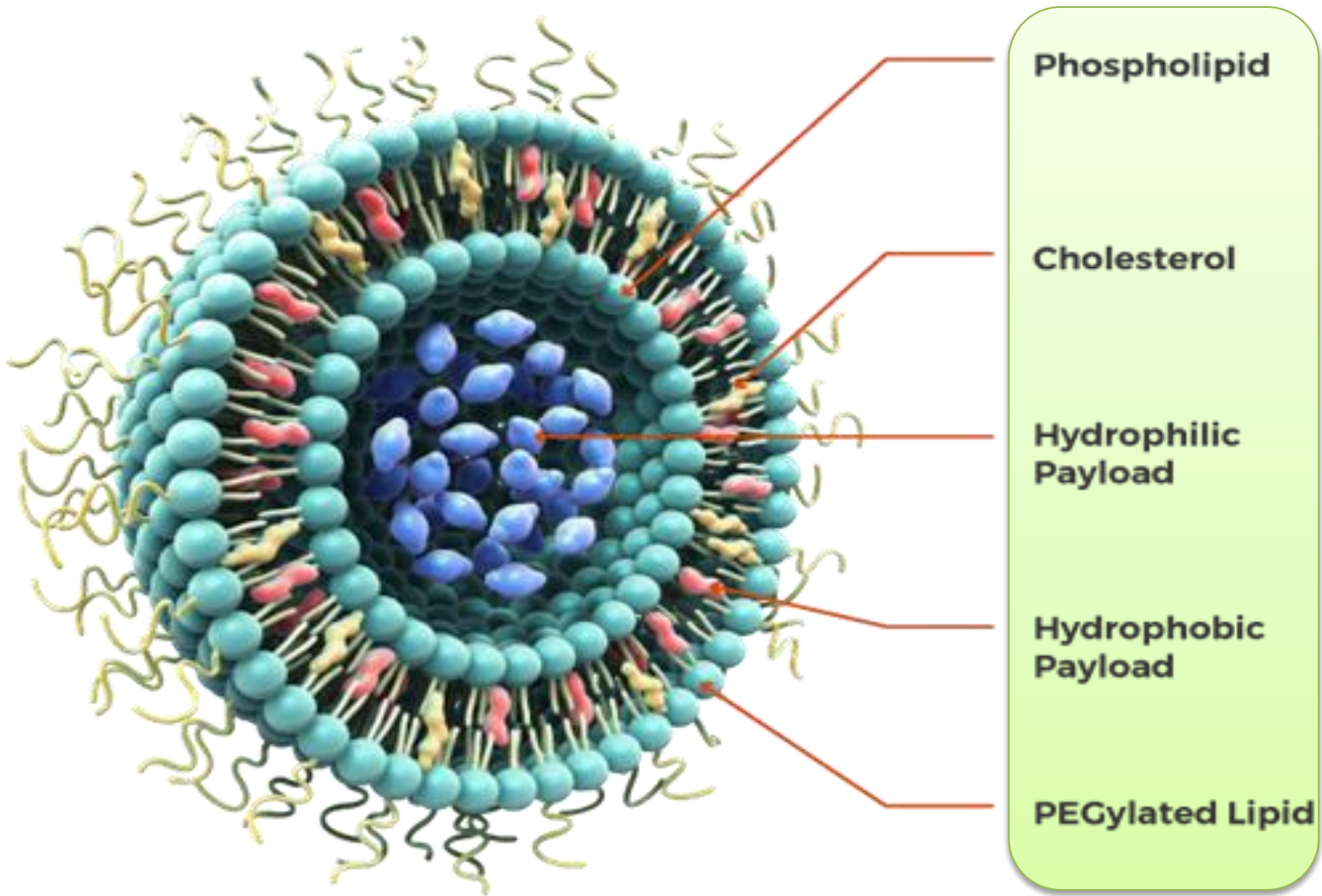


- Hydrophilic
 - Doxorubicin HCl

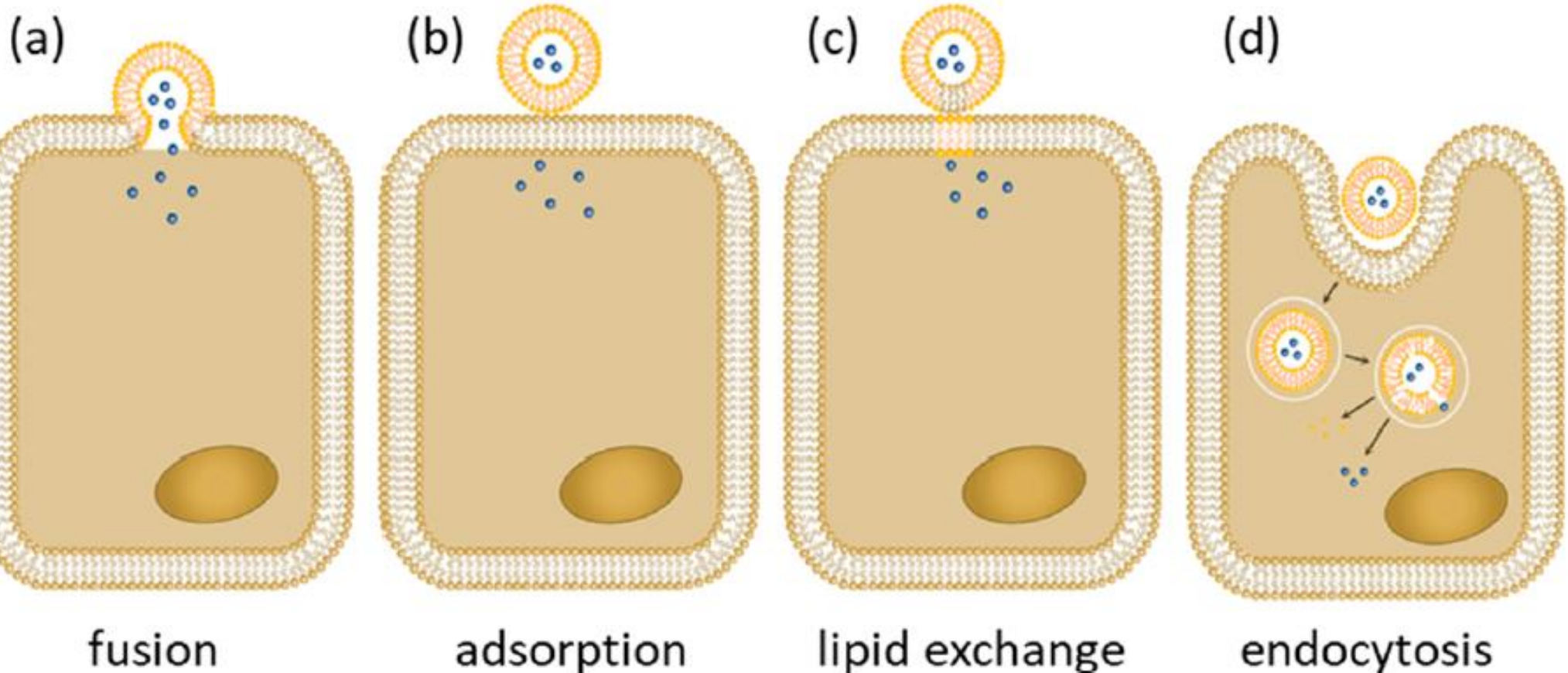


Multilamellar vesicles (MLVs)





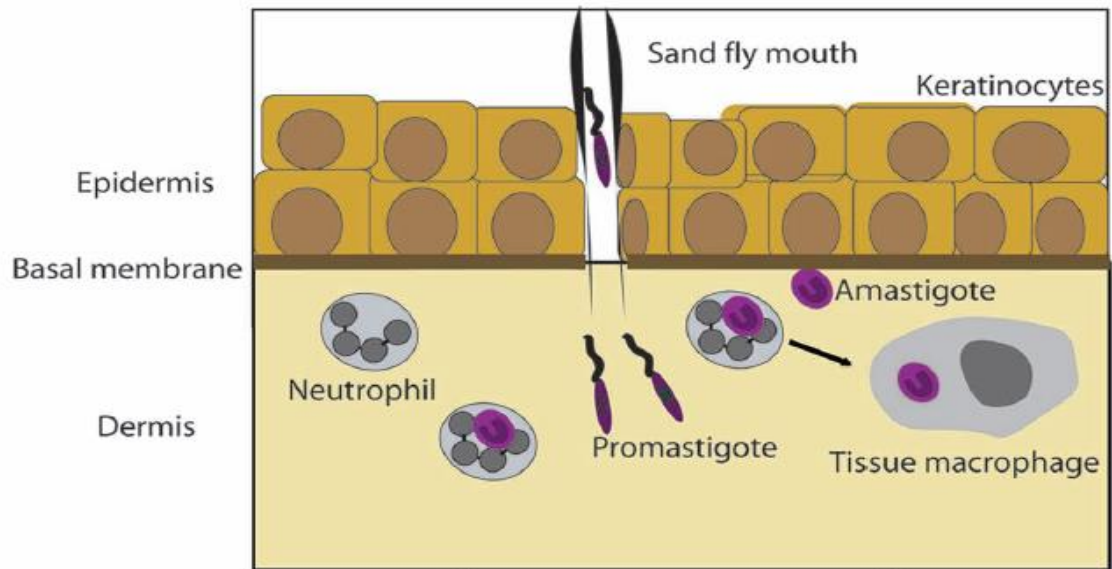
Lipid vesicles & biologic membranes



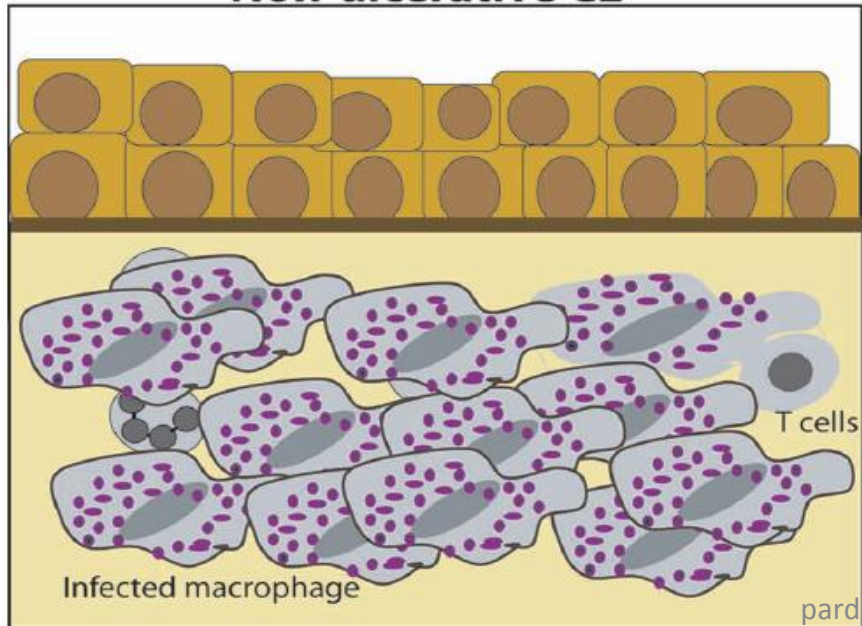
Topical

Cutaneous leishmaniasis: case reports

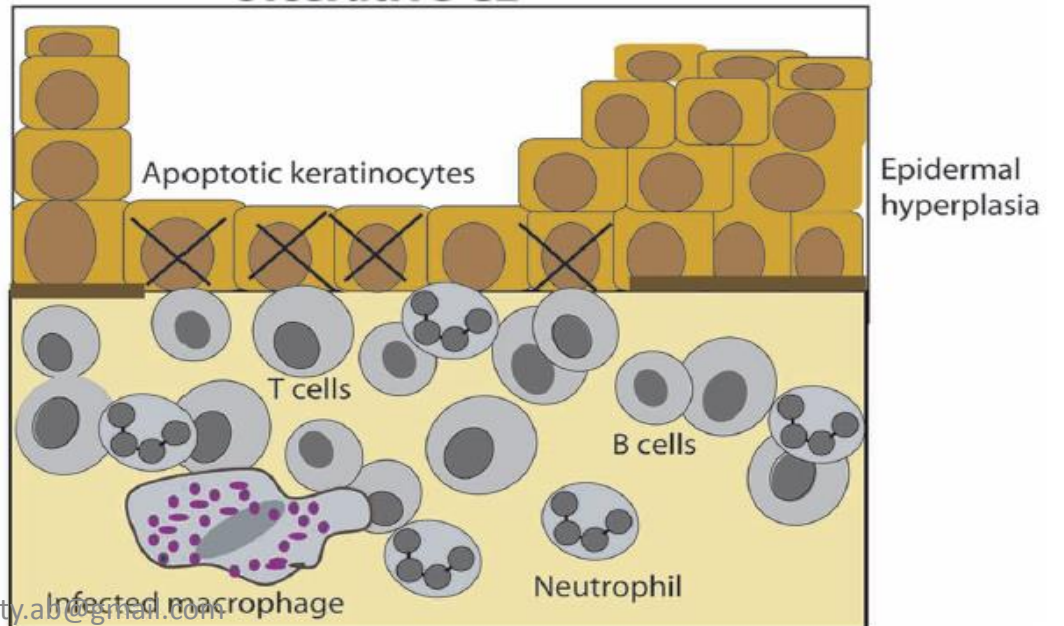
- Intracellular infection therapy by lipid vesicular system



Non-ulcerative CL



Ulcerative CL



Cutaneous Leishmaniasis

- Amphotericin B
- Benzethonium chloride
- Dapsone
- Paromomycin
- Tioxolone
- Zinc sulfate



NDC 0489-5005-30

ACZONE™

(dapsone)

Gel, 5%

 astellas

30g x 12

500530

30g



Paromomycin niosomal cream (3%)



Paromomycin niosomal cream (3%)



