



**STIKES NOTOKUSUMO  
YOGYAKARTA**

# **PENGEMBANGAN PRODUK**

**Pertemuan 1**

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# Topik Bahasan

Definisi pengembangan produk

Penemuan vs pengembangan

Perkembangan sediaan Farmasi di Indonesia



Electric iron by Morphy Richards



Steam Iron by Sunbeam



Steam iron by Hoover



Steam iron with lime scale collector by Tofal



Steam iron by Tefal



Steam iron by Electolux



Steam iron by Bosch



Steam iron by Panasonic

1950's

1960's

1970's

1980's

1990's

2000

Now



The American Beauty iron by American Beauty



Silver streak glass iron by Corning company



The Modern Beauty steam iron by American Beauty (Same design from 1940-1990)



Dry iron by Philips



Steam iron by Russel Hobbs



Steam iron by Philips



Travel iron by SteamFast

BEAUTIFUL & COMFORTABLE HANDLES

HORIZONTAL/SQUARE DESIGNS

AIR-DYNAMIC DESIGN

? →

Figure 6. Design development of irons from 1950's to present time.





1984  
Macintosh



1986  
Macintosh Plus



1987  
Macintosh II



1987  
Macintosh SE



1989  
Macintosh IIcx



1989  
Macintosh IIfx



1990  
Macintosh Classic



1990  
Macintosh IIsx



1990  
Macintosh LC



1993  
Macintosh Centris



1993  
Macintosh TV



1995  
Macintosh LC



1998  
iMac



1999  
iMac DV



2001  
iMac Patterns



2002  
iMac



2004  
iMac G5



2006  
iMac Slimmer Intel



2007  
Novo iMac





**1876**

Patent for Alexander  
Graham Bell's phone



**1880s**

Cradle phone



**1960s**

Touch tone pad  
phone



**1988**

Car phone



**2000**

Cellphones meets  
the internet



**2007**

iPhone  
(First generation)



**2010**

Samsung Galaxy A  
(its first Android phone)



1500 BCE



The first pill was developed by the ancient Egyptians.

100-200 AD



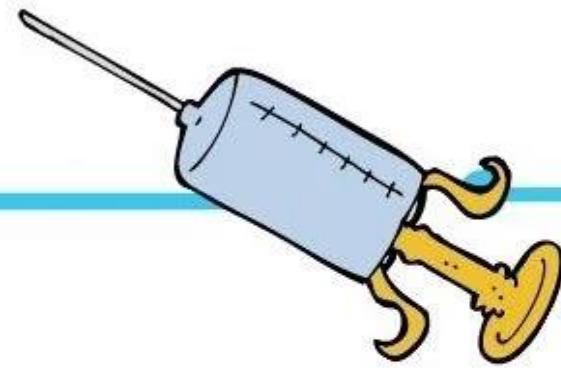
The Romans developed a form of tar pill.

1776



America starts contributing to medical advances as nation grows.

1853



The first needle was used to deliver medication.

1940'S



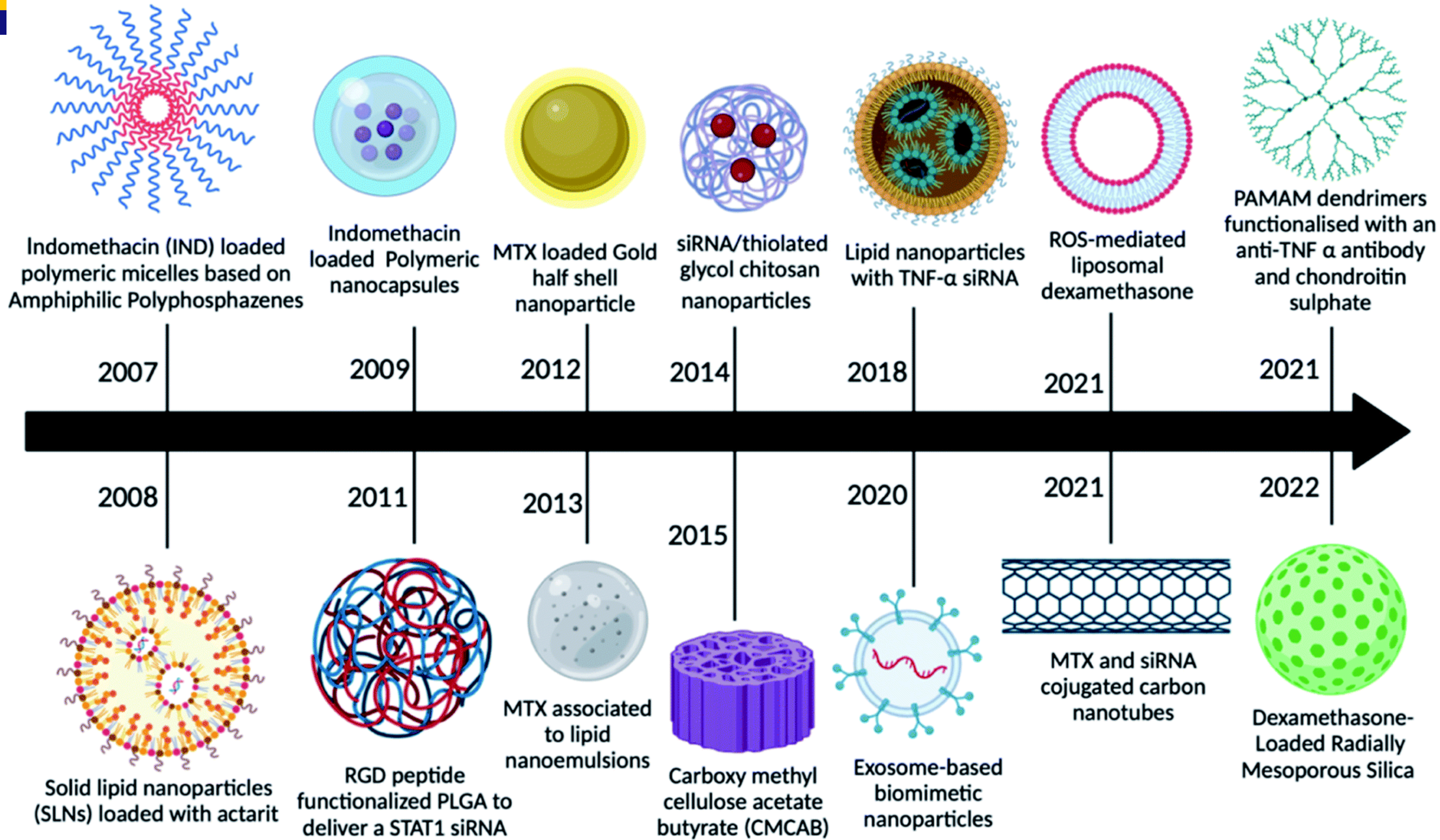
Delayed release pills were developed, optimizing delivery.

2020'S

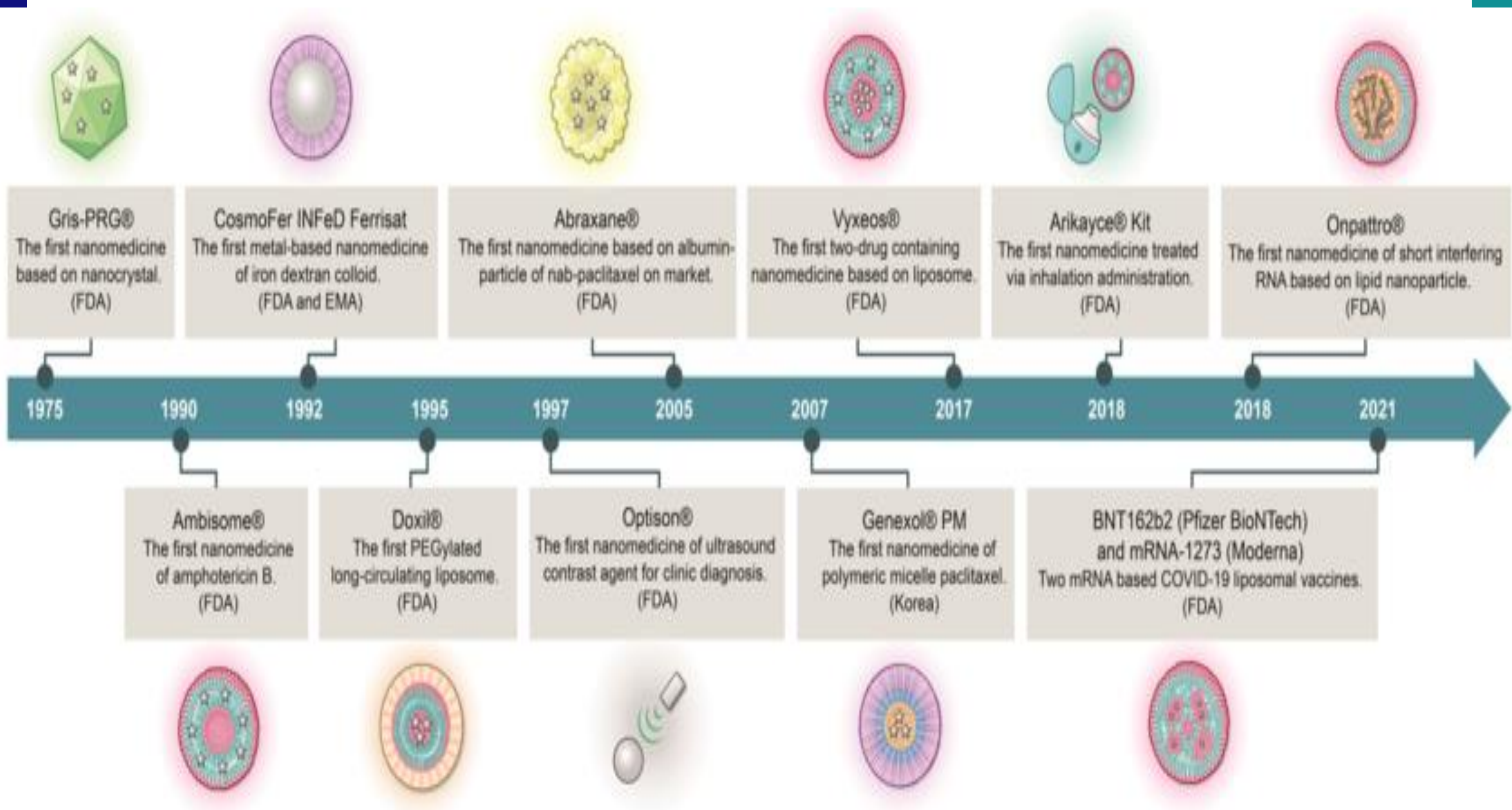


SmartTab is pioneering wireless drug delivery technology.











# Product Development



educationleaves.com

CoolClips.com

# Pengertian

## Menurut Tjiptono (2008)

Pengembangan produk adalah **strategi untuk produk baru** meliputi produk orisinil, produk yang **disempurnakan**, produk yang **dimodifikasi**, dan merek baru yang **dikembangkan** melalui usaha **riset dan pengembangan**.

## Menurut Kotler dan Amstrong (2008)

Pengembangan produk adalah **strategi untuk pertumbuhan perusahaan** dengan menawarkan produk **memodifikasi** atau produk baru ke segmen pasar yang ada sekarang pengembangan konsep produk menjadi produk fisik dalam upaya memastikan bahwa ide produk bisa diubah menjadi produk yang bisa diwujudkan secara efektif.

## Menurut Alma (2002)

Pengembangan produk adalah semua kegiatan yang dilakukan oleh pabrikan atau produsen dalam **menentukan dan mengembangkan produknya, memperbaiki produk lama, memperbanyak kegunaan** dari produk yang sudah ada dan mengurangi biaya produksi dan biaya pengemas.

## Menurut Simamora (2000)

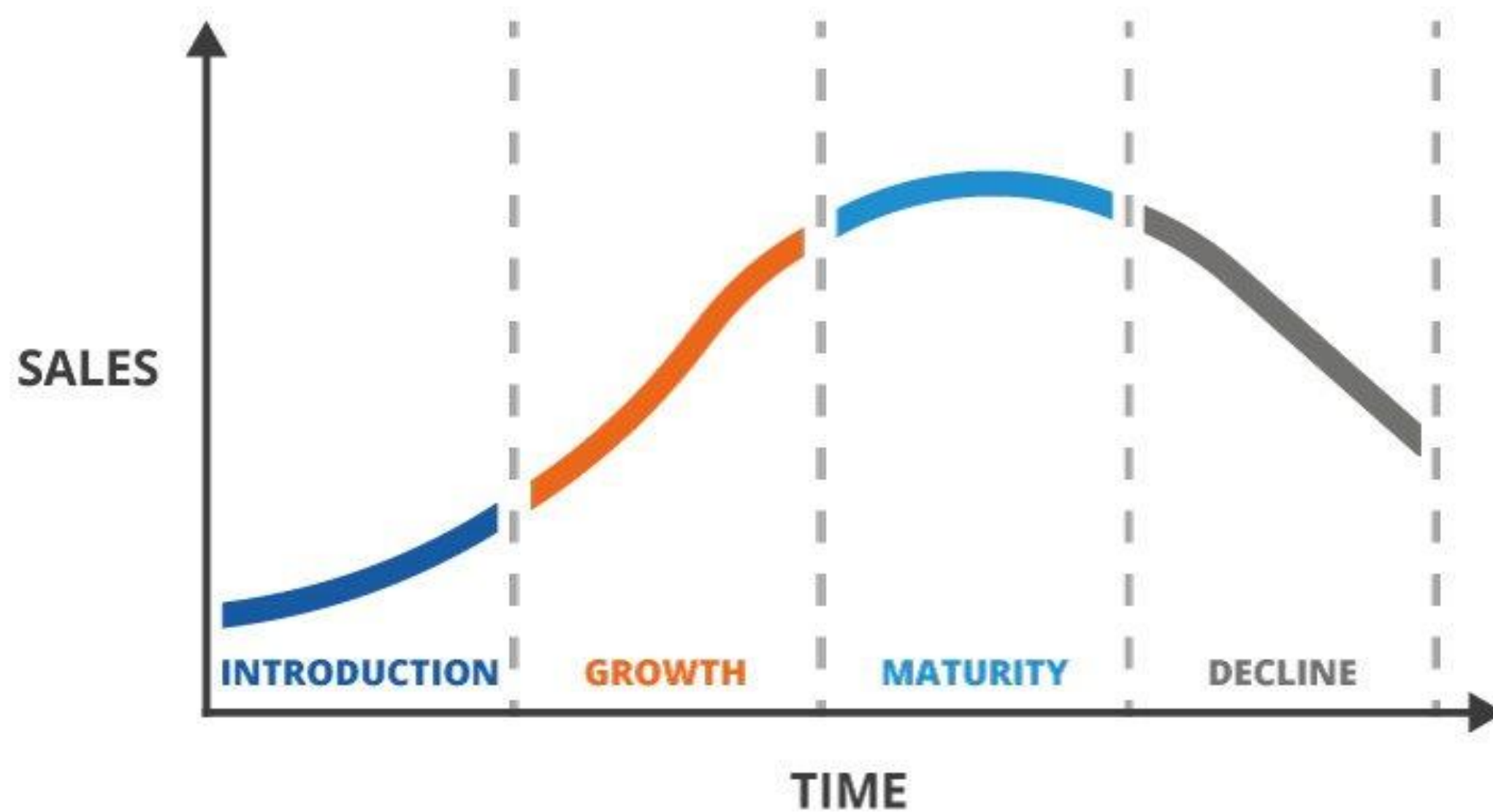
Pengembangan produk adalah **proses pencarian gagasan untuk barang dan jasa baru** dan mengkonversikannya ke dalam tambahan lini produk yang berhasil secara komersial. Pencarian produk baru didasarkan pada asumsi bahwa para pelanggan menginginkan unsur-unsur baru dan pengenalan produk baru akan membantu mencapai tujuan perusahaan.