5 weeks



sporotrichoid leishmaniasis

Dapsone (DDS) niosomes

Dapsone niosomes



- Ambisome + Dapsone niosome
- Immuno-compromised



8 weeks





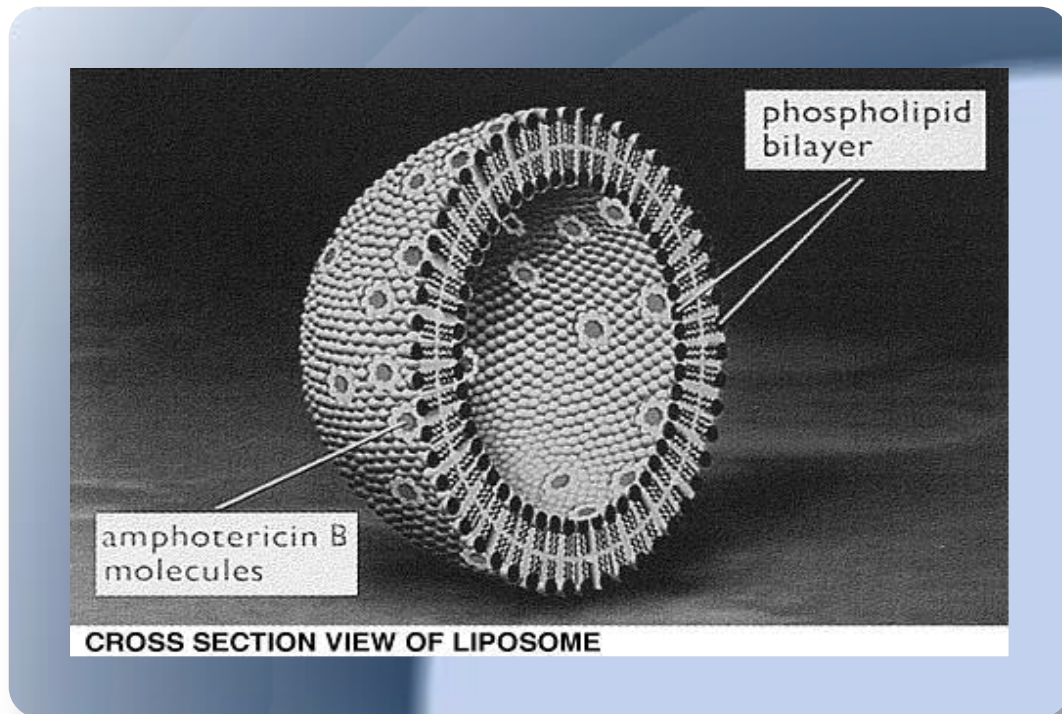






Parenteral

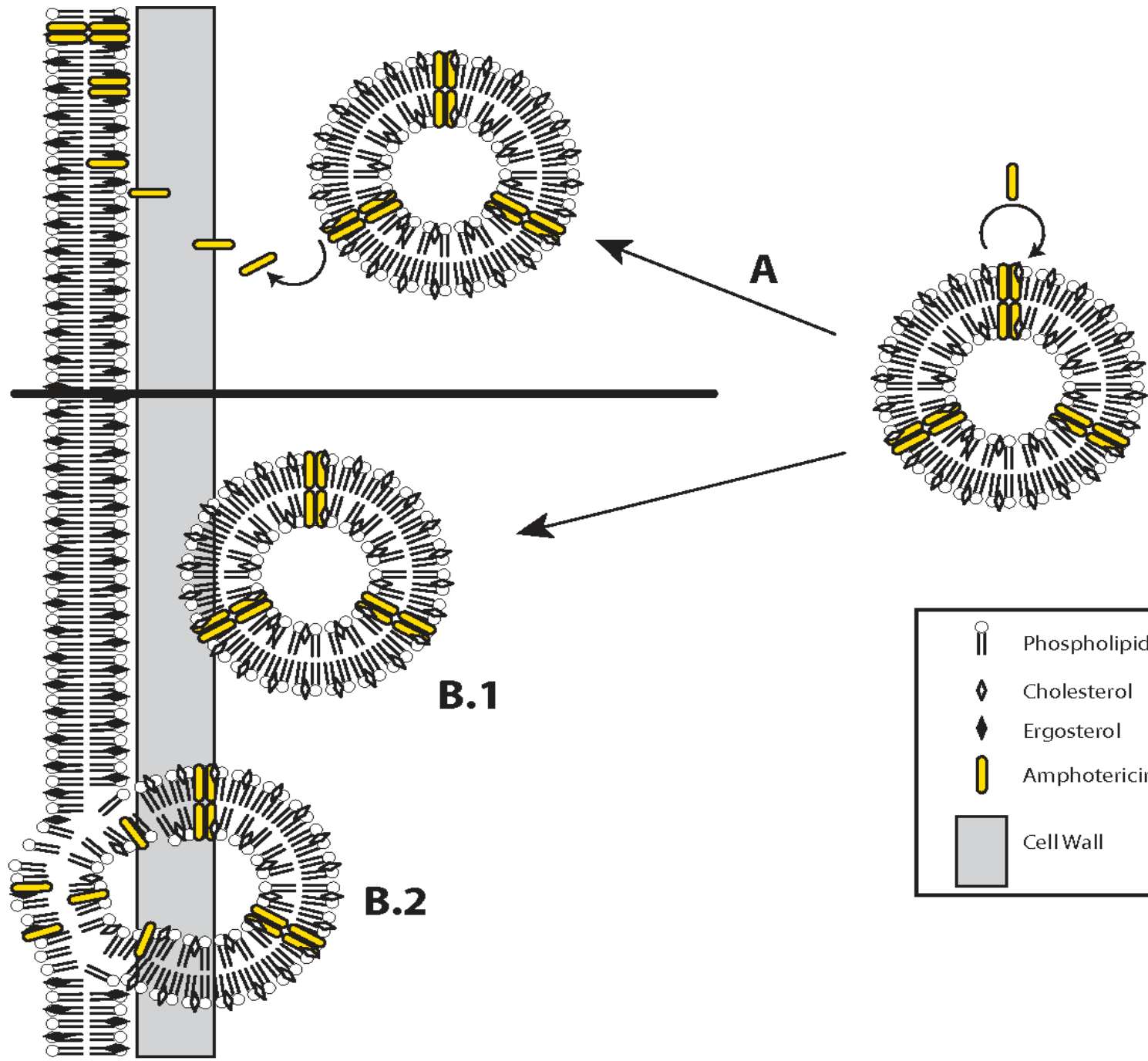
Life threatening fungal infections & Visceral Leishmaniasis (FDA labeled)



Amphotericin B Liposome



Fungal Cytoplasm



B.1

B.2

A

- Phospholipid
- Cholesterol
- Ergosterol
- Amphotericin B
- Cell Wall



YOU'VE WON THE BATTLE DON'T LOSE THE WAR

You've worked hard and your patient is recovering. Then signs of an invasive fungal infection appear – and time starts running out. Prescribe AmBisome. Effective against major fungal pathogens¹⁻⁴, it helps survivors survive⁵⁻⁶.

AMBISOME PRESCRIBING INFORMATION
Presentation: A sterile, powder for solution for infusion. Each vial contains 50mg of amphotericin B, encapsulated in liposomes. Indications: The treatment of severe systemic and/or deep mycoses where toxicity (particularly nephrotoxicity) precludes the use of conventional systemic amphotericin B or effective dosage. The empirical treatment of presumed fungal infections in febrile neutropenic patients, where the fever has failed to respond to broad-spectrum antibiotics and appropriate investigations have failed to define a bacterial or viral cause. **Dosage and Administration: Preparation** - Follow the reconstitution instructions exactly as given in the SPC. **Administration** - AmBisome should be administered by intravenous infusion over a 30 - 60 minute period. For doses greater than 5mg/kg/day, intravenous infusion over a 2-hour period is recommended. The recommended concentration for intravenous infusion is 0.2mg/ml to 2.0mg/ml. Therapy for systemic and/or deep mycoses is usually instituted at a daily dose of 1.0mg/kg of body weight, and increased stepwise to 2.0mg/kg, as required. Data are presently insufficient to define total dosage requirements and duration of treatment necessary for resolution of mycoses. However, a cumulative dose of 1.0 - 3.0g of amphotericin B as AmBisome over 3 - 4 weeks has been typical. Dosage of amphotericin B as AmBisome must be adjusted to the specific requirements of each patient. The recommended dose for empirical treatment in febrile neutropenia is 2mg/kg body weight per day. Treatment should be continued until the recorded temperature is normalised for 3 consecutive days. In any event, treatment should be discontinued after a maximum of 42 days. Children have been successfully treated with AmBisome without reports of unusual adverse events and have received comparable doses to adults on a per kilogram/body weight basis. AmBisome is not recommended for use in children below 16 months old. No alteration in dose or frequency of dosing is required for elderly patients. **Contra-Indications:** Hypersensitivity to the active substance or to any of the excipients of AmBisome, unless the condition requiring treatment is life threatening and amenable only to AmBisome therapy. **Warnings and Precautions:** Anaphylactic/anaphylactoid or severe allergic reactions have been reported and therefore administration of a test dose is advisable. If a small amount of AmBisome (e.g. 1mg) can be administered for about 10 minutes without severe allergic reactions within 30 minutes, the dose can be continued. Laboratory evaluation of serum electrolytes, particularly potassium and magnesium, renal, hepatic and haemopoietic function should be performed at least weekly and particular attention should be given to patients receiving concomitant therapy with nephrotoxic drugs. Use in diabetic patients: Each vial of AmBisome contains approximately 600mg of sucrose. Use in dialysis patients: Haemodialysis or peritoneal dialysis does not appear to affect the elimination of AmBisome and data suggest no dose adjustment is required, however administration should be avoided during the haemodialysis procedure. **Interactions:** The following drugs are known to interact with amphotericin B and may interact with AmBisome. Nephrotoxic substances (e.g. cyclosporin, aminoglycosides, polymyxins, vancomycin and pentamidine) may enhance the potential for drug-induced renal toxicity in some patients (regular monitoring of renal function recommended). Cardiac glycosides, furosemide (ACTH) and diuretics (loop and thiazide) may potentiate hypokalaemia. Digitalis glycosides - AmBisome-induced hypokalaemia may potentiate digitalis toxicity. Skeletal muscle relaxants (e.g. tubocurarine) - the tubocurarine effect may be enhanced by AmBisome-induced hypokalaemia. Antifungals (triazoles) - toxicity of triazoles may be increased by possibly increasing its cellular uptake and/or impairing its renal excretion. Antineoplastic agents - enhance the potential for renal toxicity, bronchospasm and hypotension (use with caution). Leukocyte transfusions - acute pulmonary toxicity reported in patients given amphotericin B (as sodium deoxycholate complex) during or shortly after leukocyte transfusions (separate by as long a period as possible and monitor pulmonary function). Use in Pregnancy and Lactation: As the safety of AmBisome in pregnancy or lactation has not been established, the risk/benefit ratio must be considered. **Side Effects:** Very commonly reported adverse events (≥10%): nausea, vomiting, hypokalaemia, pyrexia, rigors. Commonly reported adverse events (≥1.0% - <10%): tachycardia, headache, dyspnoea, diarrhoea, abdominal pain, increased creatinine, blood urea increased, rash, back pain, hypoparathyroidism, hypocalcaemia, hyperglycaemia, hypomagnesaemia, vasodilation, flushing, hypotension, chest pain, liver function tests abnormal, hyperbilirubinaemia, alkaline phosphatase increased. Uncommonly reported adverse events (≥0.10% - <1.00%): thrombocytopenia, confusion, bronchospasm, anaphylactoid reaction. Adverse events of unknown frequency: cardiac arrest, arrhythmia, anaemia, angioedema, oedema, anaphylactic reactions, hypersensitivity renal failure, renal insufficiency, rhabdomyolysis (associated with hypokalaemia). Chest tightness and the side effects marked * may be infusion-related reactions and these resolve rapidly when stopping the infusion. In a double-blind study involving 697 patients, nephrotoxicity with AmBisome was approximately half that for conventional amphotericin B. In another double-blind study involving 244 patients, the incidence of nephrotoxicity with AmBisome was approximately half that for amphotericin B lipid complex. **Overdose:** If overdose occurs, stop administration immediately and carefully monitor hepatic function, renal function, serum electrolytes and haematological status. **Pharmaceutical Precautions:** Do not store above 25°C. Do not freeze. As AmBisome does not contain any bacteriostatic agent, from a microbiological point of view, the reconstituted and diluted product should be used immediately, in-use storage would not normally be longer than 24 hours at 2 - 8°C, unless reconstitution and dilution has taken place in controlled and validated aseptic conditions. Chemical and physical stability has been demonstrated for 24 hours at 25°C ± 2 and 7 days at 2 - 8°C for reconstituted product. Following dilution with 5% dextrose, chemical and physical stability have been shown for 24 - 48 hours at 25°C ± 2 and 4 - 7 days at 2 - 8°C (dependent upon final concentration). **DO NOT STORE** partially used vials. **DO NOT RECONSTITUTE AMBISOME WITH SALINE OR MIX WITH OTHER DRUGS.** Legal Category: POM. Package Quantities: Carboxyl carton of 10 vials each. Price: Carton of 10 vials, £305.50. Marketing Authorisation Number: PL 6537/2000. Further information is available from the marketing authorisation holder, Gilead Sciences International Ltd, Grainger Park, Abingdon, Cambridge, CB2 0EL, Telephone: +44 (0) 1223 897355, e-mail: ukinfo@gilead.com. **CONSULT THE SUMMARY OF PRODUCT CHARACTERISTICS BEFORE PRESCRIBING PARTICULARLY IN RELATION TO SIDE EFFECTS, PRECAUTIONS AND CONTRAINDICATIONS.** AmBisome is a trademark. Date of Preparation: July 2010. C01/UKM/10-07/M/1522

Adverse events should be reported. Reporting forms and information can be found at www.yourfda.gov. Adverse events should also be reported to Gilead Sciences. Local Medical Information on 0222 897355 or by e-mail to ukinfo@gilead.com.

1. AmBisome Summary of Product Characteristics (SPC) (2010).
2. Walsh et al. *N Engl J Med* 2002;346:225-234.
3. Cornely et al. for the AmBisome Trial Study Group. *Clin Infect Dis* 2003;44: 1289-1292.
4. Kohn et al. *Lancet* 2007;369:1549-1557.
5. *Progress of TRANSDISC*. *Clin Infect Dis* 2010;50:102-107.
6. *Int J Mycol* 2008;16:113-16.

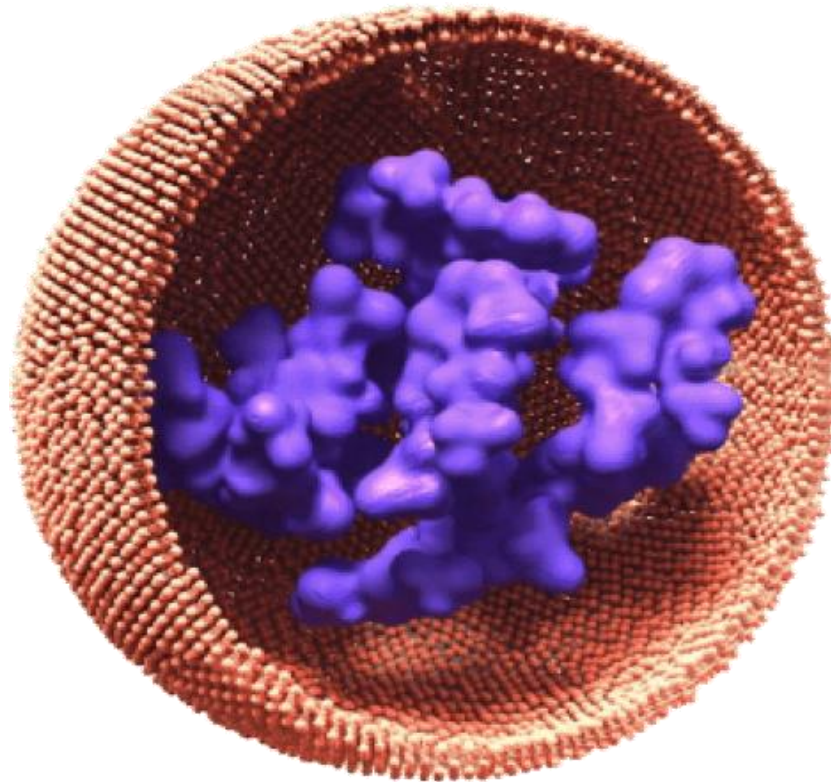
Date of preparation: September 2010 C01/UK/10-06/M/1525
C01/UK/10-06/M/1525