## Menurut Ullman, 2009; Ulrich &Eppinger, 2004

Pengembangan produk adalah **penciptaan produk dengan karakteristik baru atau berbeda** yang menawarkan manfaat baru atau tambahan bagi pelanggan. Pengembangan produk mungkin **melibatkan modifikasi** produk yang sudah ada atau presentasi atau formulasi produk yang sama sekali baru yang memenuhi keinginan pelanggan atau kekosongan pasar yang baru ditentukan.



# PRODUCT LIFE CYCLE



*Introduction stage:* maintenance cost is high at this stage, and profit is limited. Product needs to be sold immediately to earn profit

*Growth:* maintenance cost is lower than the introduction stage, and sales are increased. Competitors are appearing in the market, too.

*Maturity:* this stage brings the most profit to the business, sales increase and maintenance cost gets much lower

*Decline and withdrawal:* at this stage, products of competitors are preferred; therefore, profit decreases significantly



Basic research  
Clinical observations



Molecular mechanisms involved in the disease state, identification of putative targets...

• Small molecules



• Biologics



Identification of the therapeutic agents modulating the selected target(s), ADMET, efficacy,... first evaluations silico-vitro-vivo



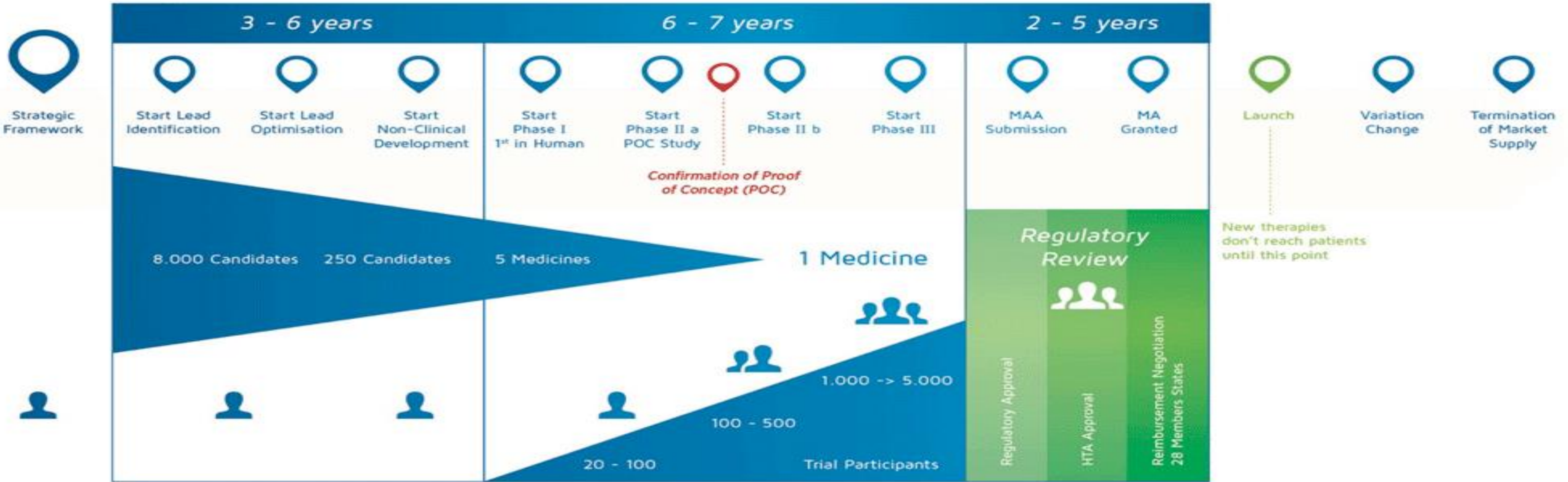
Evaluations in humans  
PK, dose, efficacy, toxicity...



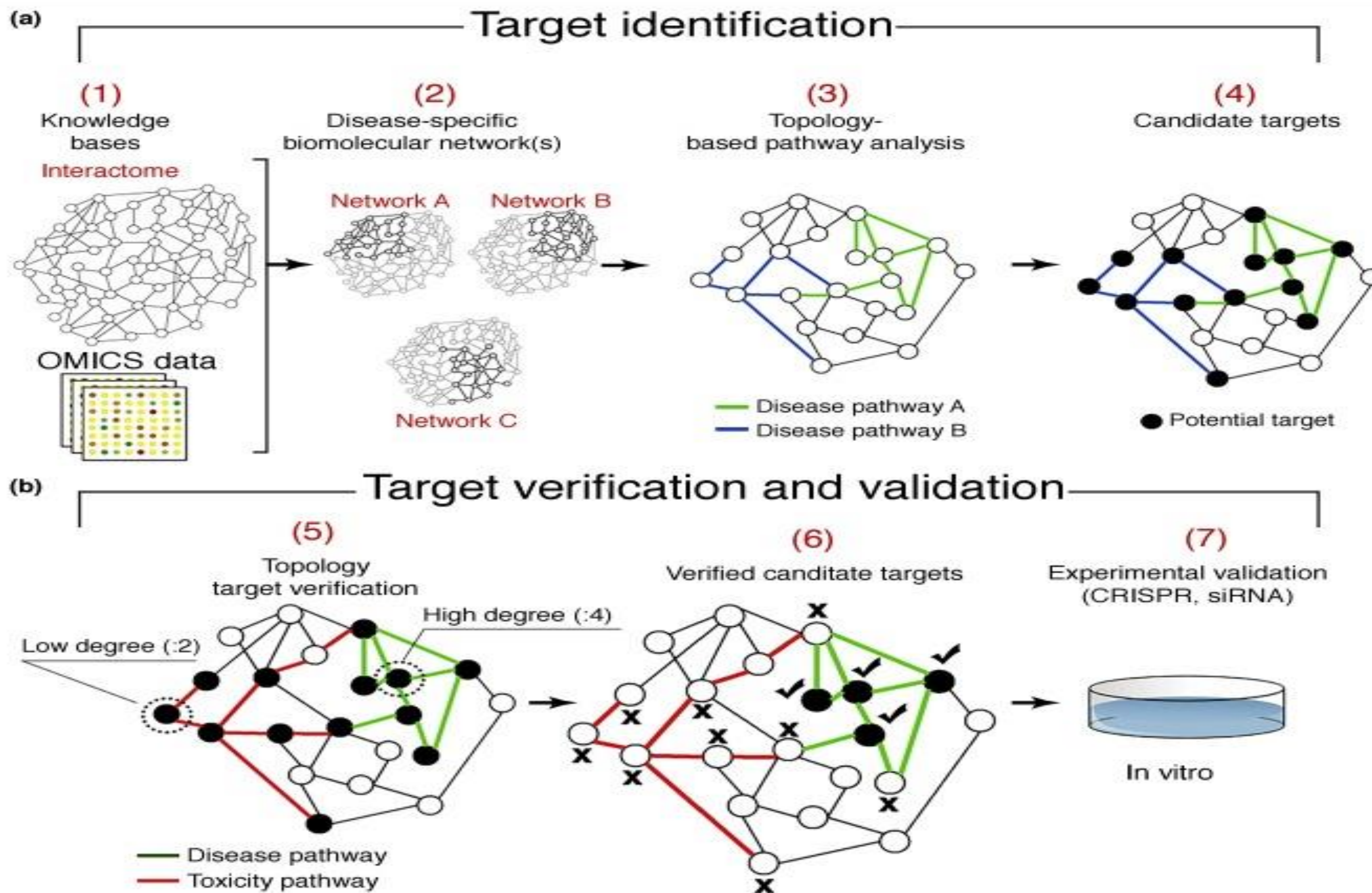
Reviewing, approval & post-market monitoring



# Overview of Decision Points and Development Steps in Medicines R&D



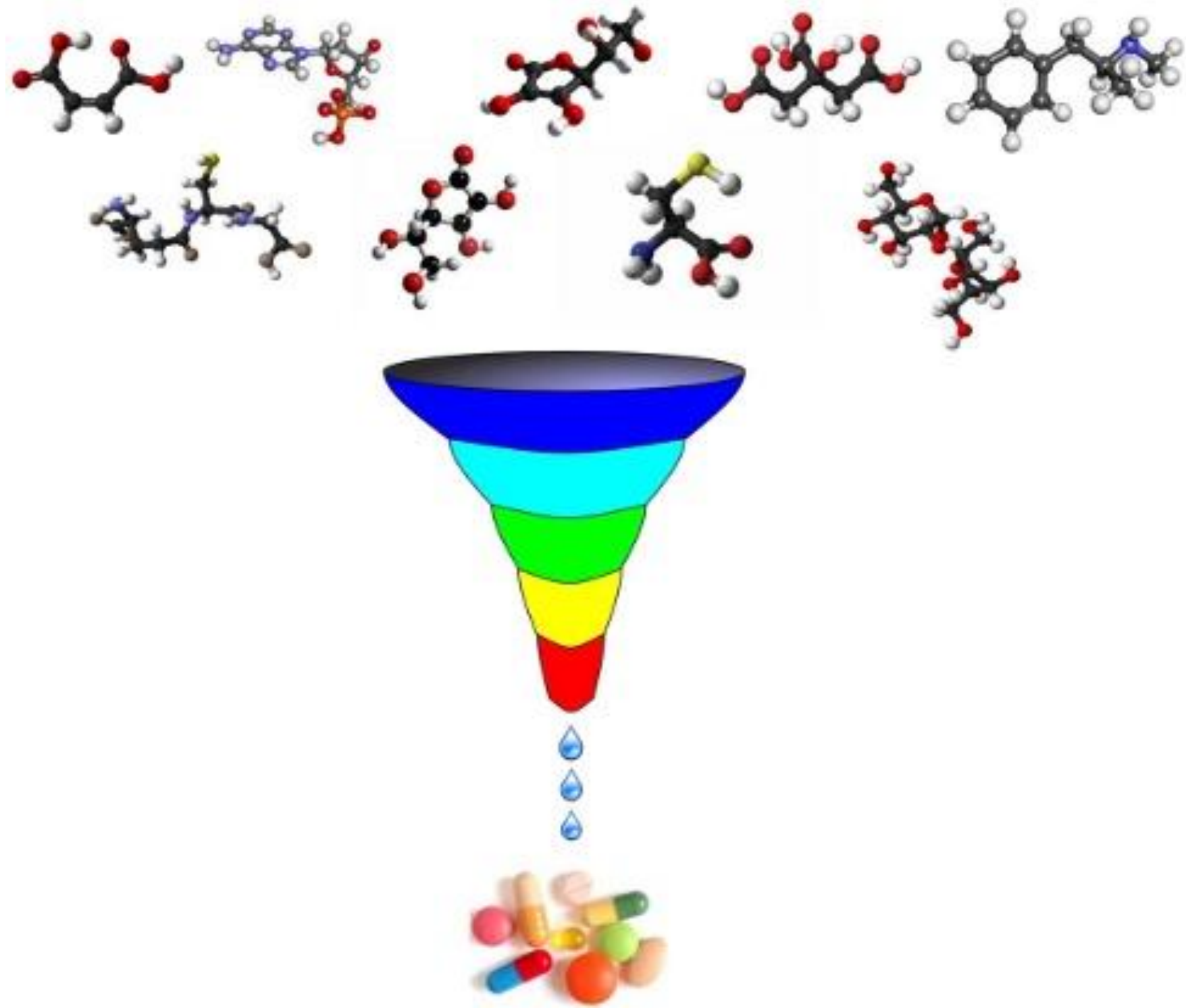




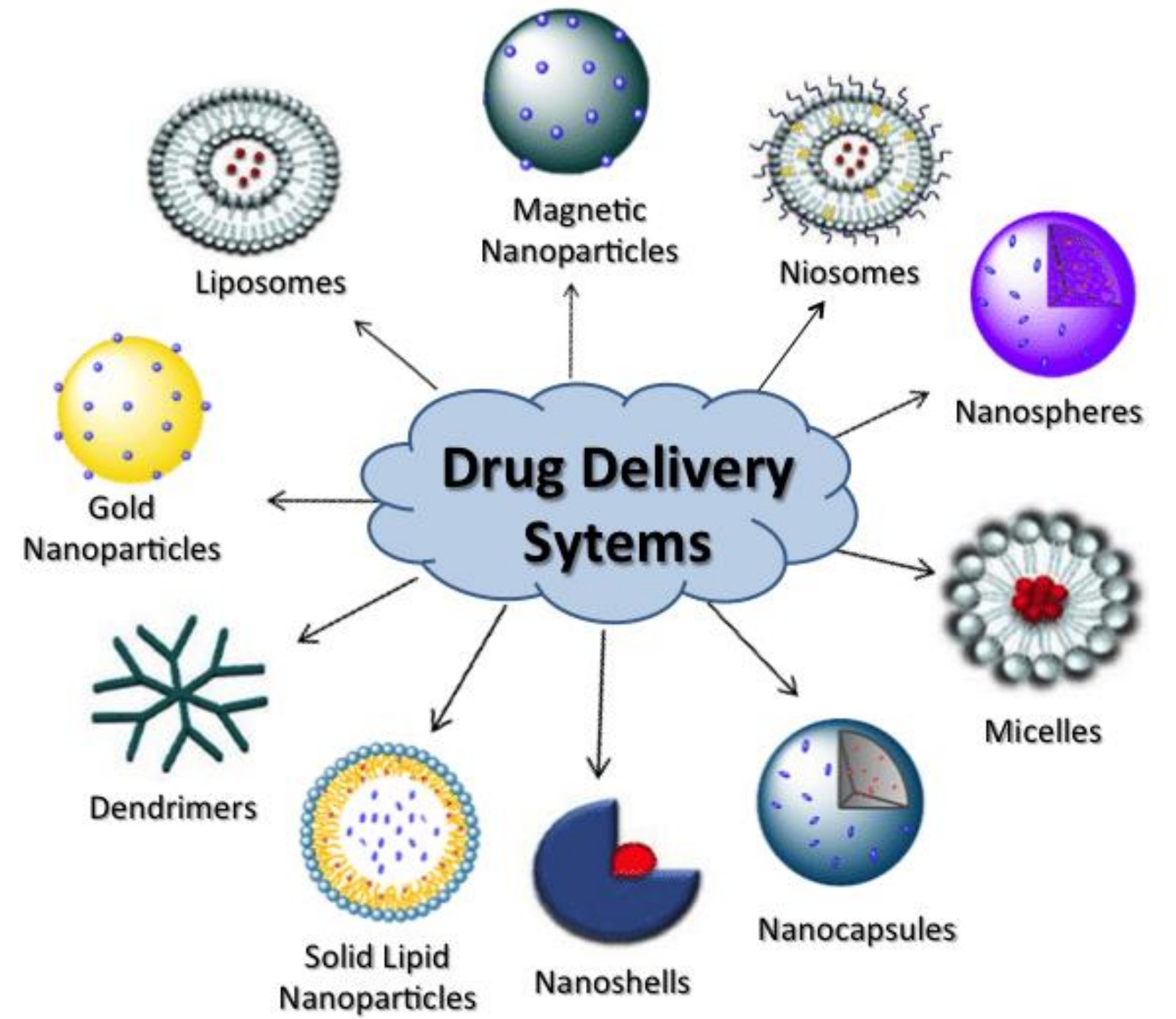
*Drug Discovery Today*

## Network-based technologies for early drug discovery





*Drug discovery*

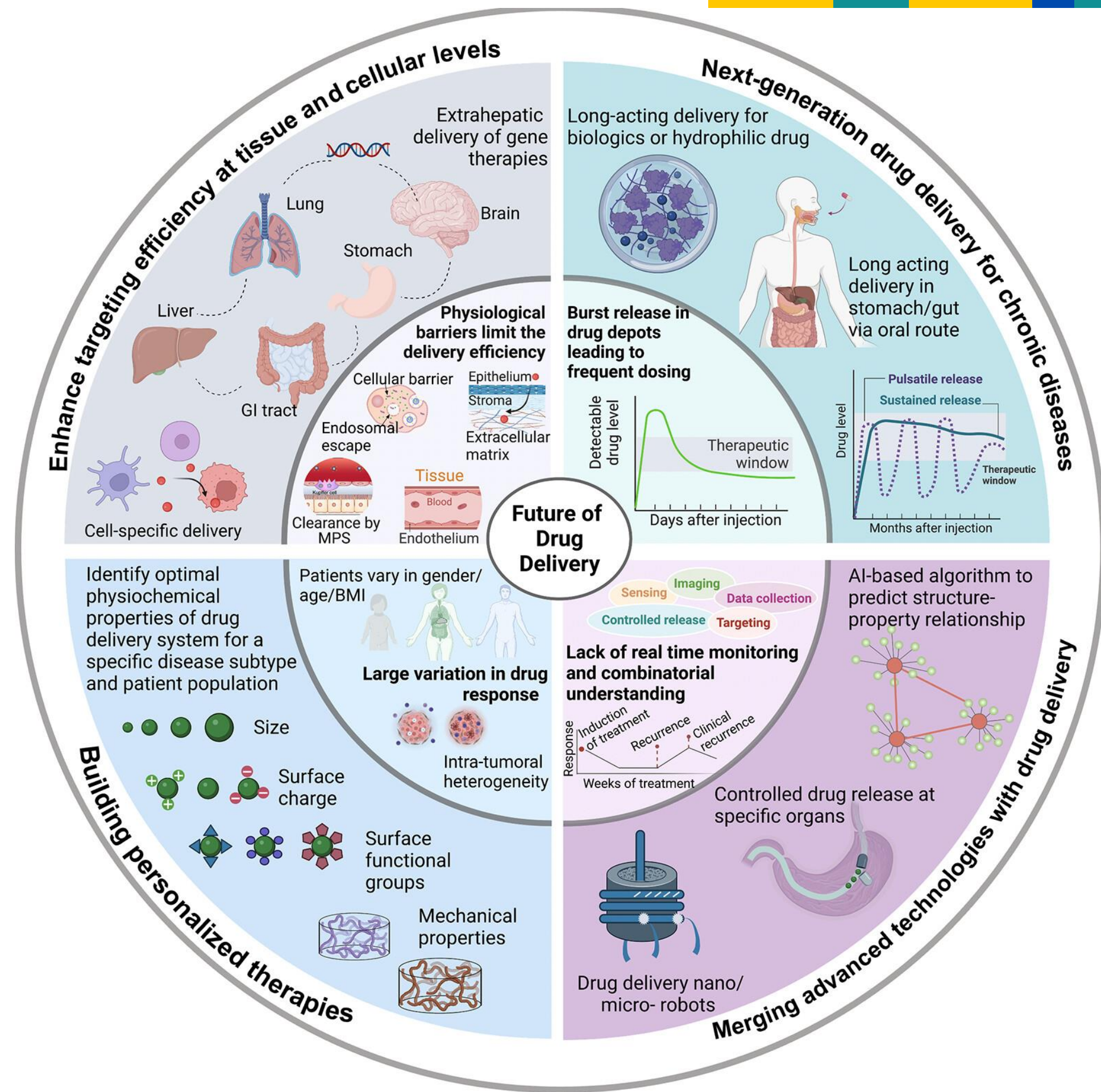




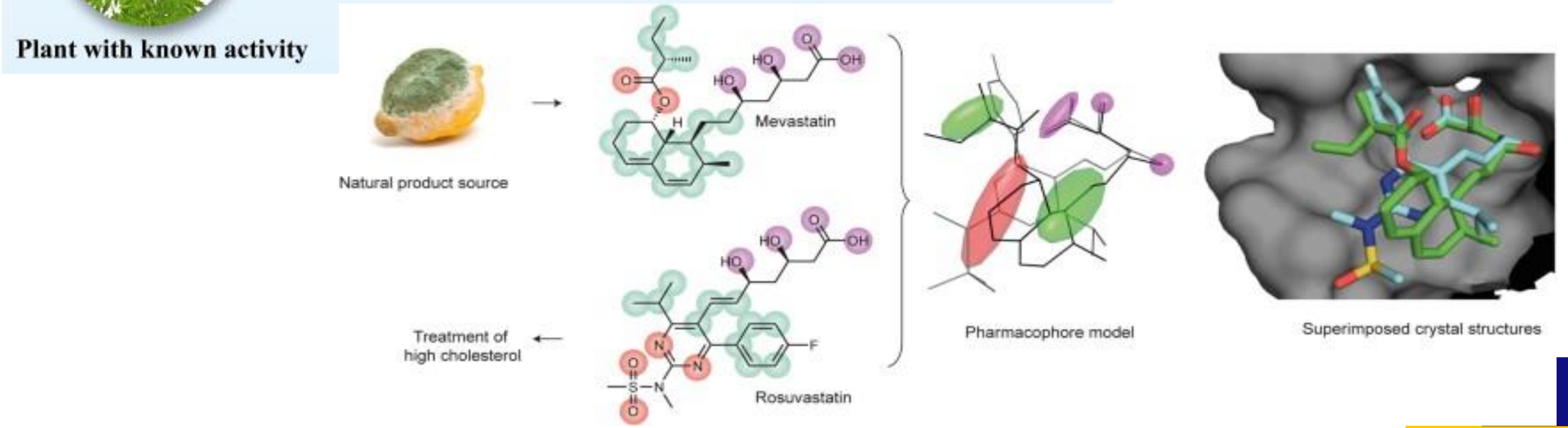


Limitations