AmBisome
liposomal amphotericin B



Pulmonary

Amikacin liposome

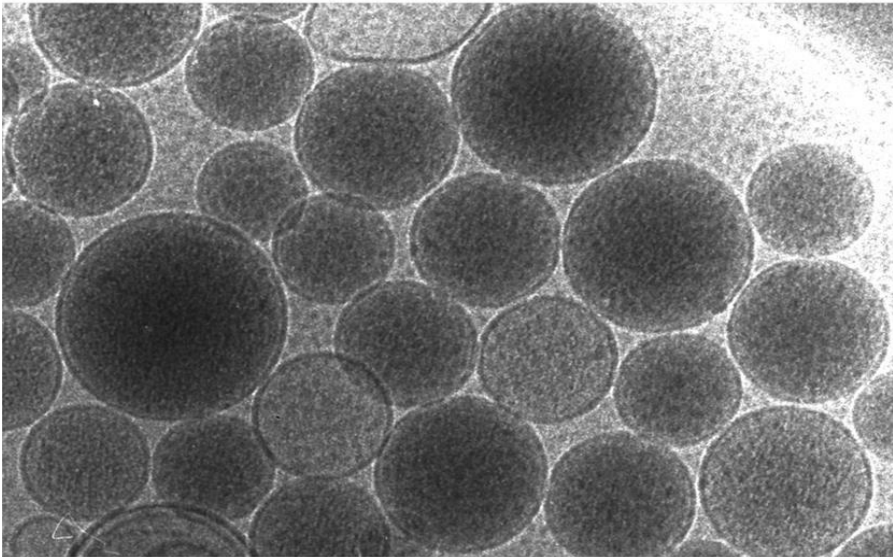


Amikacin Liposome

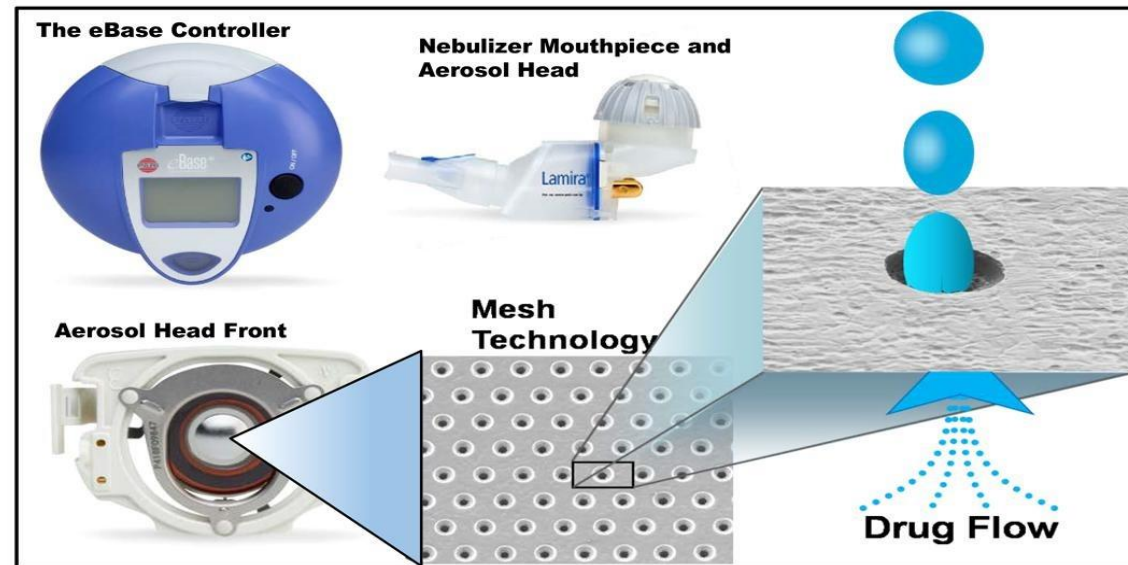


Amikacin liposome

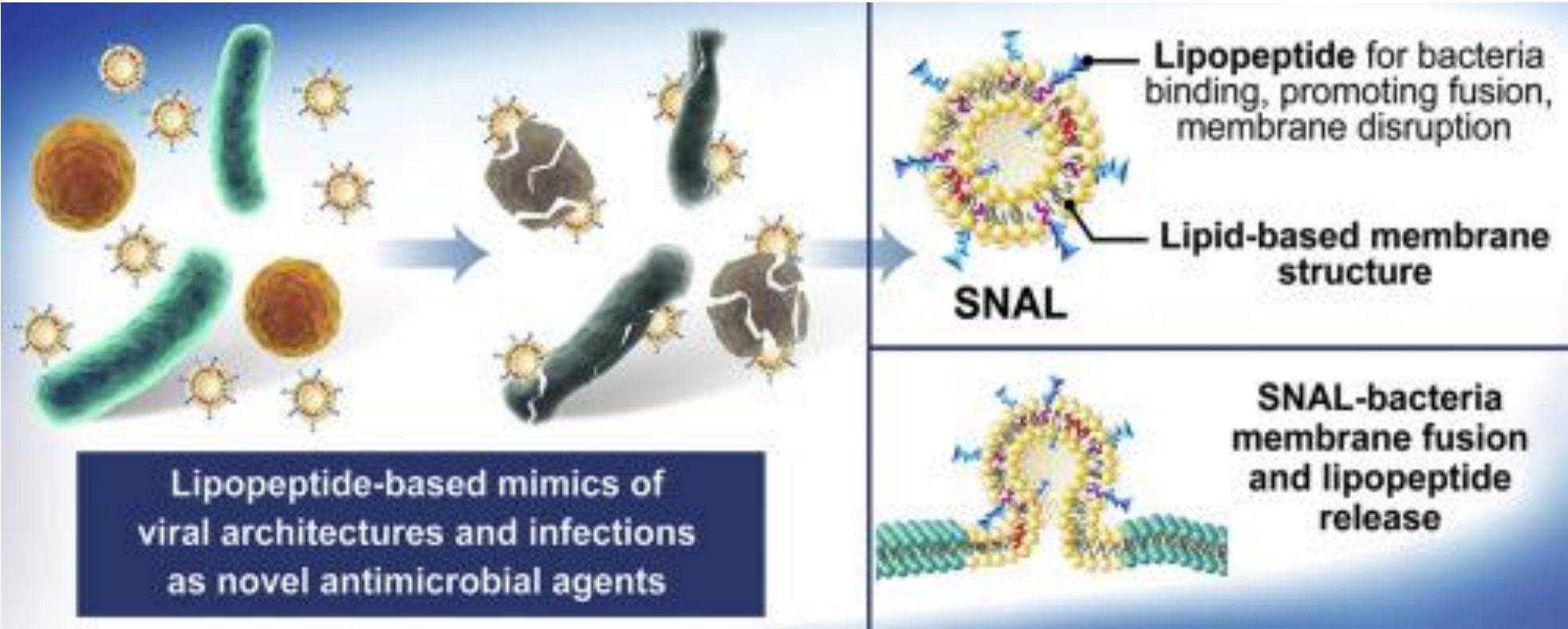
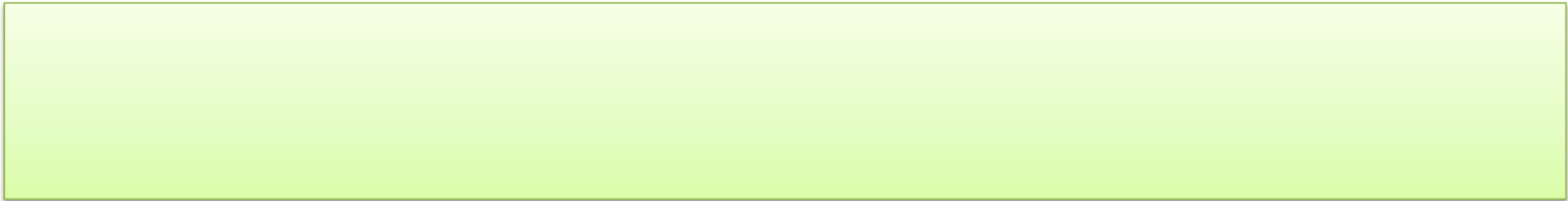
Cryo-Electron Microscopy of ALIS Liposomes



Delivery of ALIS using the PARI Lamira Nebulizer



- ï **Delivers liposome amikacin directly to infection site in the lung**
- ï **70% aerosol droplets in respirable range (MMAD: 4.1 - 5.3 μm)**



3. SEDDS

Oral SEDDS

Self Emulsifying Drug Delivery System

Table 1. Examples of marketed pharmaceutical products formulated as SEDDs*.

Brand name	Generic name	Dosage form	Manufacturer
Agenerase [®]	Amprenavir	Soft gelatin capsule	Glaxosmithkline
Solufen [®]	Ibuprofen	Hard gelatin capsule	Sanofi- Aventis
lipirex [®]	Fenofibrate	Hard gelatin capsule	Sanofi- Aventis
Neoral [®]	Cyclosporine	Soft gelatin capsule	Novartis
Norvir [®]	Ritonavir	Soft gelatin capsule	Abbott laboratories
Fortovase [®]	Saquinavir	Soft gelatin capsule	Hoffmann-La Roche Inc.

Source: *Raian and Nirav (2011).

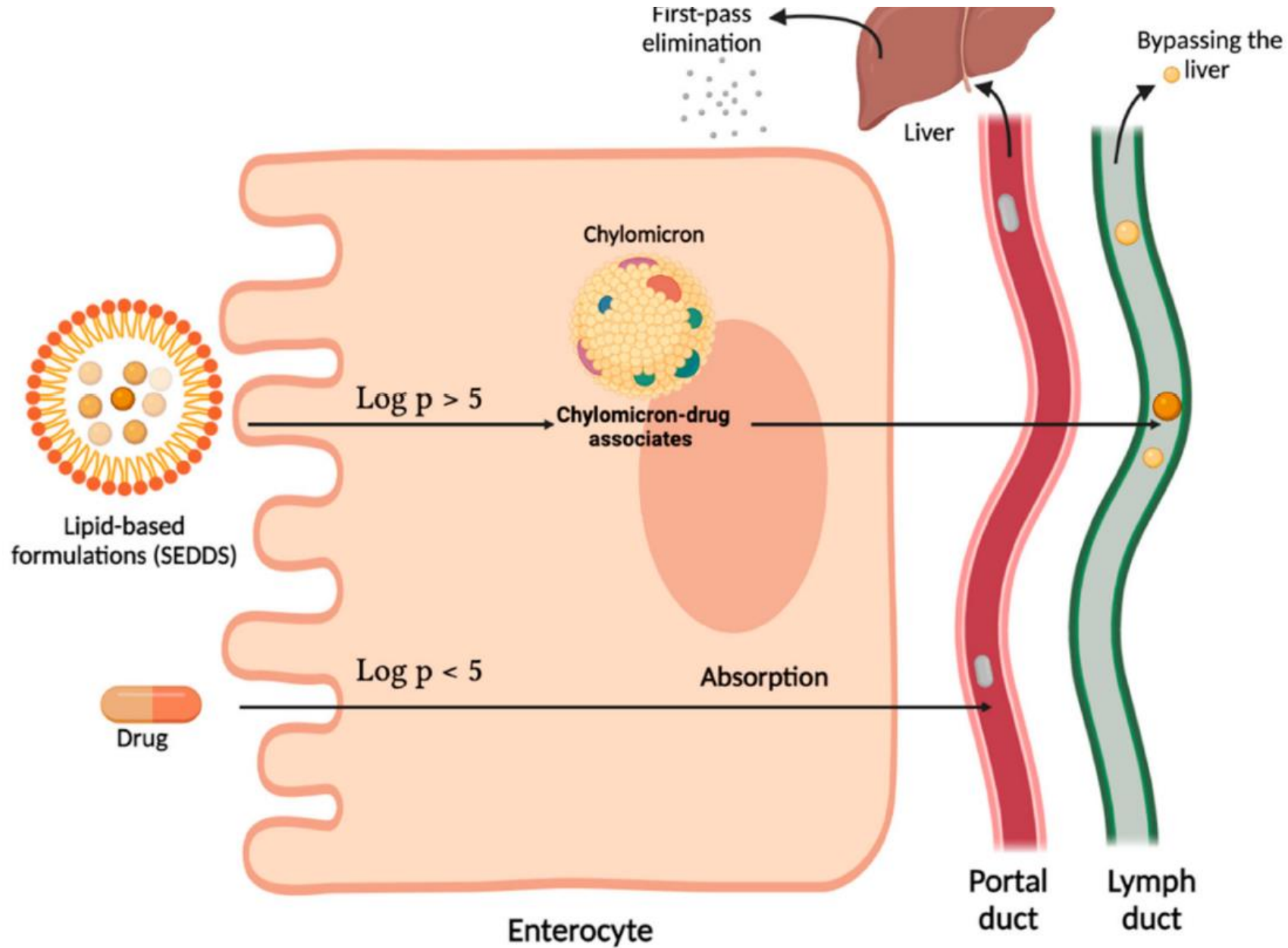
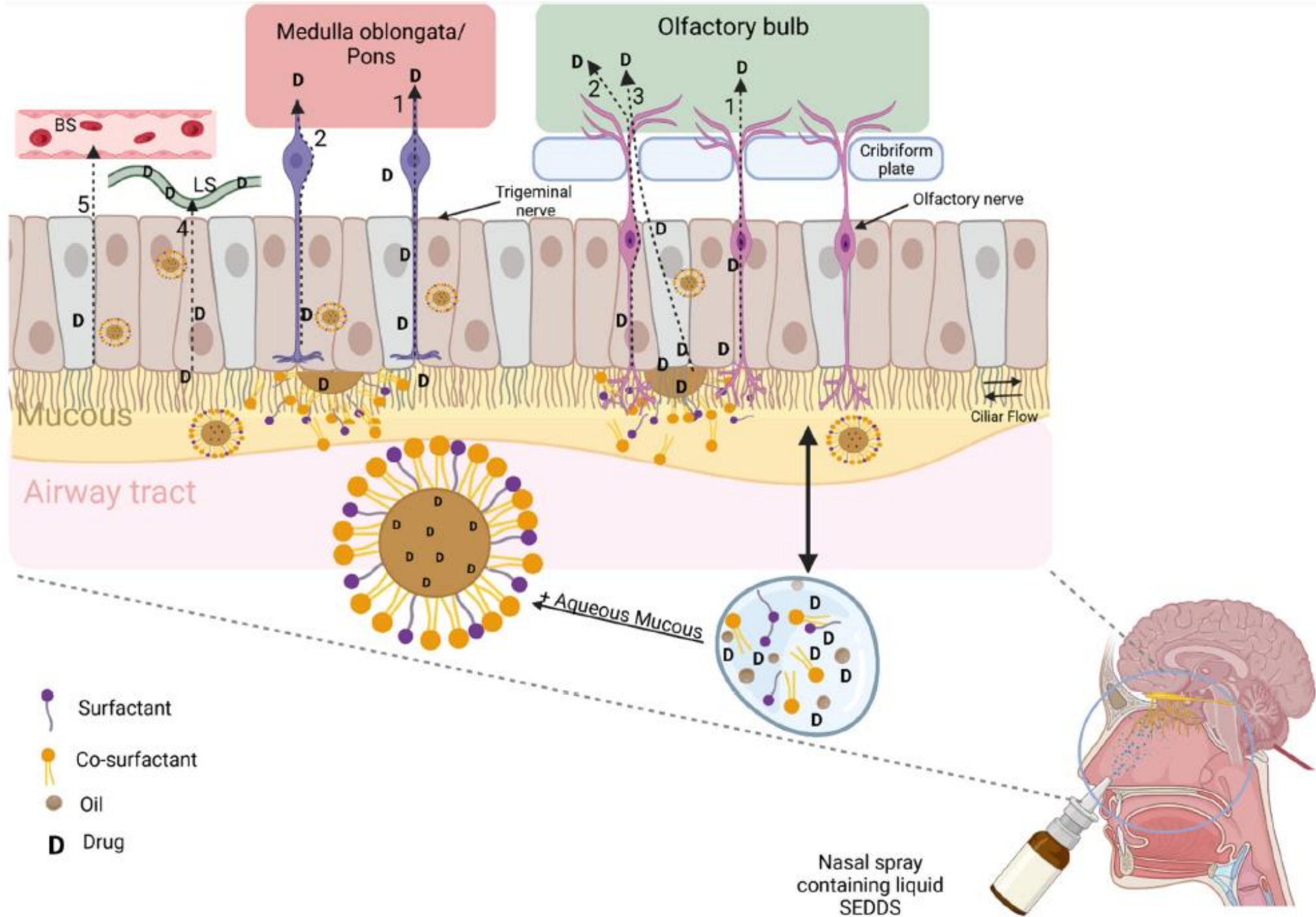


Figure 1. Mechanism of lipid-based formulations by means of the lymphatic system circumventing first-pass metabolism.