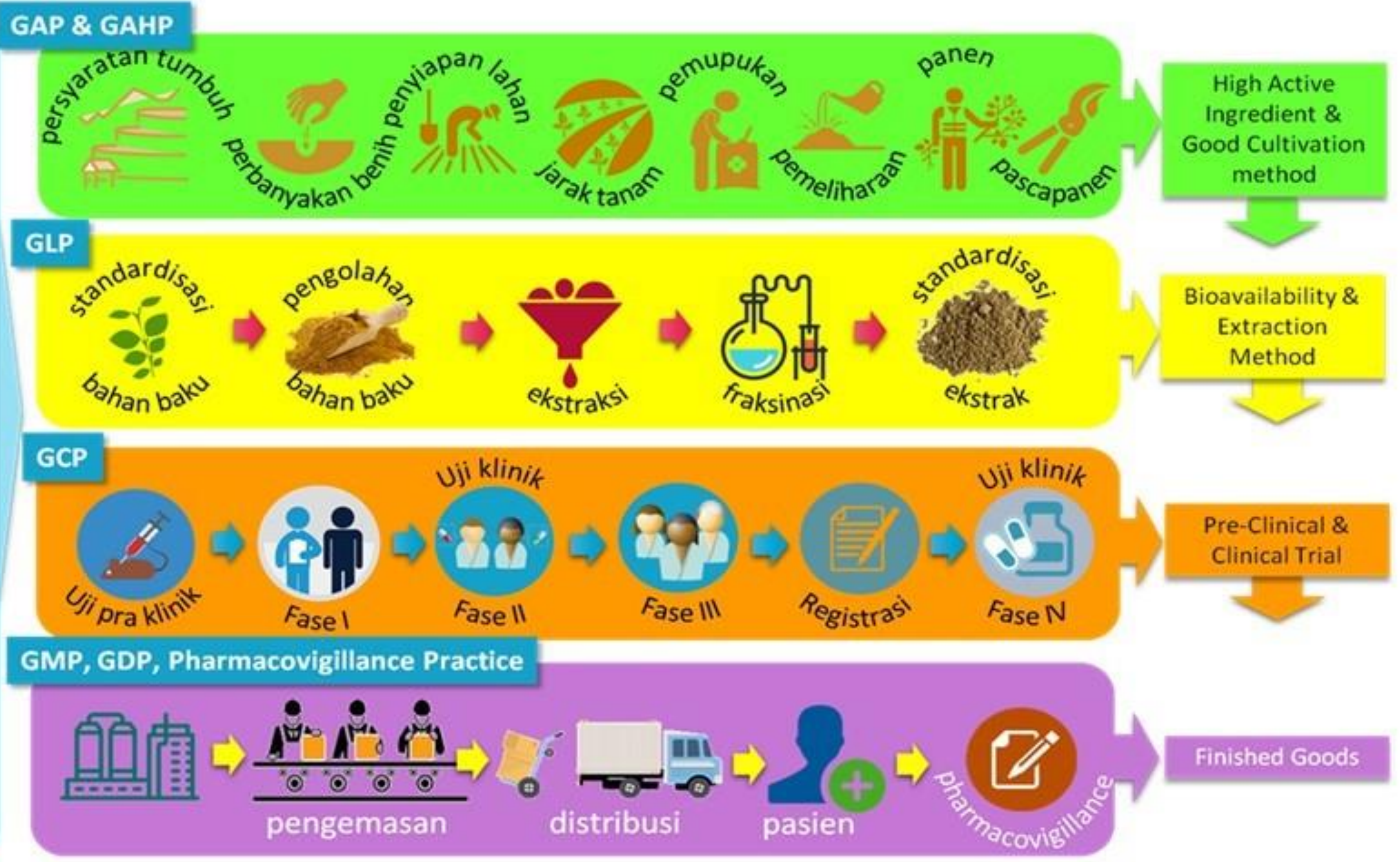
- Poor absorption from target site
- Poor Bioavailability
- High First-pass Metabolism
- Fluctuations in Plasma drug level
- Premature excretion from the body
- Repeated dosing
- High dose dumping















Jamu

> 8000

Kriteria :

- Aman
- Memenuhi persyaratan mutu
- Khasiat dibuktikan secara empiris