Nasal SEDDS



4. Intrapocket Drug Delivery

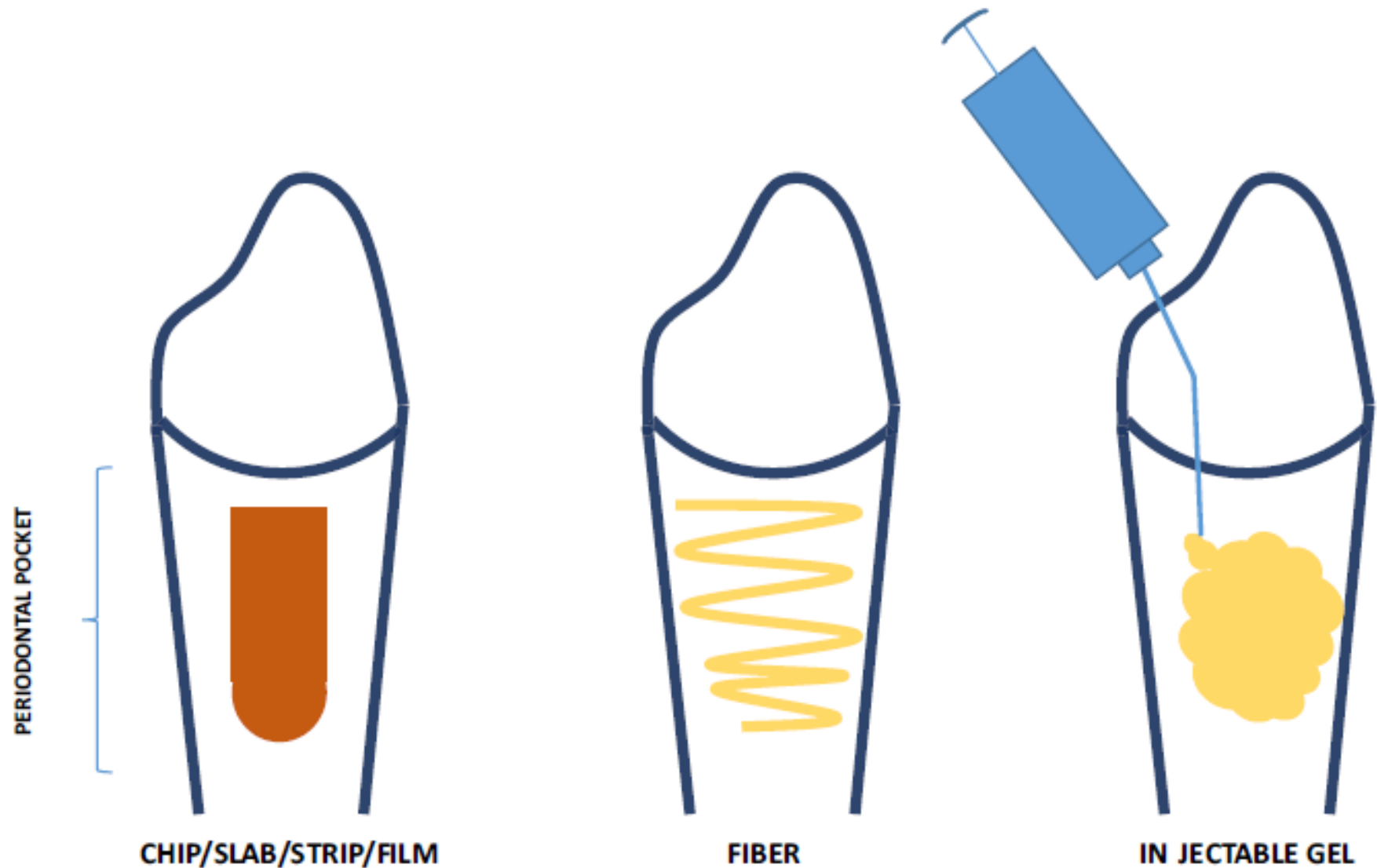
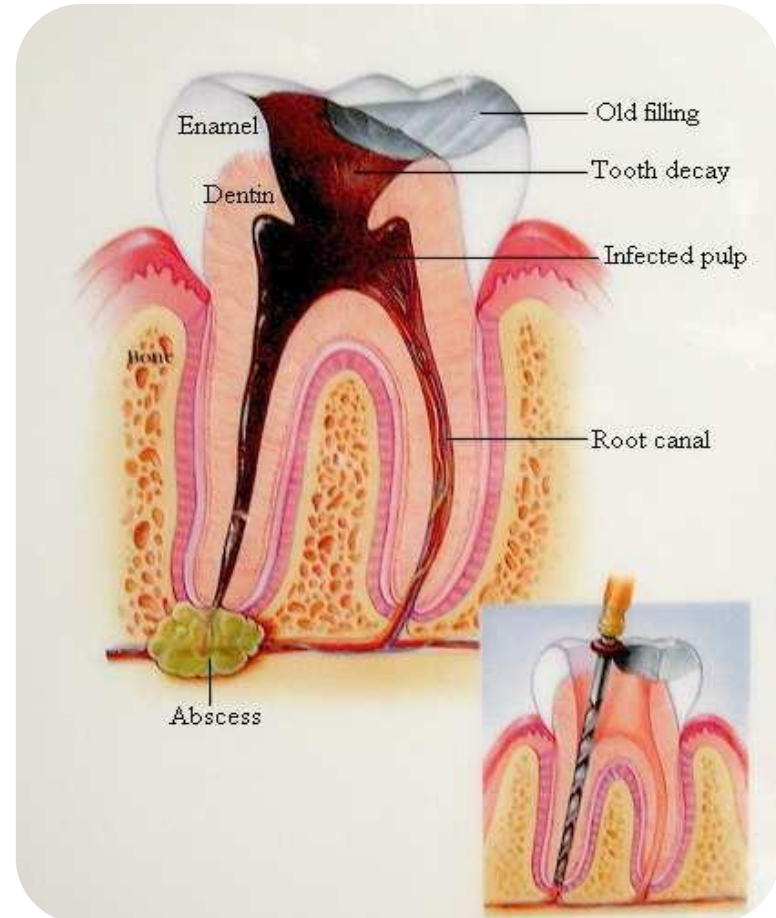
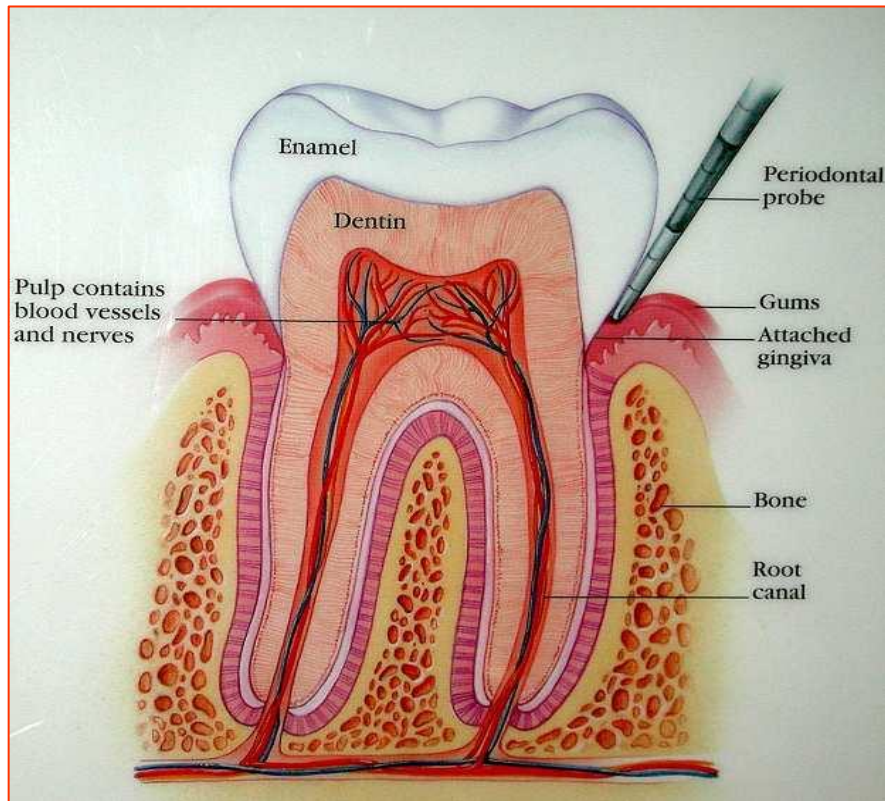


FIGURE 2 The three main classical intrapocket drug-delivery systems

Polymeric Solid Bolus

Periodontitis



Antimicrobials for Periodontitis

Antimicrobials

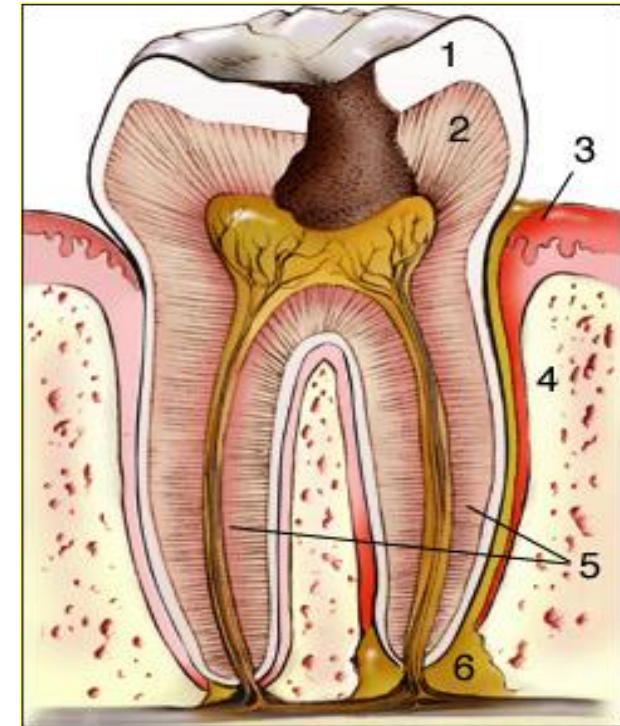
Doxycycline

Tetracycline

Minocycline

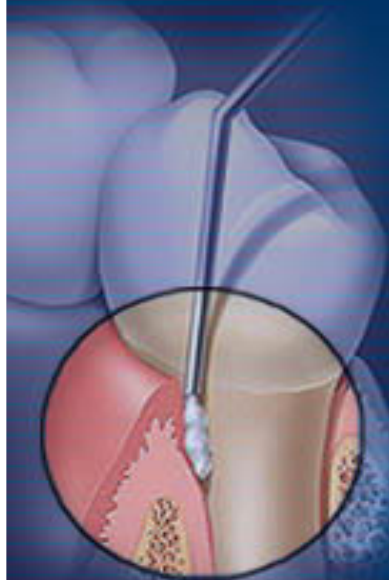
Chlorhexidine

Metronidazole



Atridox[®] Insertion





Periodontal Disease

Periodontal disease, better known as gum disease, affects the gums, teeth and the bone supporting the teeth.

Although a majority of the population suffers from periodontal disease, surprisingly few people, less than 10 percent, receive treatment for this serious illness. Unfortunately, if left untreated, periodontal disease can lead to tooth loss, pain, severe infections and other significant health problems.

- 1. [Causes](#)
- 2. [Stages](#)
- 3. [Symptoms](#)
- 4. [Prevention](#)
- 5. [Treatments](#)
- 6. [Other Health Concerns](#)

Causes of Periodontal Disease



Causes of Periodontal Disease

abpardakhty@knu.ac.ir, Kerman
Faculty of Pharmacy

 **ATRIDOX[®]**

(doxycycline hyclate) 10%

Optimizing the Outcome in Treating
Chronic Adult Periodontitis



An Integral Part of the
Successful Management
of Chronic Adult Periodontitis



Professional Information

Patient Information

Patient Information

Professional Information

stop



COLLAGENEX
pharmaceuticals

ATRIDOX[®] (doxycycline hyclate) 10% PRODUCT INFO



ATRIDOX[®]
(doxycycline hyclate) 10%

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For Patients

Contact Us



- ◆ ATRIDOX[®]
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- ◆ INSURANCE
- ◆ HOME CARE

ATRIDOX[®] (doxycycline hyclate) 10%
in the ATRIGEL[®] Delivery System

Antimicrobial action right where you want it.™

HOW TO APPLY



- Preparation
 - Administration
 - Additional Recommendations
- step 1 ◀ back next ▶



Twist and lock syringes.



Twist and lock syringes.

abpardakhty@knu.ac.ir, Kerman
Faculty of Pharmacy

Antimicrobial action right where you want it.™

HOW TO APPLY



◆ CLINICAL INFO

◆ FAQs

◆ HOW TO APPLY

◆ INSURANCE

◆ HOME CARE

■ Preparation □ Administration □ Additional Recommendations

step 2 ◀ back next ▶



■ Mix syringes back and forth 100 times (about 1 1/2 minutes). The contents must be in the syringe w/purple stripe when finished.

◀ back next ▶



"Atridox® has been shown to help arrest periodontitis when used as directed in a conscientiously applied program of oral hygiene and regular professional care."
Cited in Scientific Affairs, American Dental Association

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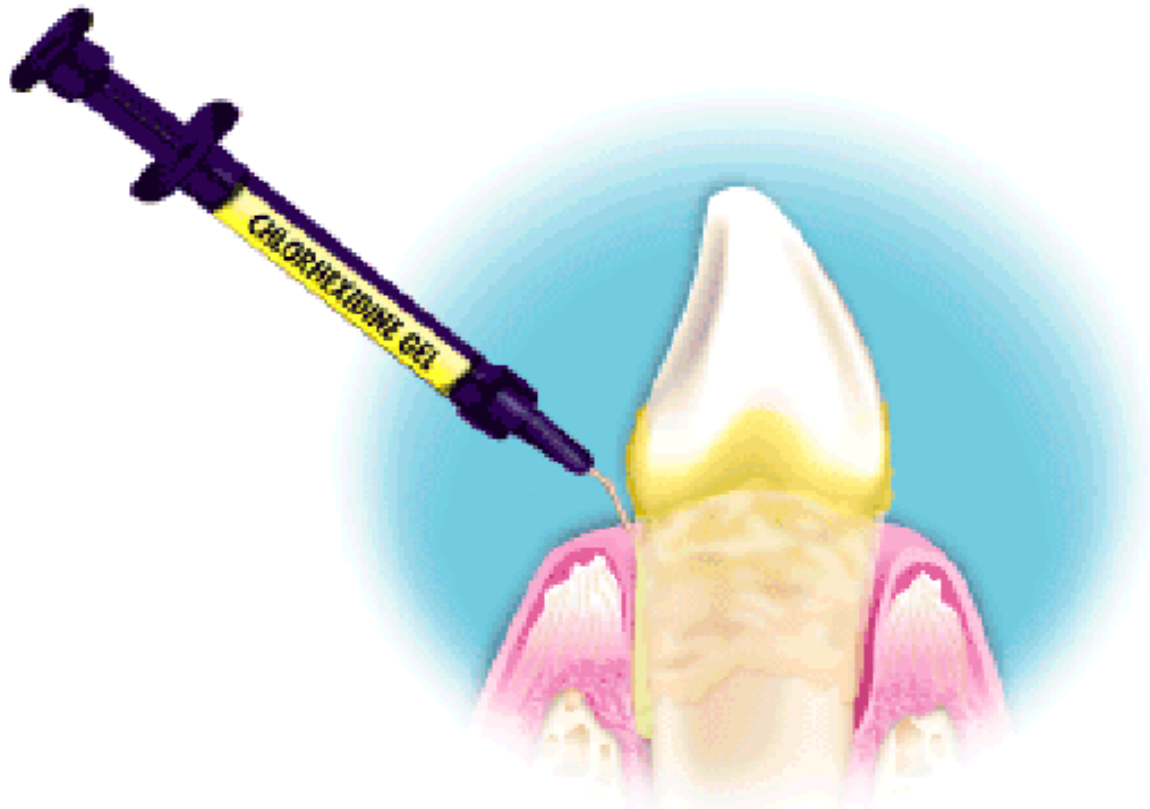
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2/11/2024