Obat Herbal Terstandar (45)

Kriteria :

- Aman
- Memenuhi persyaratan mutu
- Khasiat dibuktikan secara ilmiah atau praklinik
- Bahan baku yang digunakan terstandar

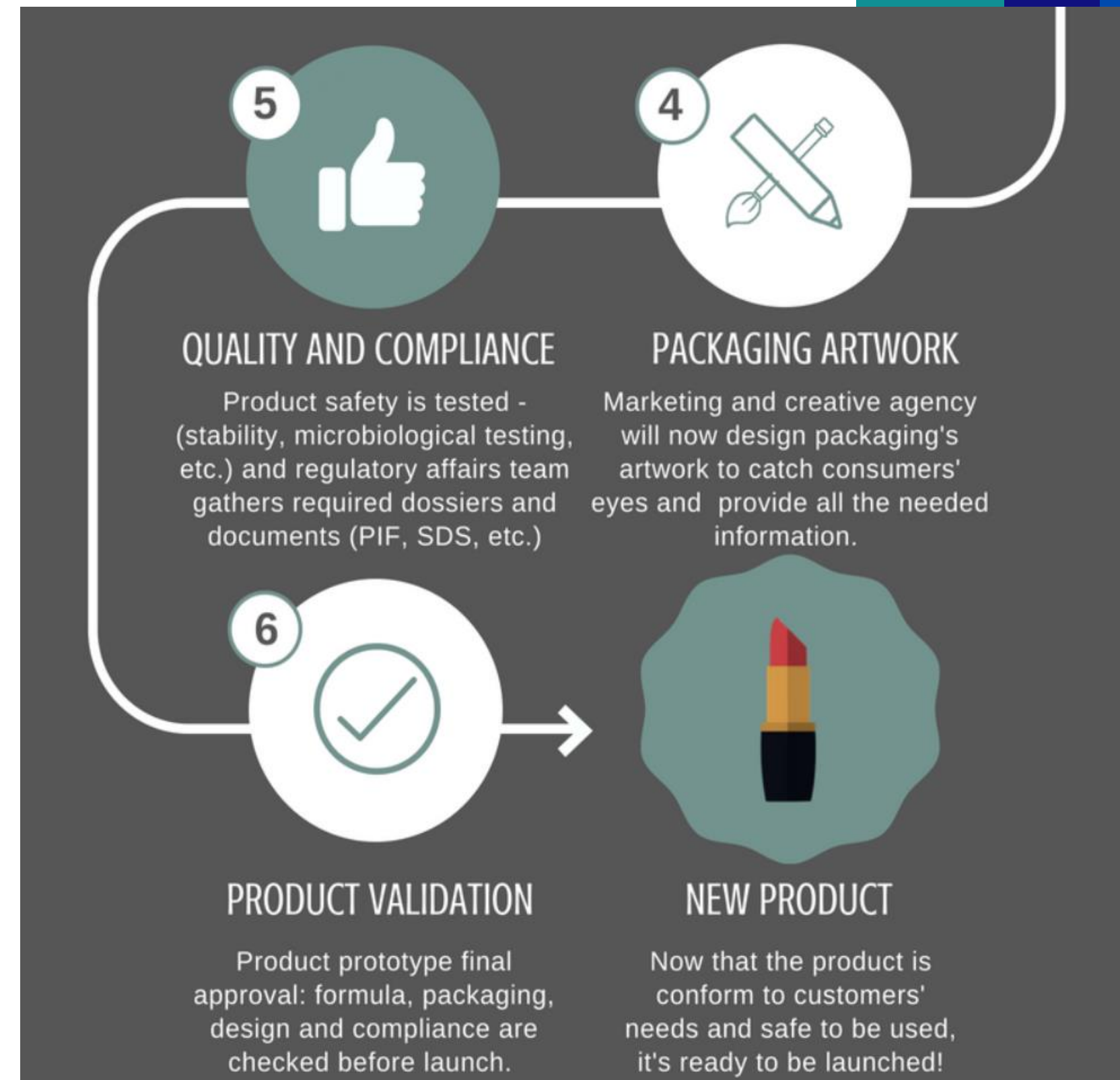


Fitofarmaka (21)

OMAI

Kriteria :

- Aman
- Memenuhi persyaratan mutu
- Khasiat dibuktikan secara klinis
- Bahan baku yang digunakan terstandar