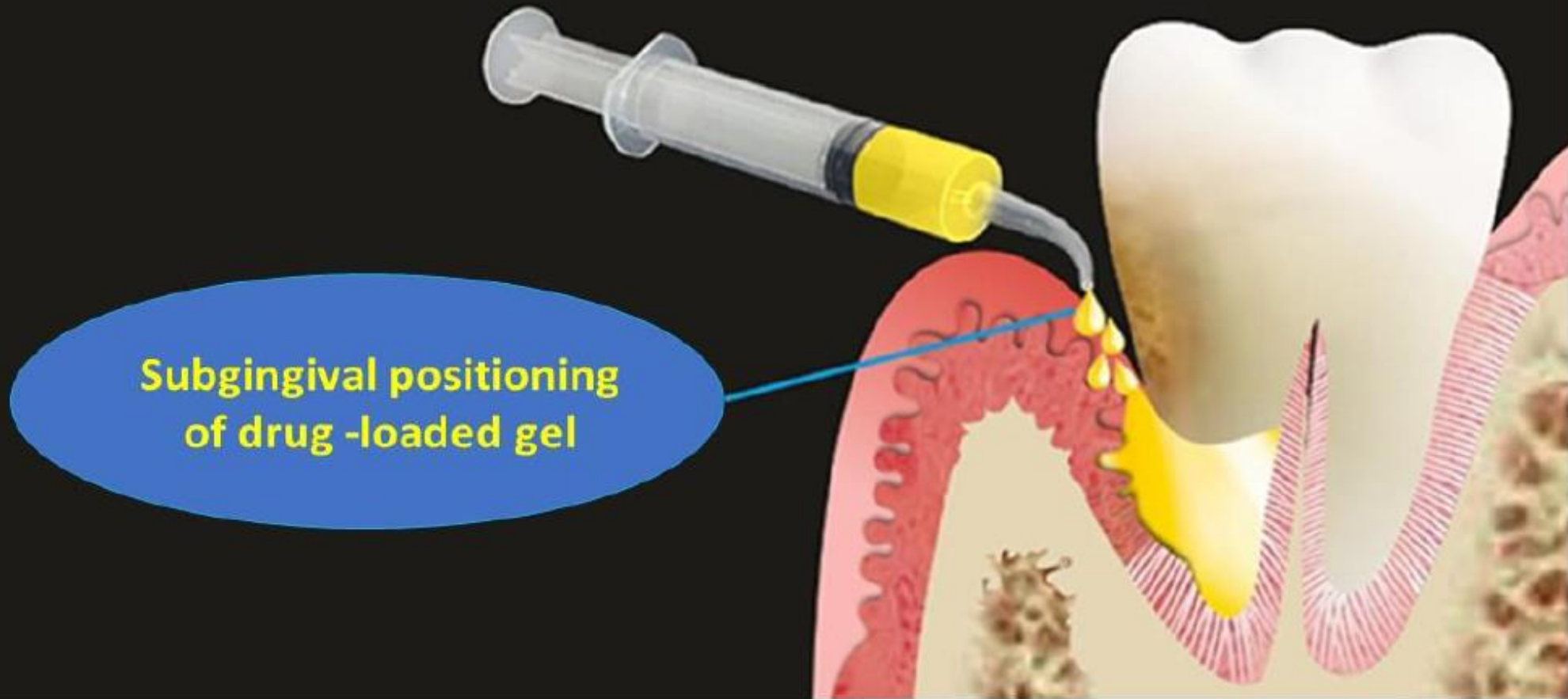
Atridox



Chlorhexidine gel in Xanthan gum



Perioclin[®] Gel (minocycline)



Polymeric Microspheres

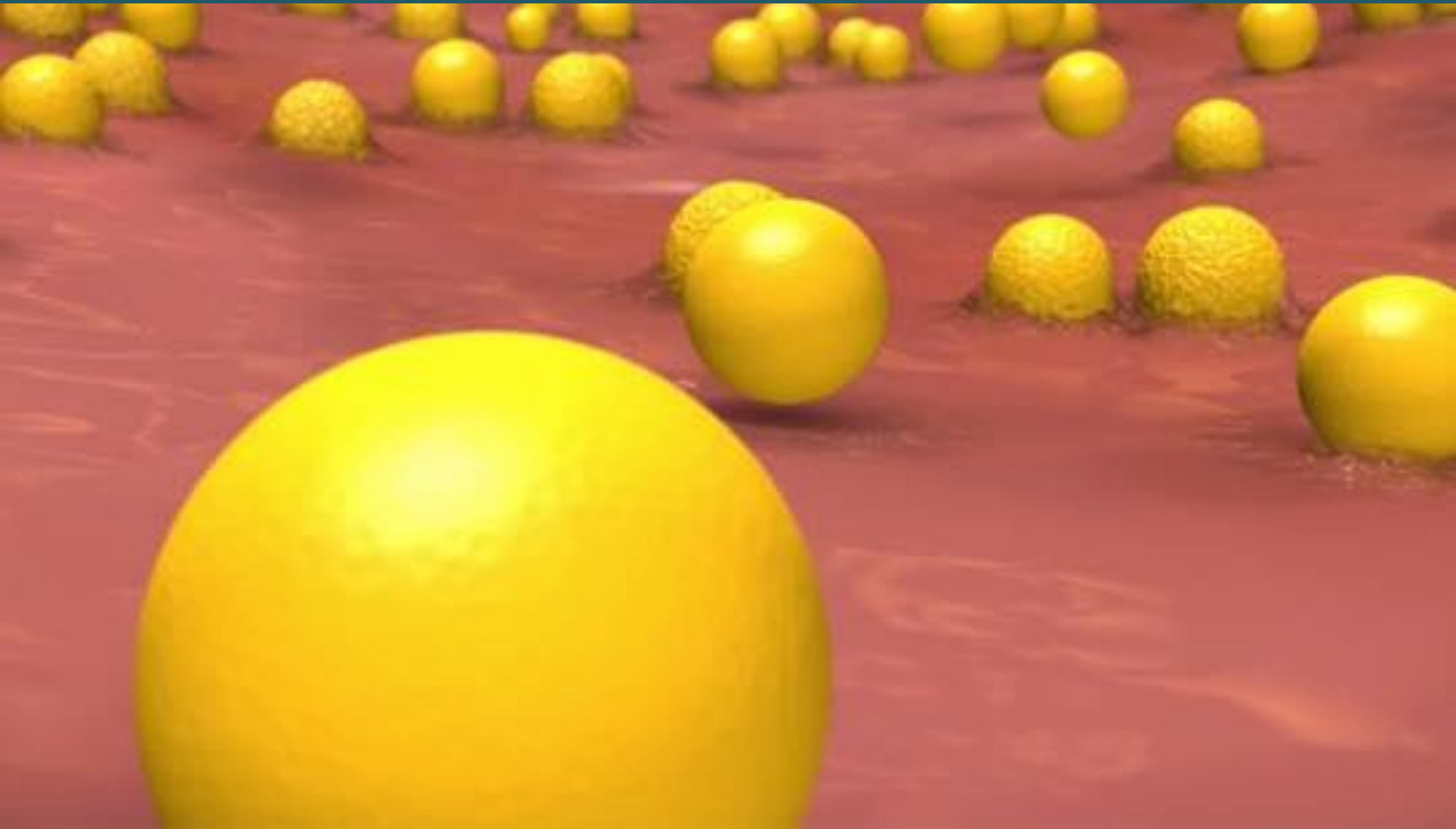


How ARESTIN works

ARESTIN microspheres release the antibiotic over time, fighting bacteria longer than SRP alone

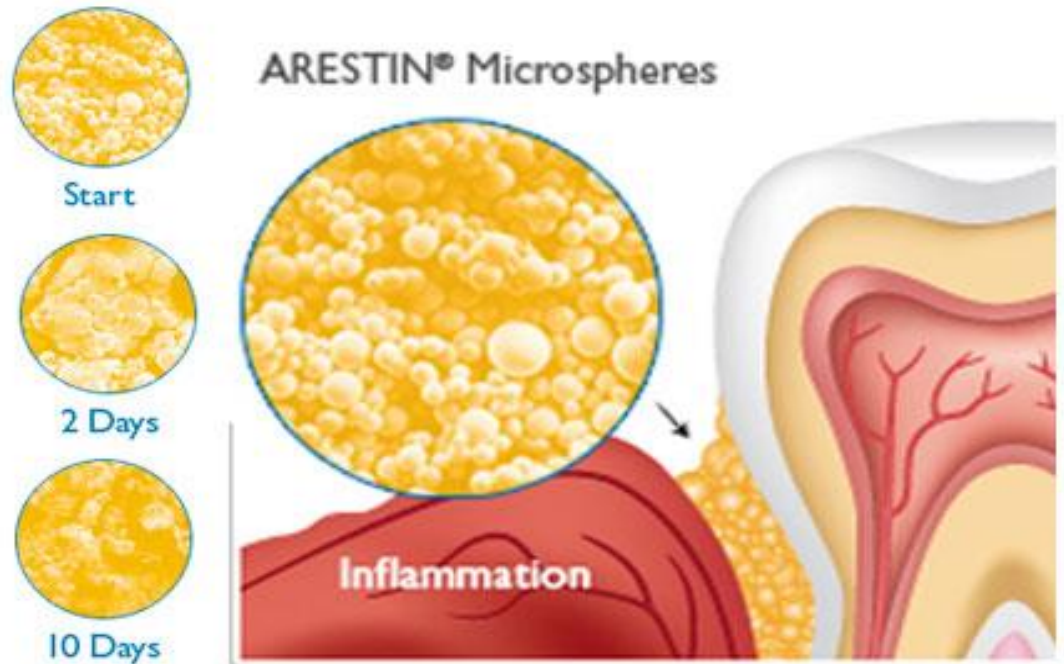
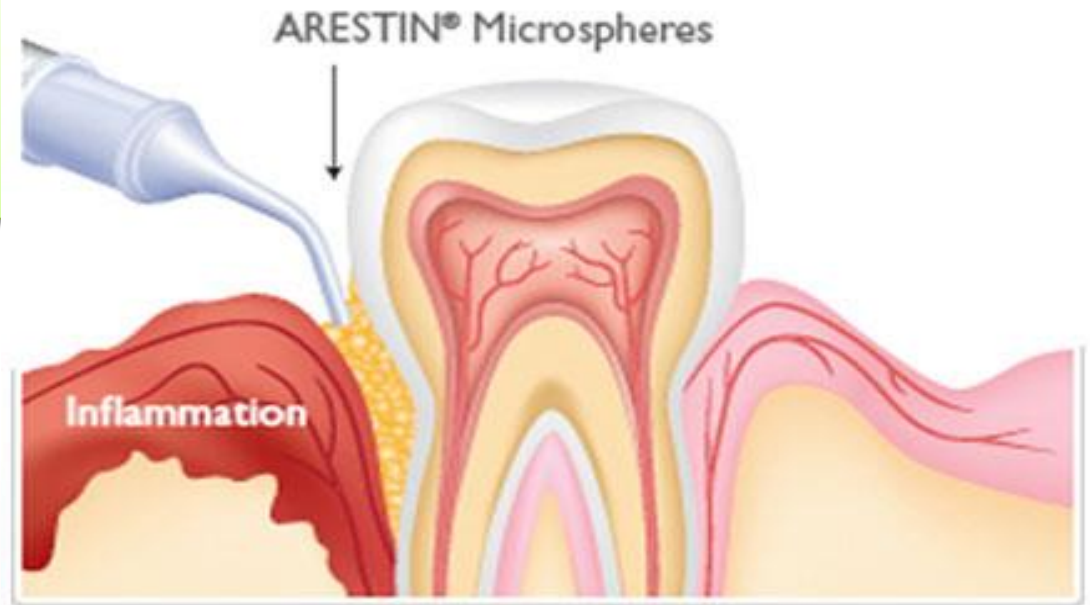


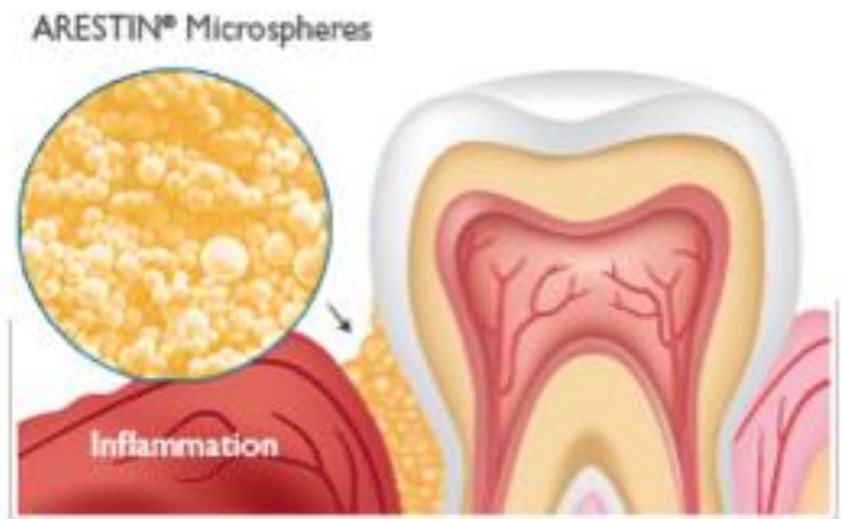
Arestin[®] Microspheres



Arestin

- 15 Days Release



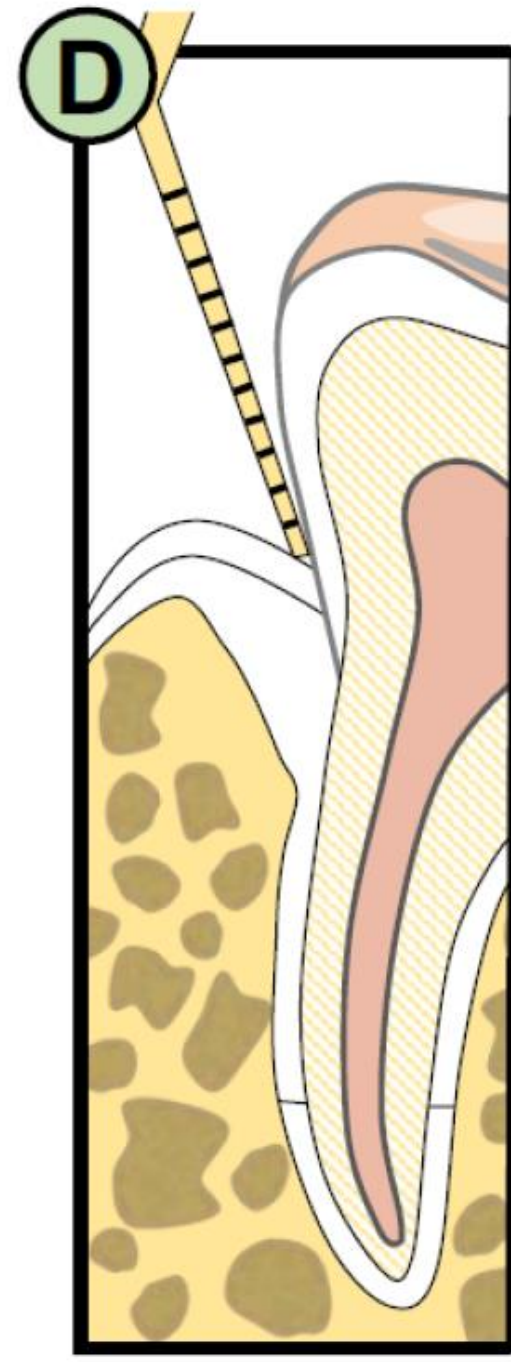
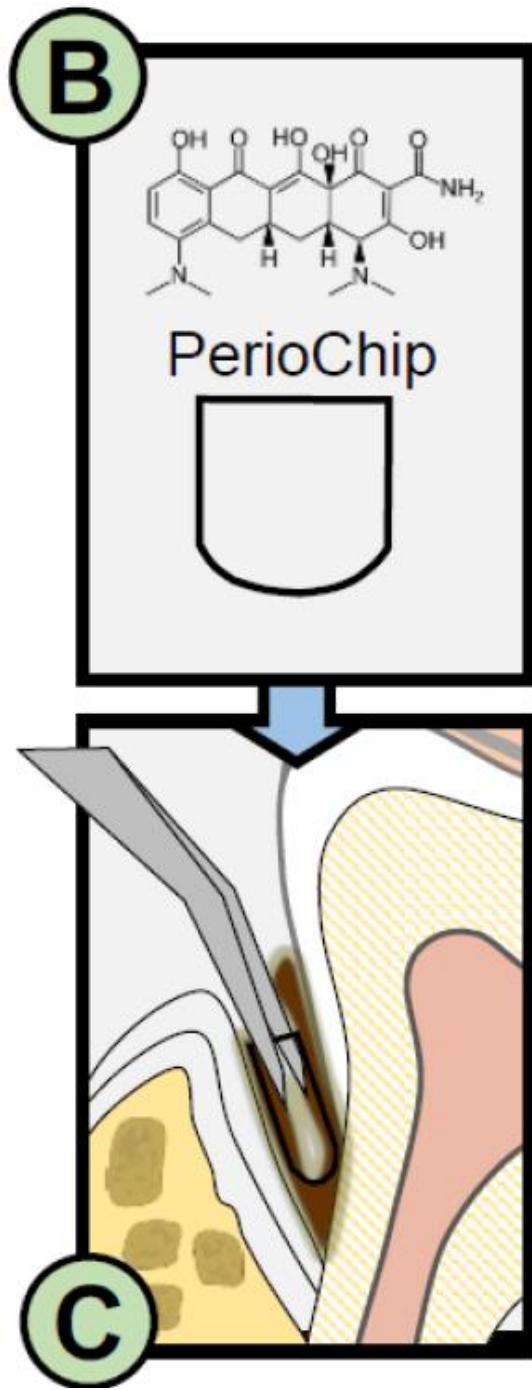
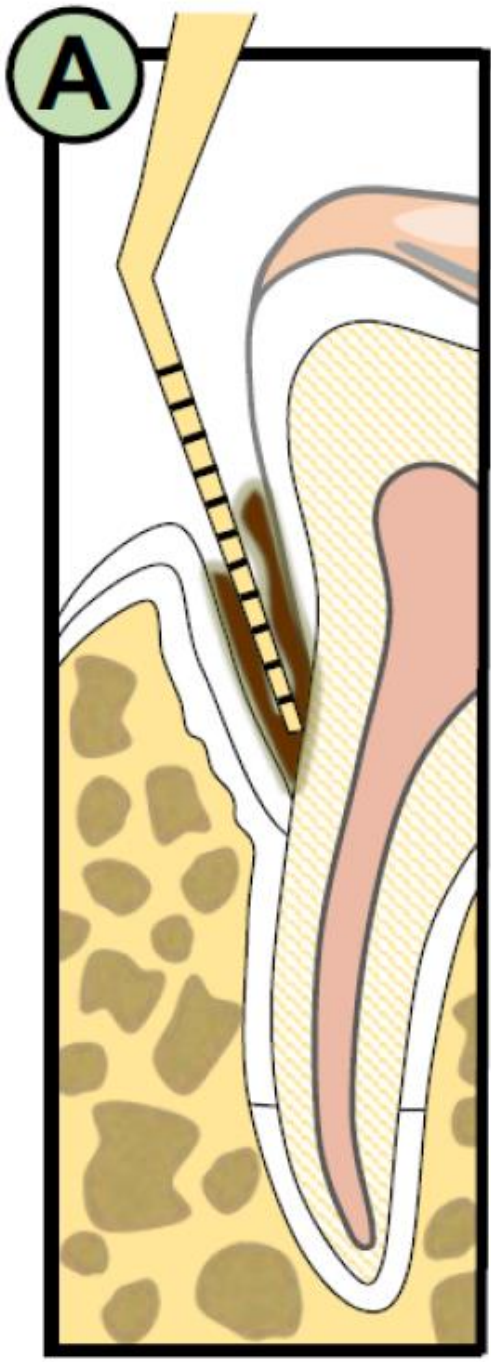


Periochip® Insert

PERIOCHIP / CHLORHEXIDINE

- Potent antiseptic, bacteriostatic, broad spectrum antibiotics
- Active against both gram +ve & -ve organisms
- Biodegradable hydrolysed gelatin matrix, crosslinked with glutaraldehyde with 2.5mg CHX
- Size : 4*5*0.35mm
- Placement of the pocket depth of 5mm and above is recommended
- Drug is released for maximum of 7 days
- 1st 24hours : 40% CHX release
- Next 7 days :60% CHX release



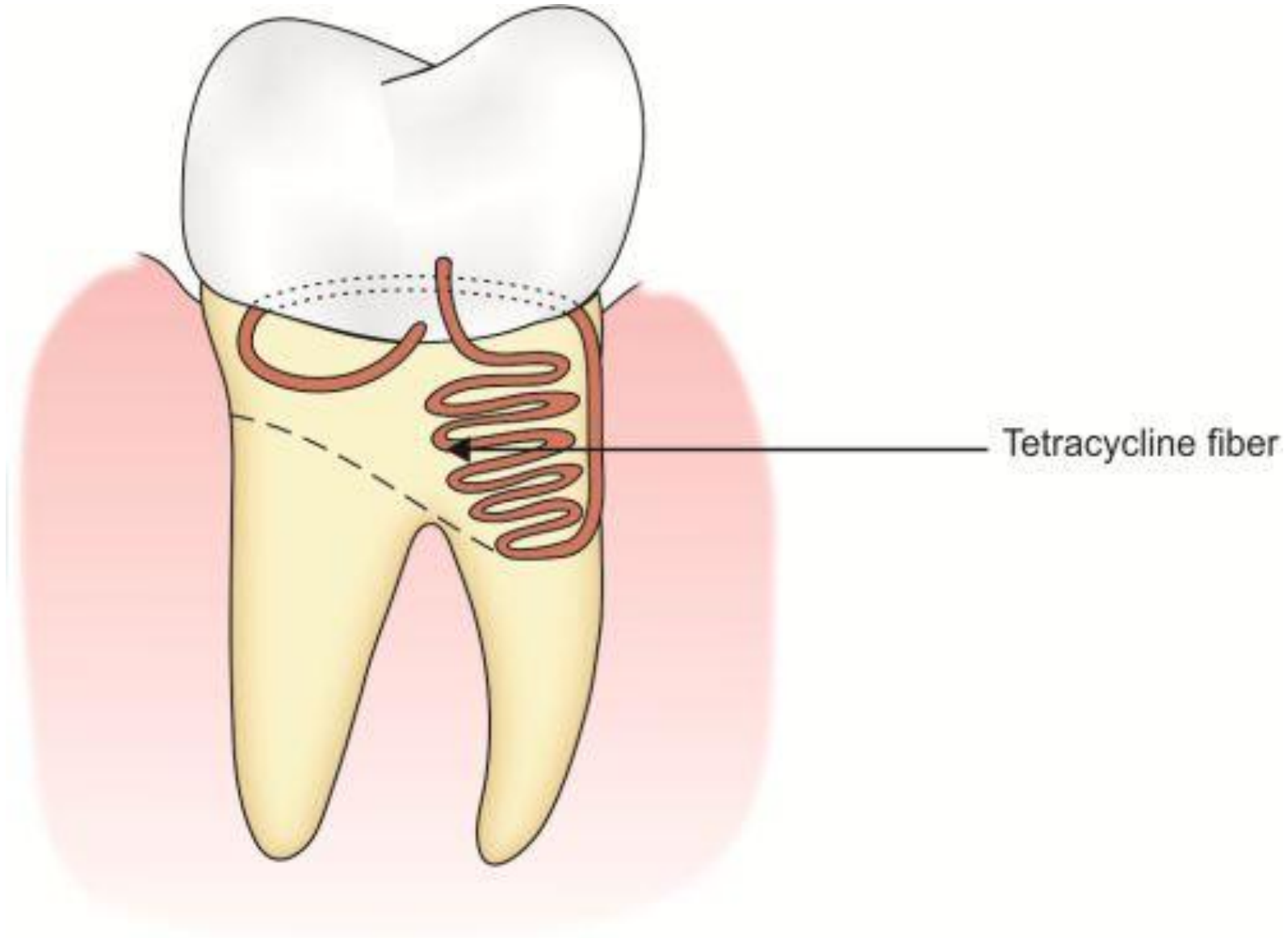


Chlorhexidine

Periochip[®] Insert



Actisite[®] Fibers



Elyzol[®] Gel

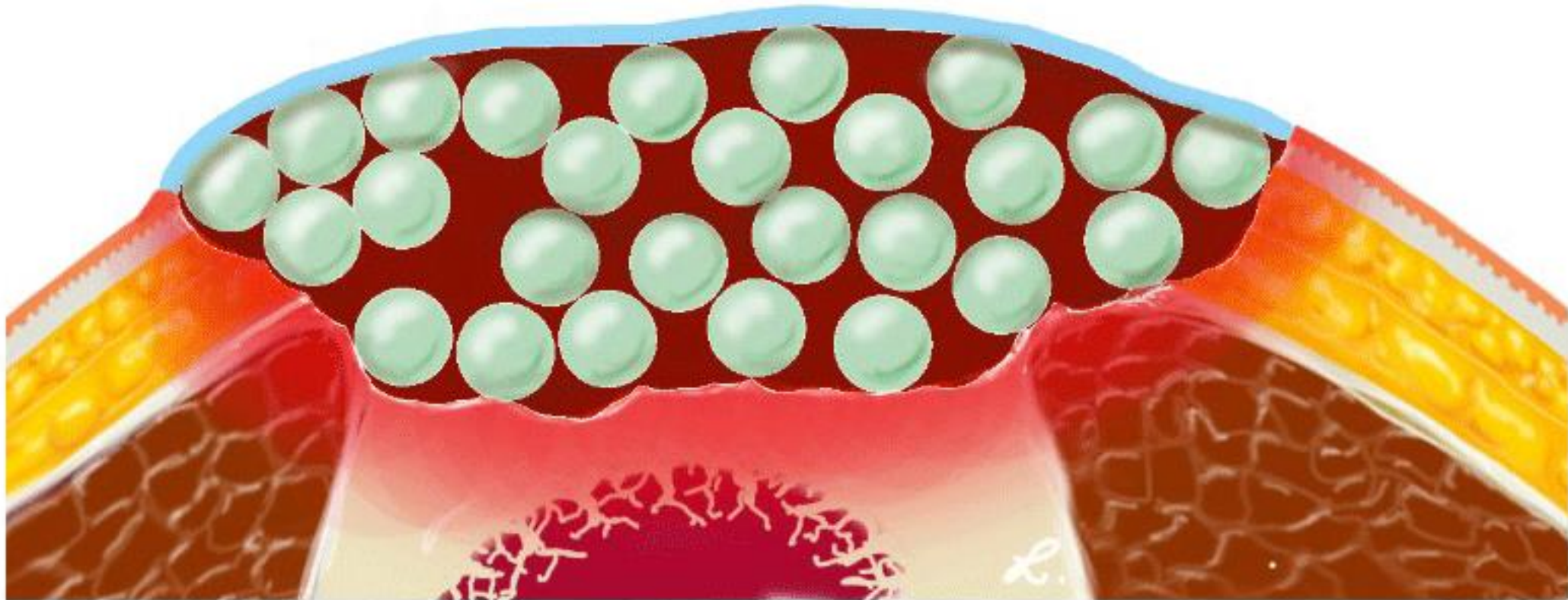
Metronidazole Gel (Elyzol)

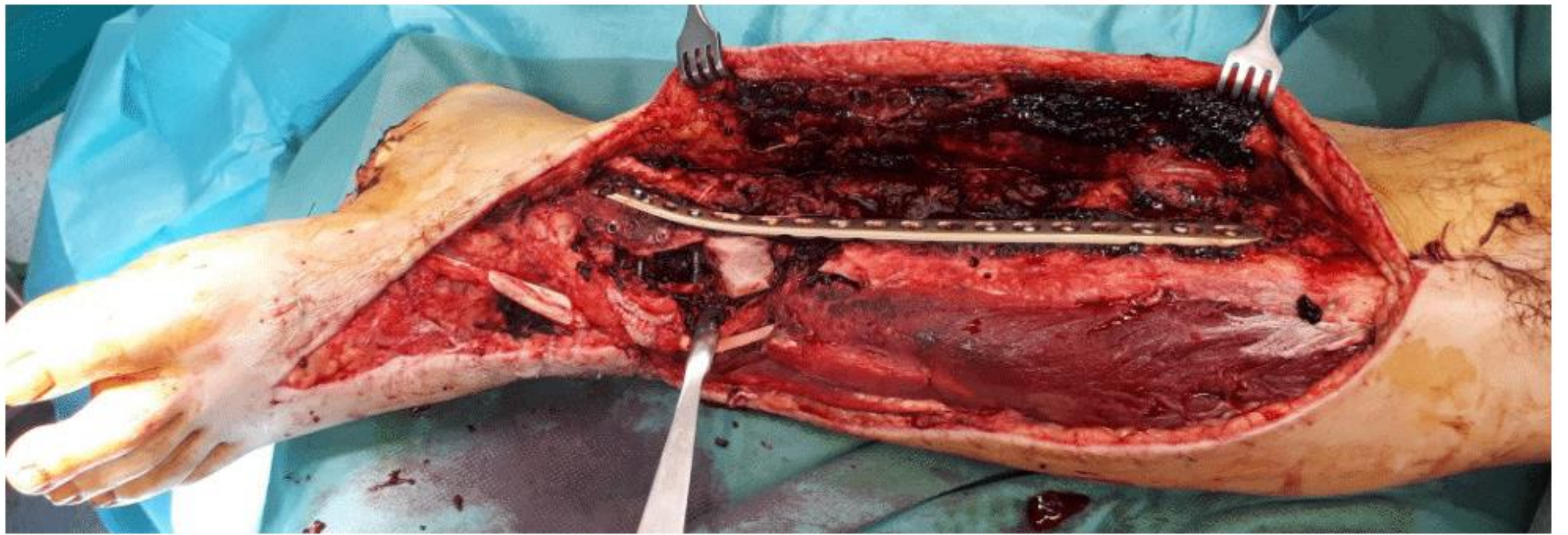
It is a bio-absorbable delivery device containing **25% Metronidazole** benzoate in a matrix consisting of a mixture of glyceryl monooleate and sesame oil.



5. Antibiotic Beads

Antibiotic Beads



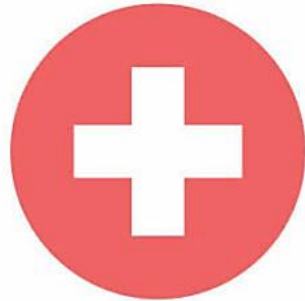


Antibiotic-loaded PMMA beads

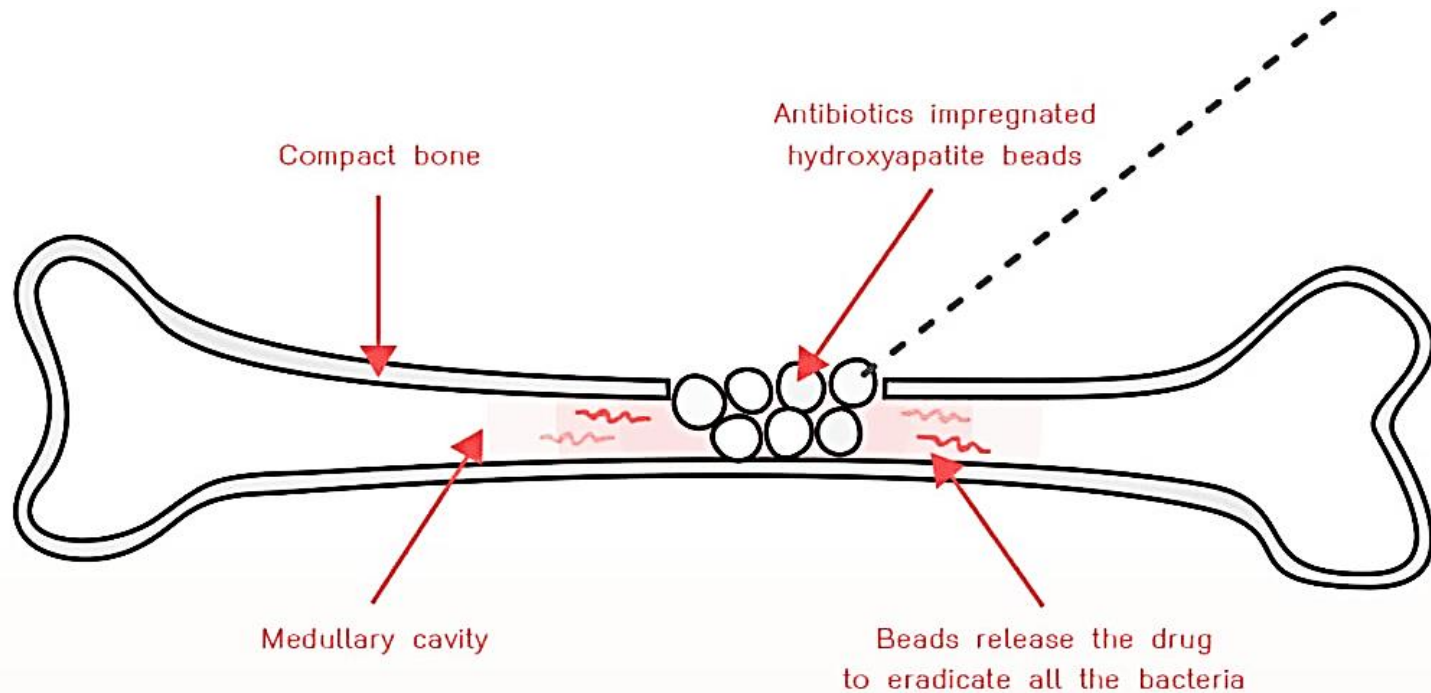


Antibiotic-loaded hydroxyapatite beads





Localized antibiotic released hydroxyapatite beads for bone and joint infection treatment