# PENGEMBANGAN KOSMETIK





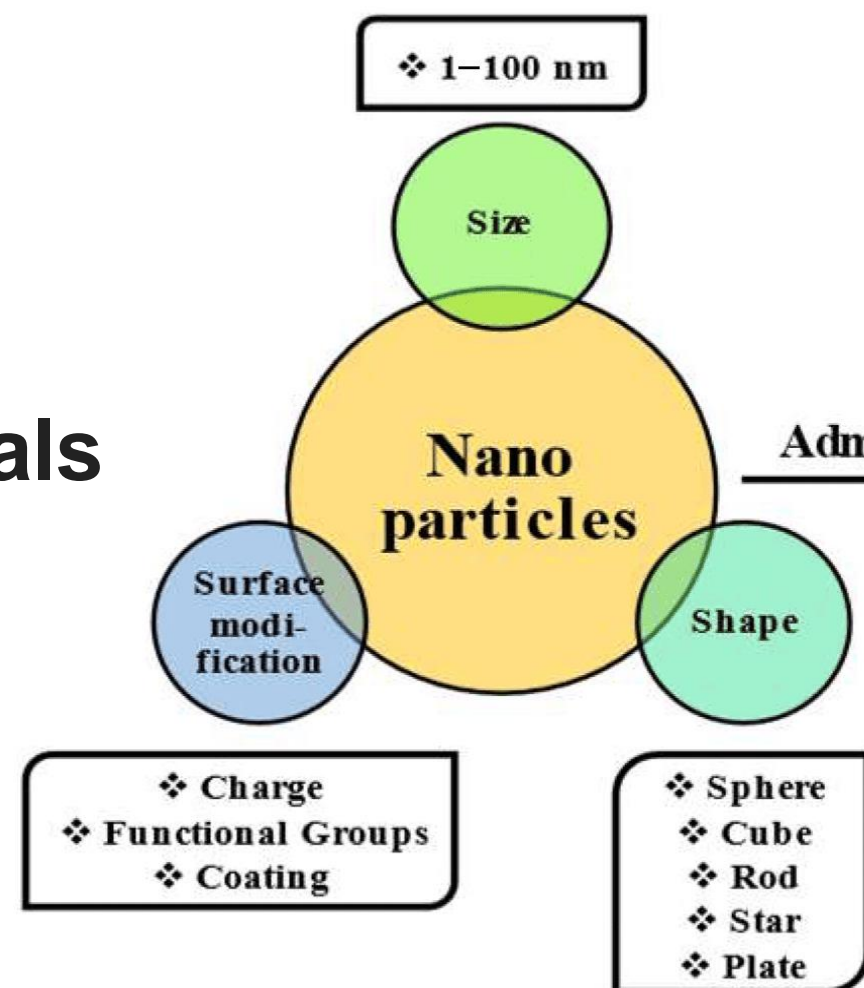
Table 1. Main effects of cosmetic vehicles on the skin.

Effect	Definition
Protective	Protects the skin from external harmful factors (dry air, pollution, UV light)
Cleansing	Eliminates dirt and microorganisms from the skin
Hydrating	Provides water in order to restore or maintain fluid balance
Moisturizing	Establishes an effective barrier that prevents water loss through the epidermis
Soothing	Provides a gently calming effect
Firming	Makes the skin more toned and smoother

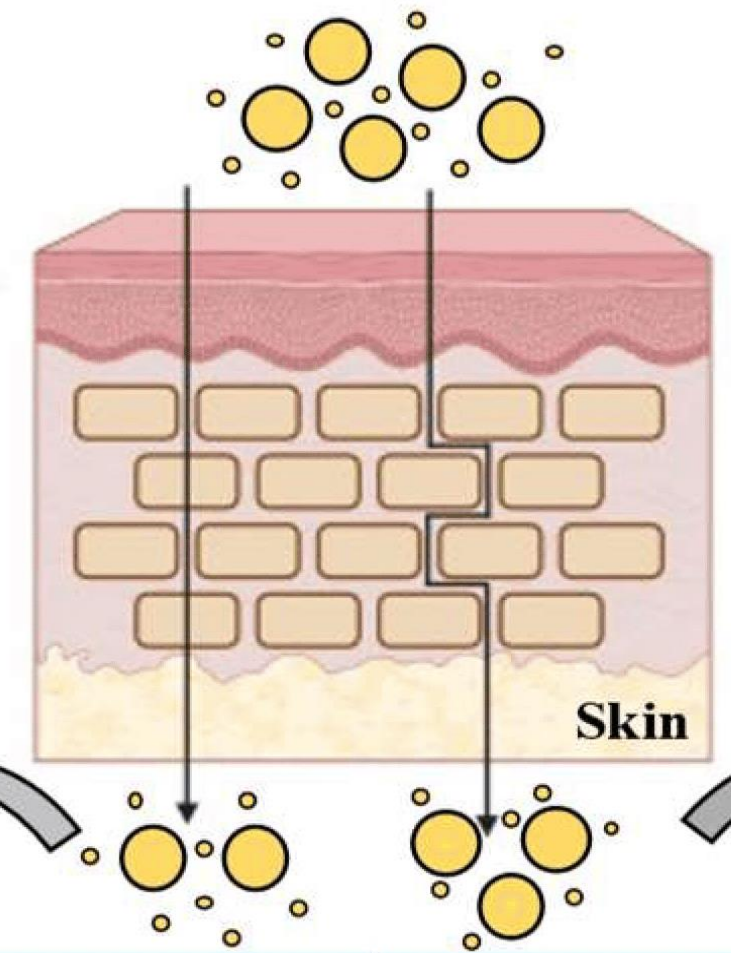
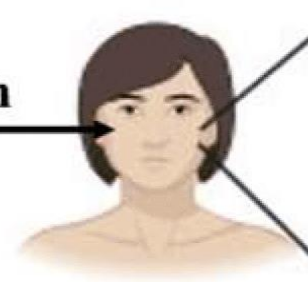
## PENGEMBANGAN KOSMETIK



# Advantages of nanocosmeceuticals



Administration



## ORGANIC NANOPARTICLES

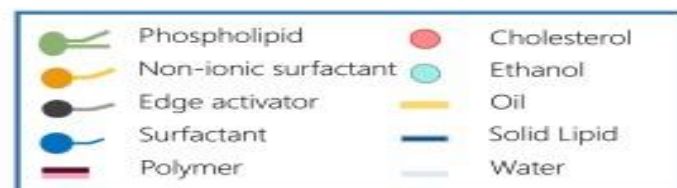
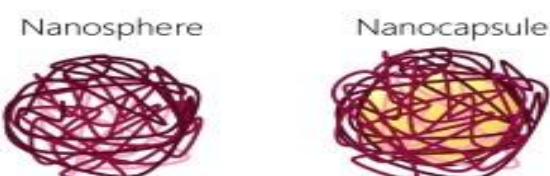
### Lipid- and surfactant-derived nanoparticles