6. Oral DDS

Oral Nanosystems

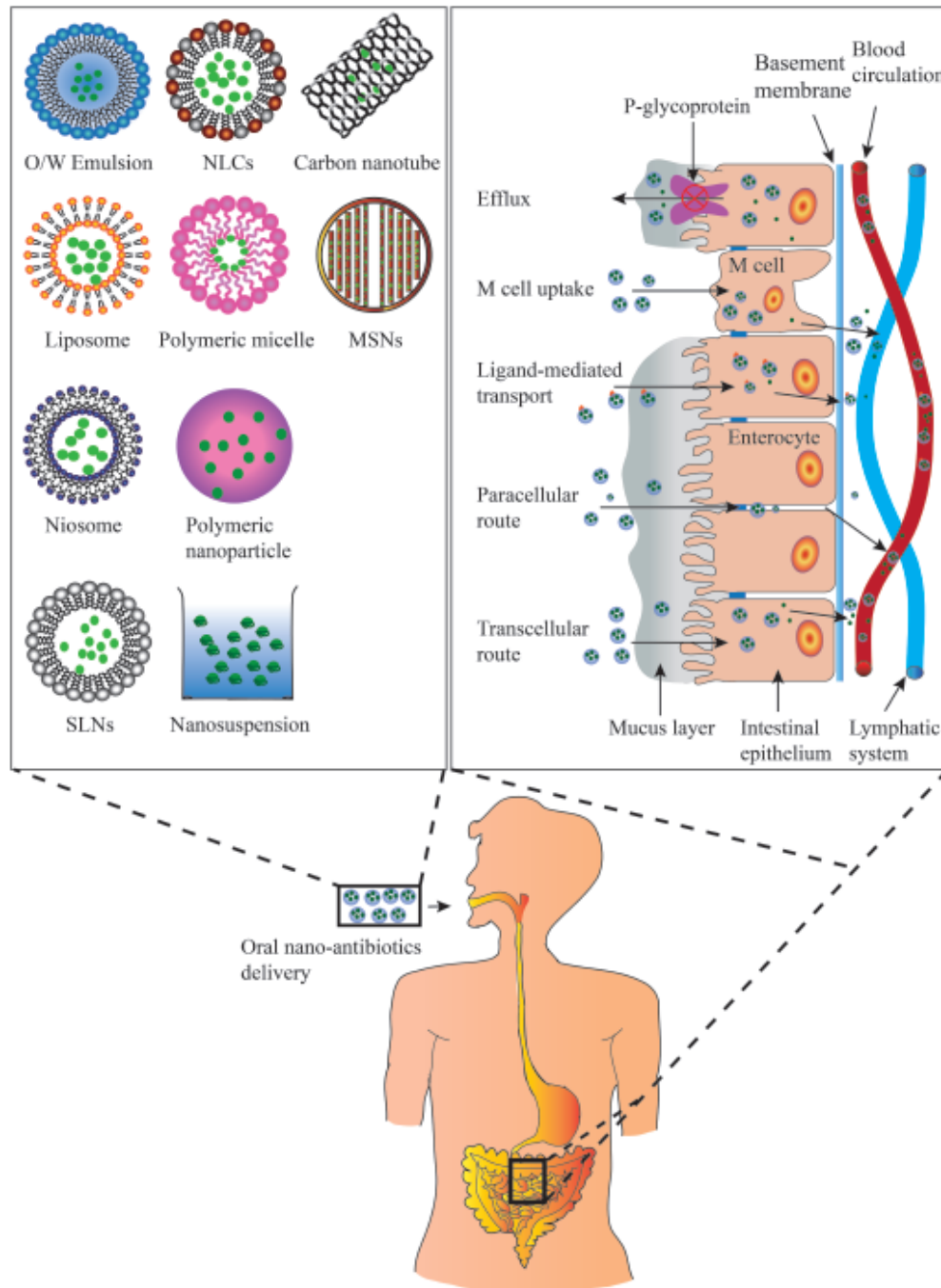


Figure 1 Types of oral antibiotic nanopreparations and mechanisms by which oral absorption improvement of antibiotics through nano-drug delivery system.

Ciprofloxacin floating tablet



Amoxicillin ER Tablet



Cephalexin ER Tablet



Metronidazole ER Tablet



Nitrofurantoin Capsule



Griseofulvin microsize

NDC 42794-012-08

Griseofulvin Tablets, USP (microsize)

500 mg



Rx only
30 Tablets

Usual Adult Dosage: One tablet (500 mg) daily.

Usual Children's Dosage: One half to one tablet (250 mg to 500 mg) daily depending on age and weight.

For information for use, see accompanying product literature. **Not intended for household use. Dispense in a tight container as defined in the USP.**

White, capsule shaped, bisected tablets, debossed with 'Σ' and '12' on either side of the bisection and plain on the other side.

Store at 20° to 25°C (68° to 77°F) [See USP Controlled Room Temperature].

Pharmacist: Do not use if foil seal is removed or damaged. Return to place of purchase.



7. Antibiotic inhalation

Tobramycin DPI

Take back time with
TOBI[®] PODHALER[®]
(Tobramycin Inhalation Powder)
28 mg per capsule



Not actual size

Not an actual patient

Tobramycin inhalation solution



Ciprofloxacin DPI

- Dry powder formulation of ciprofloxacin in capsule for T-326 inhaler
- T-326 inhaler is component of FDA approved antibiotic drug-device combination, TOBI[®] Podhaler[™]



Aztreonam nebulization



Colomycin[®] inhalation



How to prepare Colomycin[®] (Colistimethate Sodium) for nebulisation

This leaflet is intended for patients
prescribed Colomycin and their carers

Colomycin can be used with a variety of nebulisers,
such as the PARI eFlow rapid or LC PLUS

Teva UK Limited, Ridings Point, Whistler Dr,
Castleford WF10 5HX.

Date of Preparation: June 2022

CLM-GB-NP-00003

teva

teva

Colomycin® inhalation

06



Carefully mix the solution by shaking the vial gently in the air like this.

DO NOT use Colomycin if you notice visible particles in the solution after dissolution.

07



Pour the solution into the nebuliser.

It is now ready to use.

Colomycin should be used immediately after preparation.

08

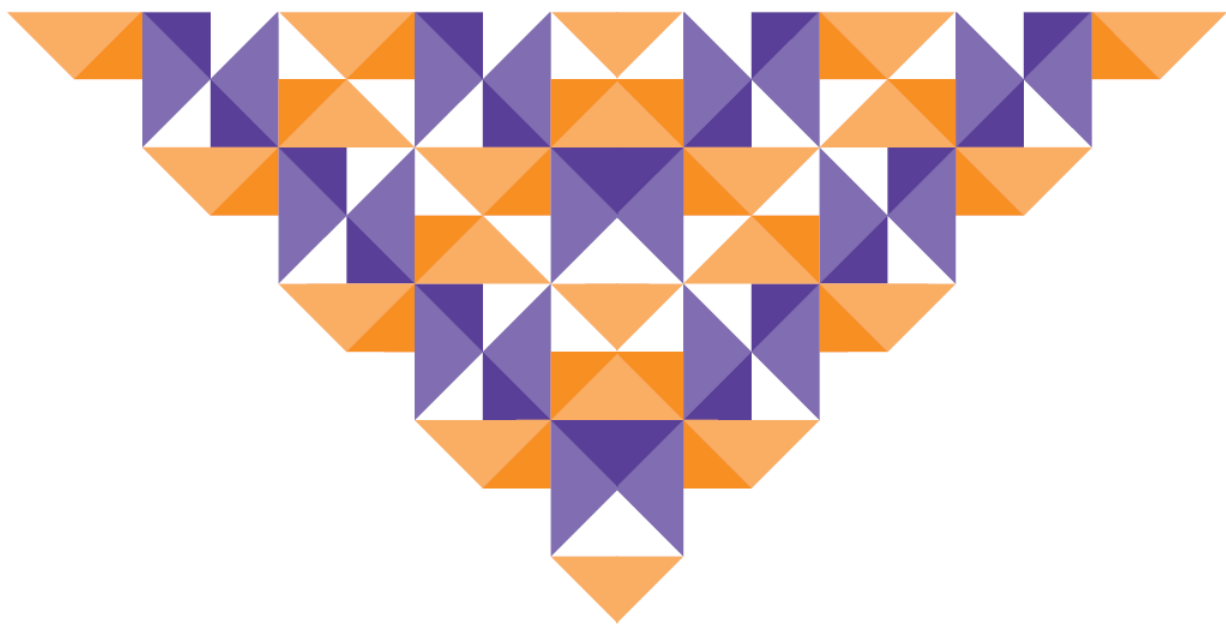


N.B. Depending on the type of nebuliser used there may be some residual solution in the bottom of the nebuliser chamber.

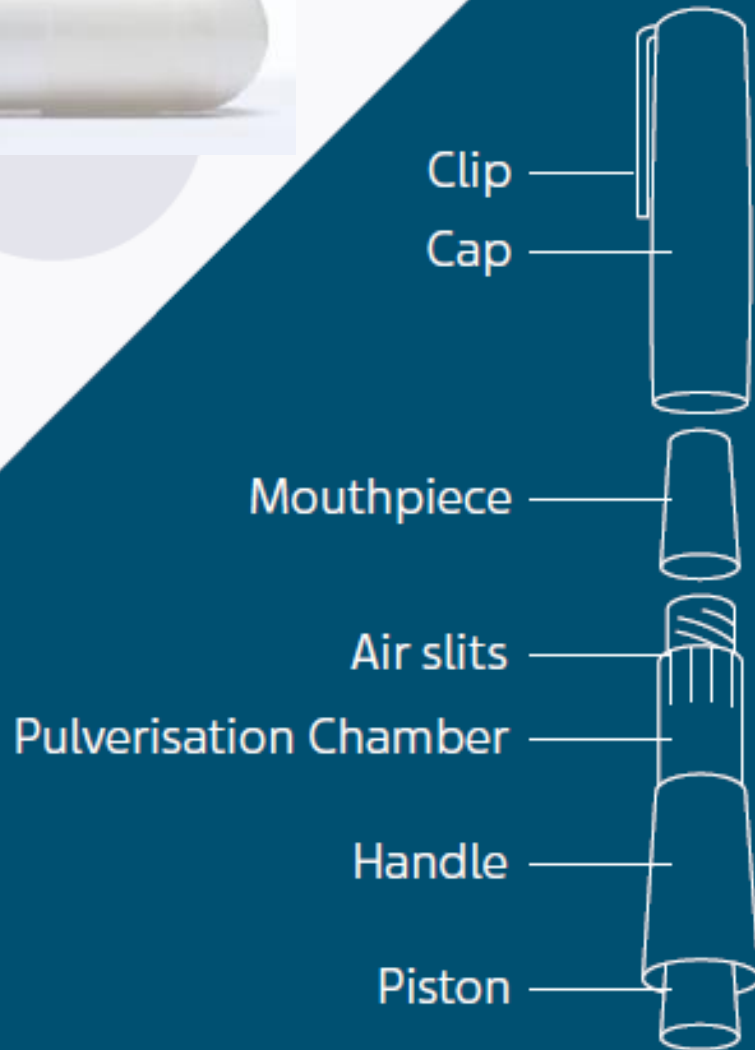
Your nebuliser chamber should be cleaned after each use. Please follow the manufacturer's recommended cleaning routine.