#### Vesicular nanoparticles

#### Non-vesicular nanoparticles



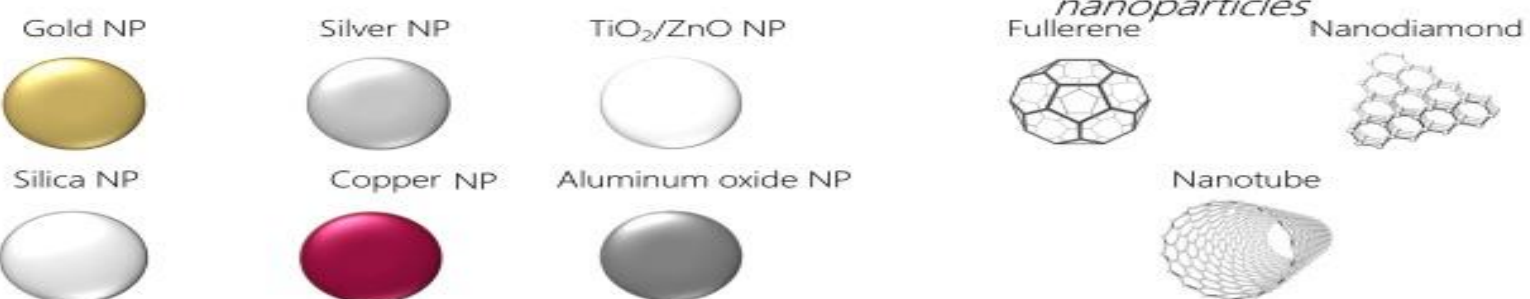
### Polymeric nanoparticles



### Nanocrystals



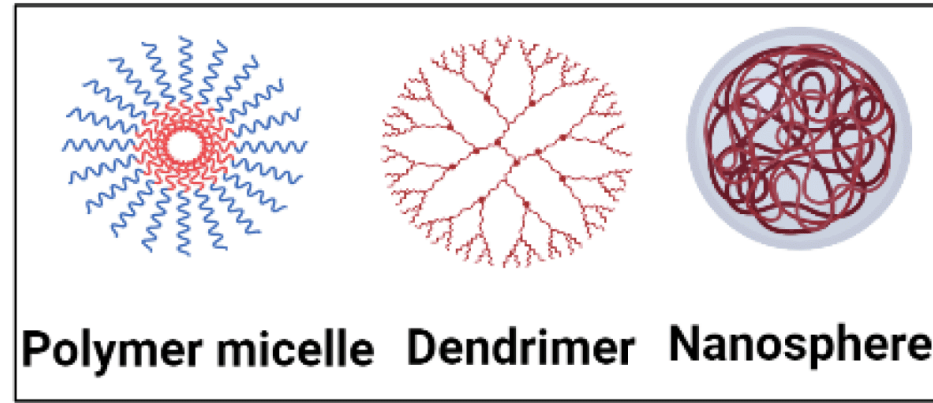
## INORGANIC NANOPARTICLES



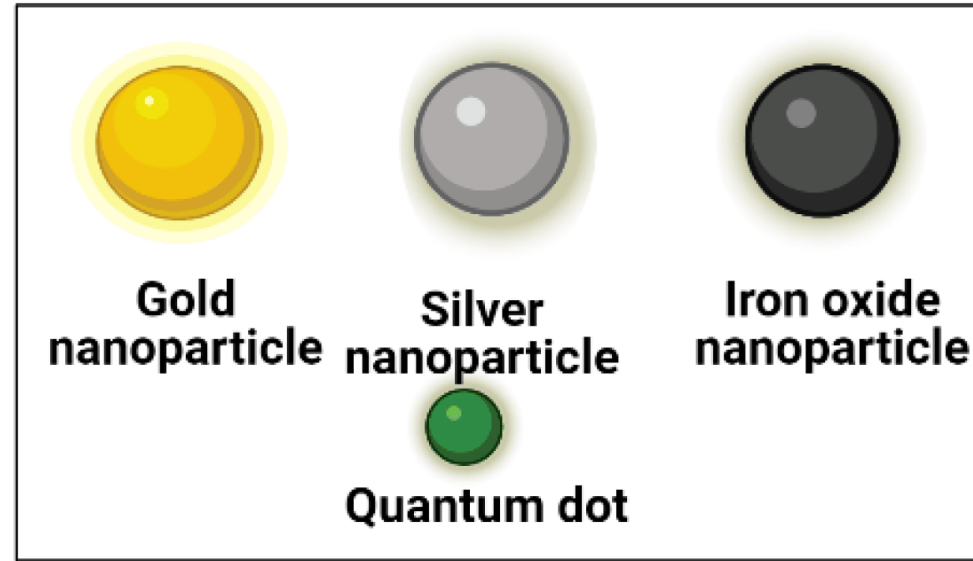
Advantages	Disadvantages
Control & targeted delivery	Nanoparticle toxicity may lead to inflammation, oxidative stress, & consequent damage to membranes & proteins
↑ Texture & transparency of the cosmetic formulation	Require sophisticated equipment for manufacturing
↑ Dermal penetration & bioavailability	↑ Cost of production
↑ Appearance, covering power, aesthetic appeal & adherence over the skin	↑ Environmental concern
↑ Stability & efficacy to the cosmetic formulation	Teratogenic in nature, due to easy placenta penetration
Better drug holding capacity	May damage DNA & lead to malignancy



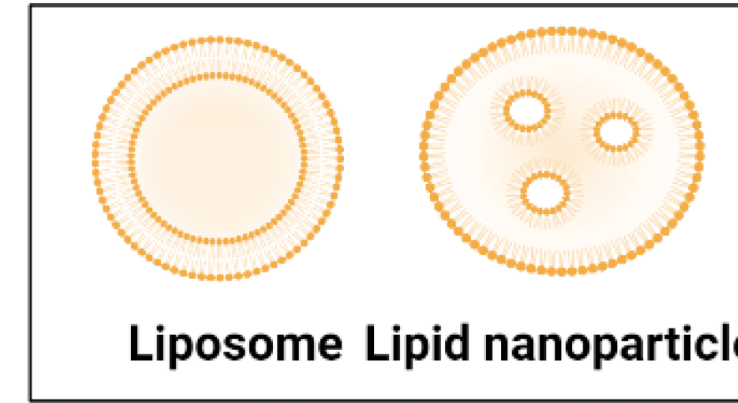
# Nanoparticles



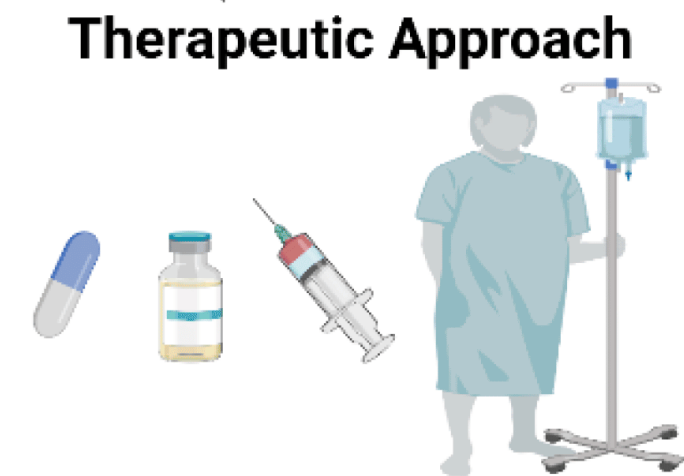
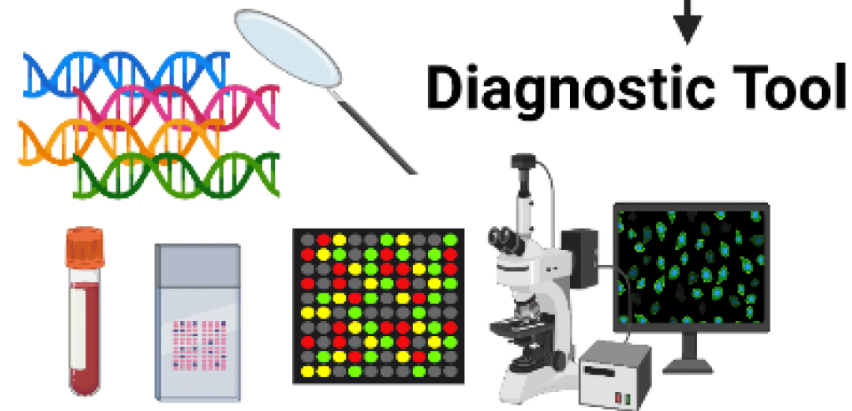
Polymeric



Inorganic



Lipid-based



## Personalized Medicine

**Patient response**

- Good response
- No response
- Toxic effect



## Tujuan Pengembangan Produk Baru

1. Untuk memberikan nilai maksimal bagi konsumen
2. Memenangkan persaingan perusahaan dengan memilih produk yang inovatif, produk yang dimodifikasi serta mempunyai nilai yang tinggi baik dalam desain warna, ukuran, kemasan, merek, dan ciri-ciri lain.





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**THANK YOU**