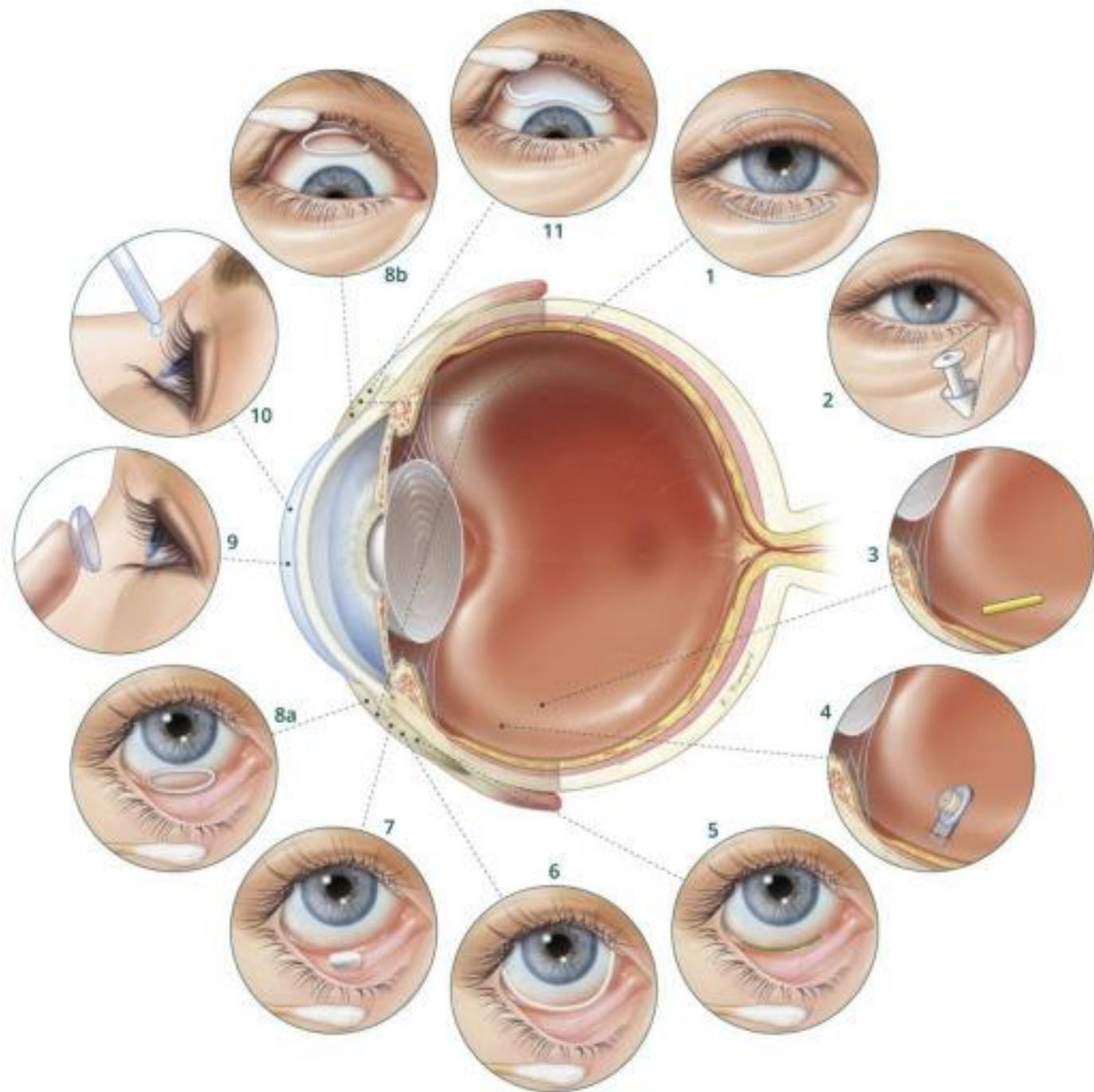
colobreathe

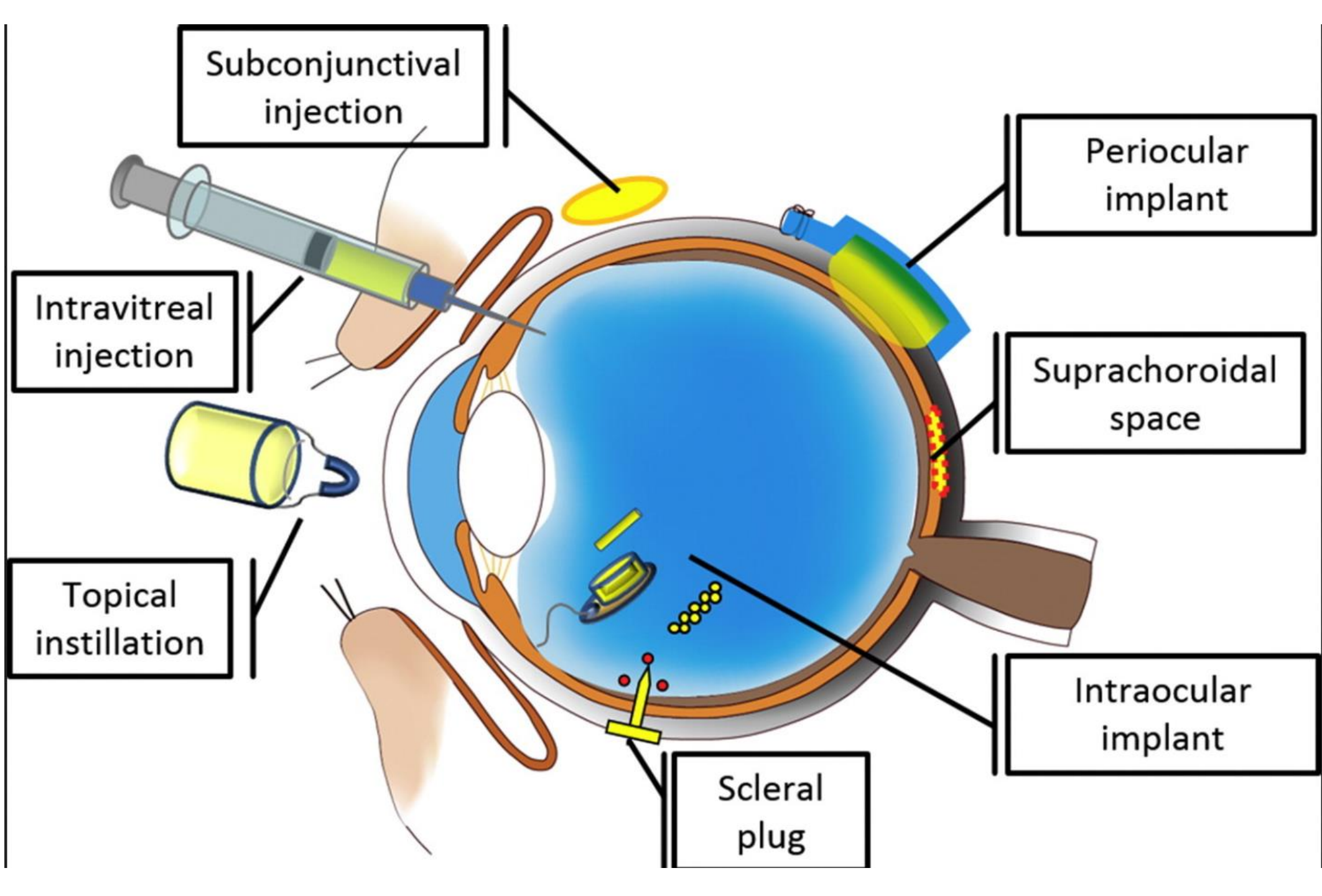


Colobreathe®

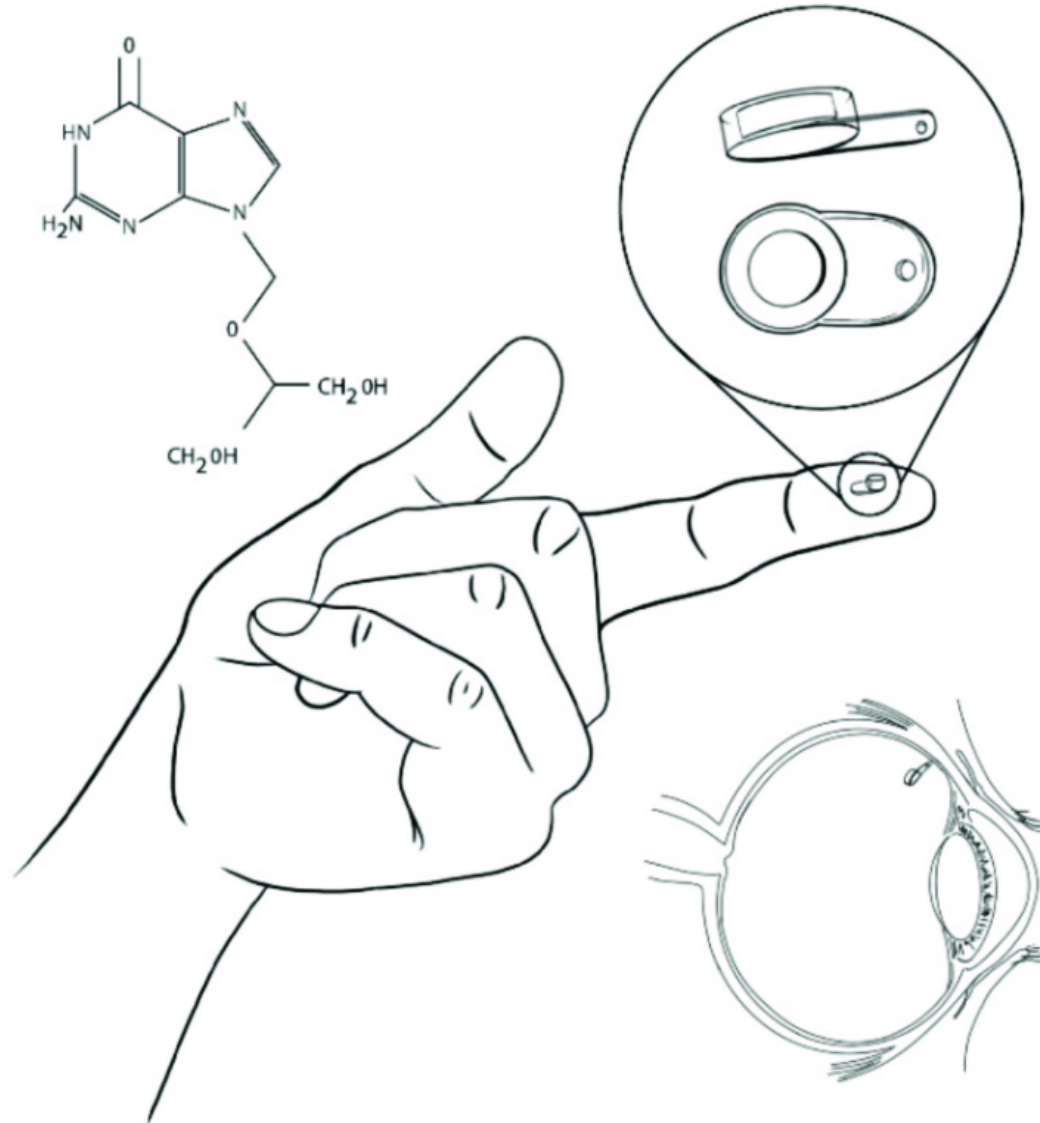


8. Ophthalmic delivery



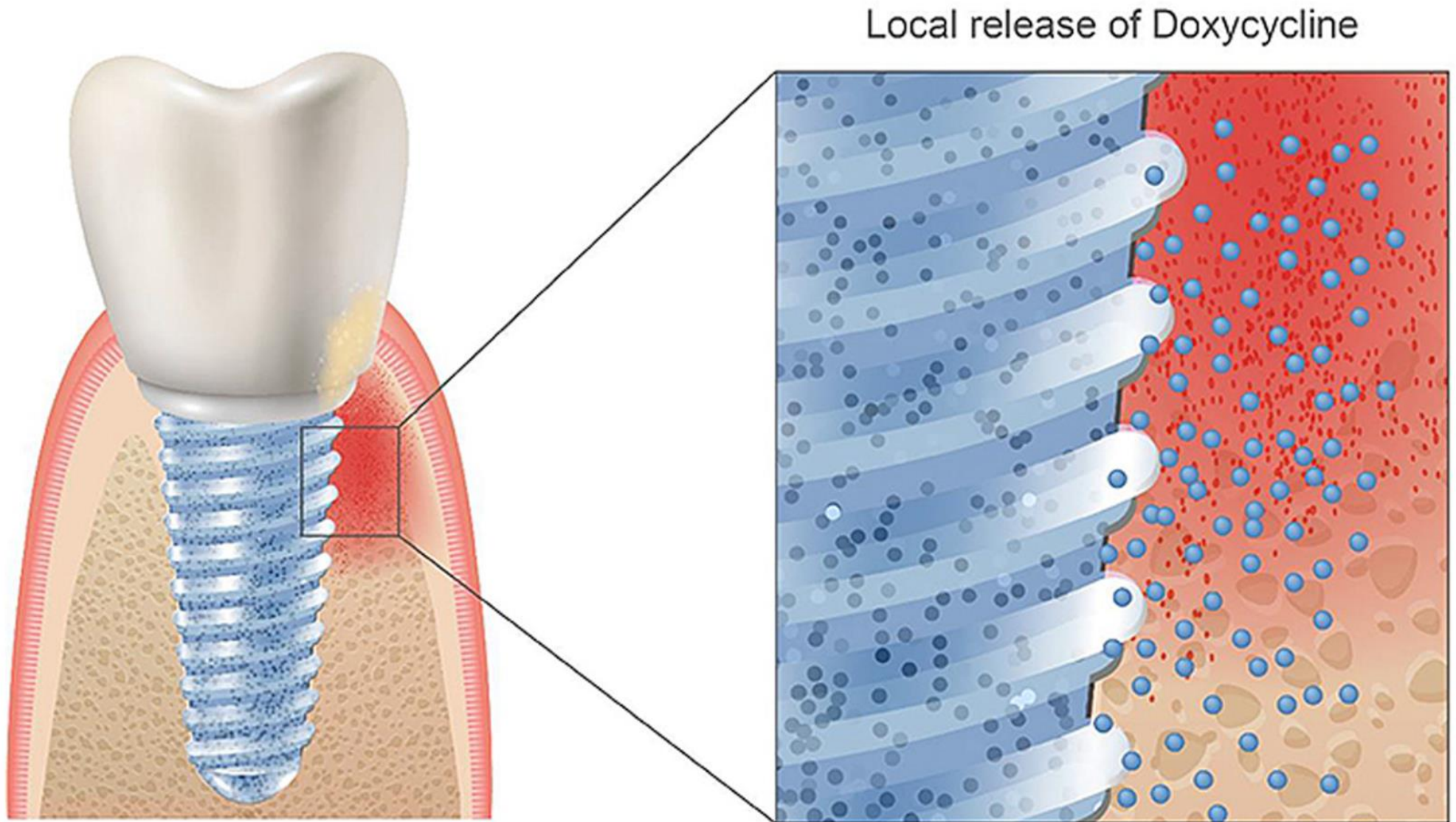


Vitrasert® Ganciclovir



9. Implants

Antibiotic coated implants



Antibiotic-Loaded Bone Cements

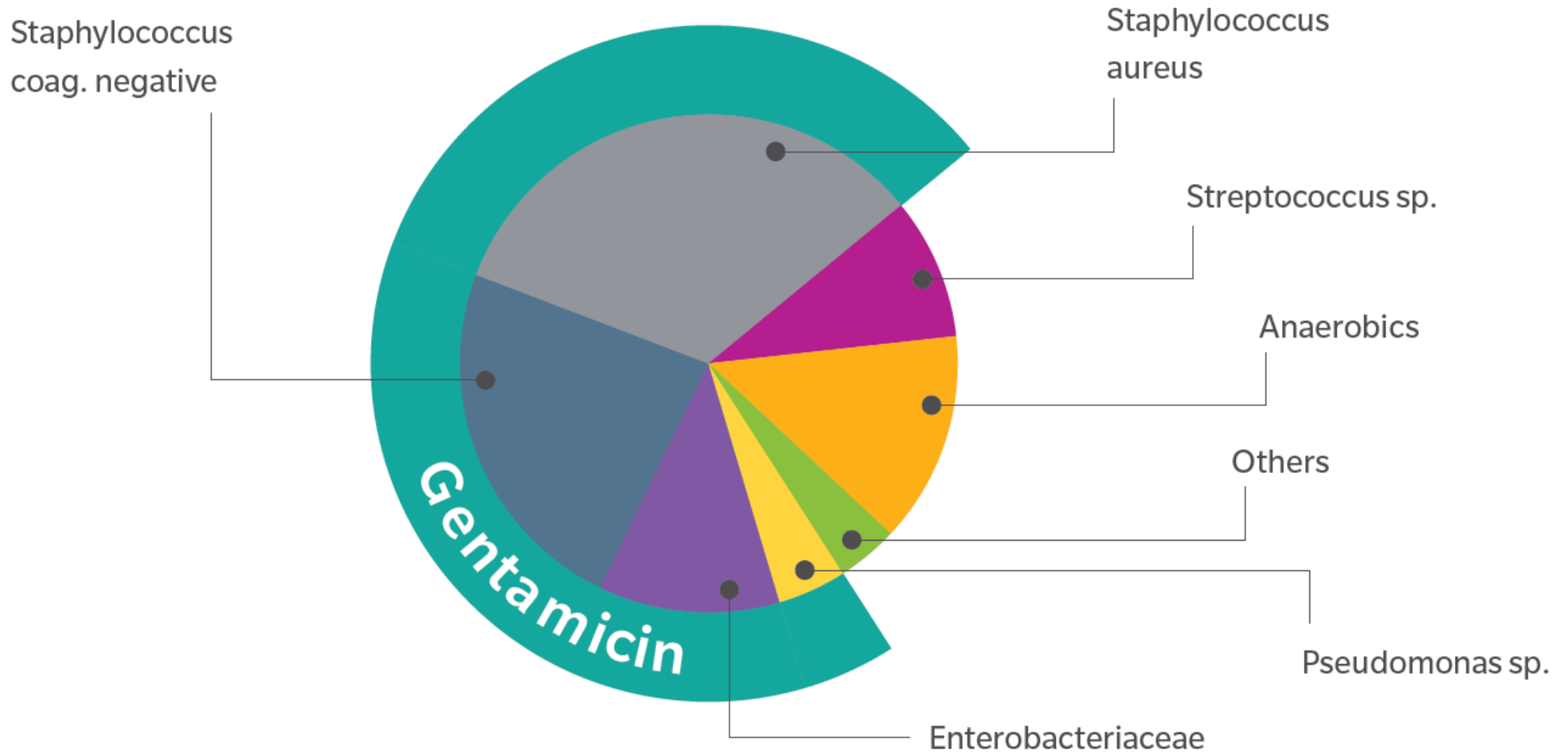
Table 3. FDA-approved ALBCs [51].

Product Name	Manufacturers/U.S. Distributors	Cement Type	Dosage of Antibiotic Per 40 g of Bone Cement
Cobalt g-HV	Biomet (Warsaw, IN, USA)	Copolymer high viscosity	0.5 g of gentamicin
Palacos G	Biomet (Warsaw, IN, USA)	Copolymer high viscosity	0.5 g of gentamicin
DePuy 1	DePuy Orthopaedics (Warsaw, IN, USA)	Homopolymer high viscosity	1.0 g of gentamicin
Cemex Genta	Exactech (Gainesville, FL, USA)	Copolymer medium viscosity	0.5 g of gentamicin
VersaBond AB	Smith and Nephew (Memphis, TN, USA)	Copolymer medium viscosity	1.0 g of tobramycin
Simplex P	Stryker Orthopaedics (Mahwah, NJ, USA)	Copolymer medium viscosity	1.0 g of tobramycin
Biomet Refobacin Cement R	Biomet (Warsaw, IN, USA)	High viscosity	2% of gentamicin sulfate
Palacos R+G p (predecessor Refobacin Palacos)	Heraeus (Langhorne, PA, USA)	High viscosity	1.96% of gentamicin

Biomet Bone Cement R and Refobacin[®] Bone Cement R

- Refobacin[®] Bone Cement R includes 0.50 g active gentamicin per 40 g sachet.





Gentamicin covers most of the bacteria common to infected arthroplasty cases.⁷