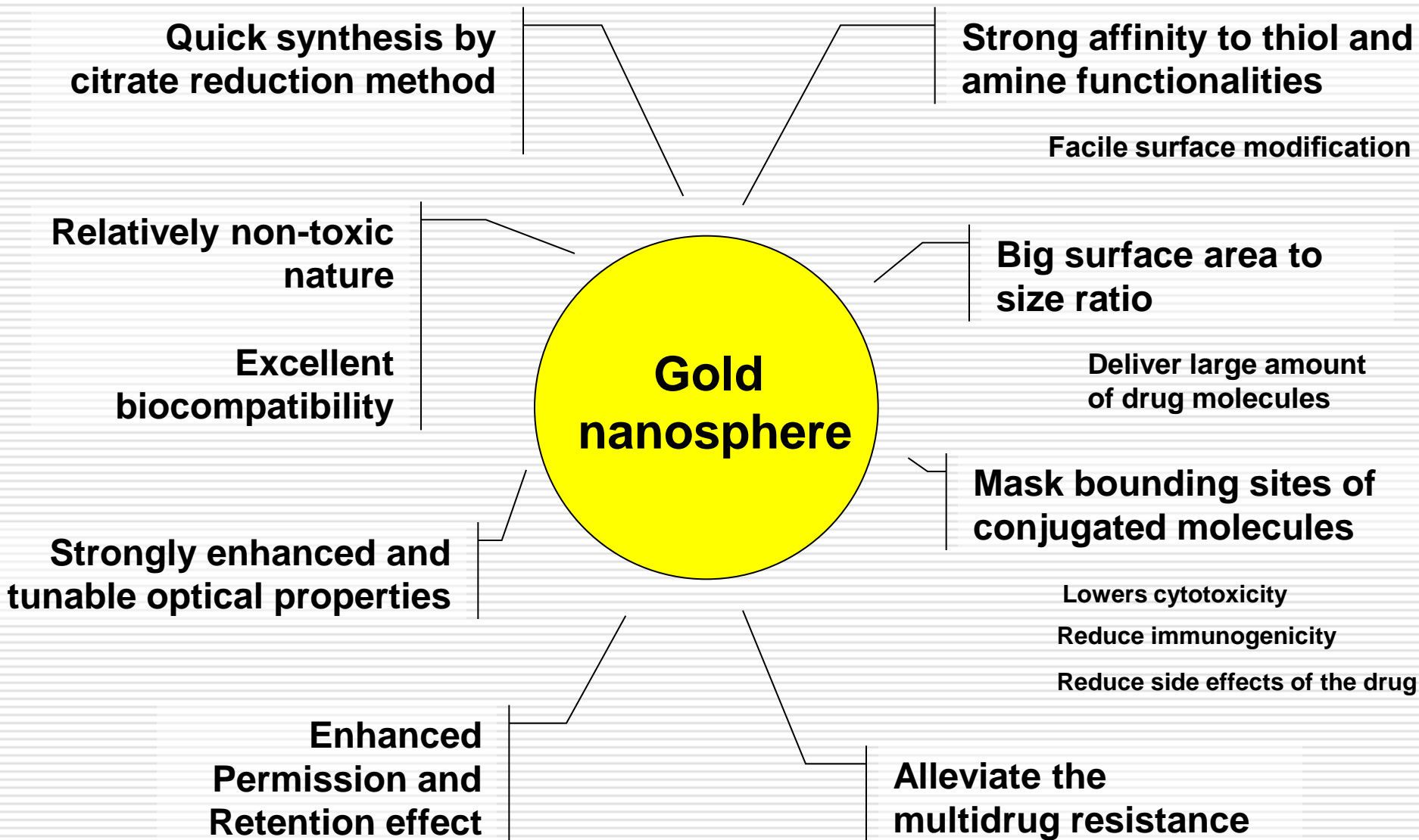

Nanocomposites

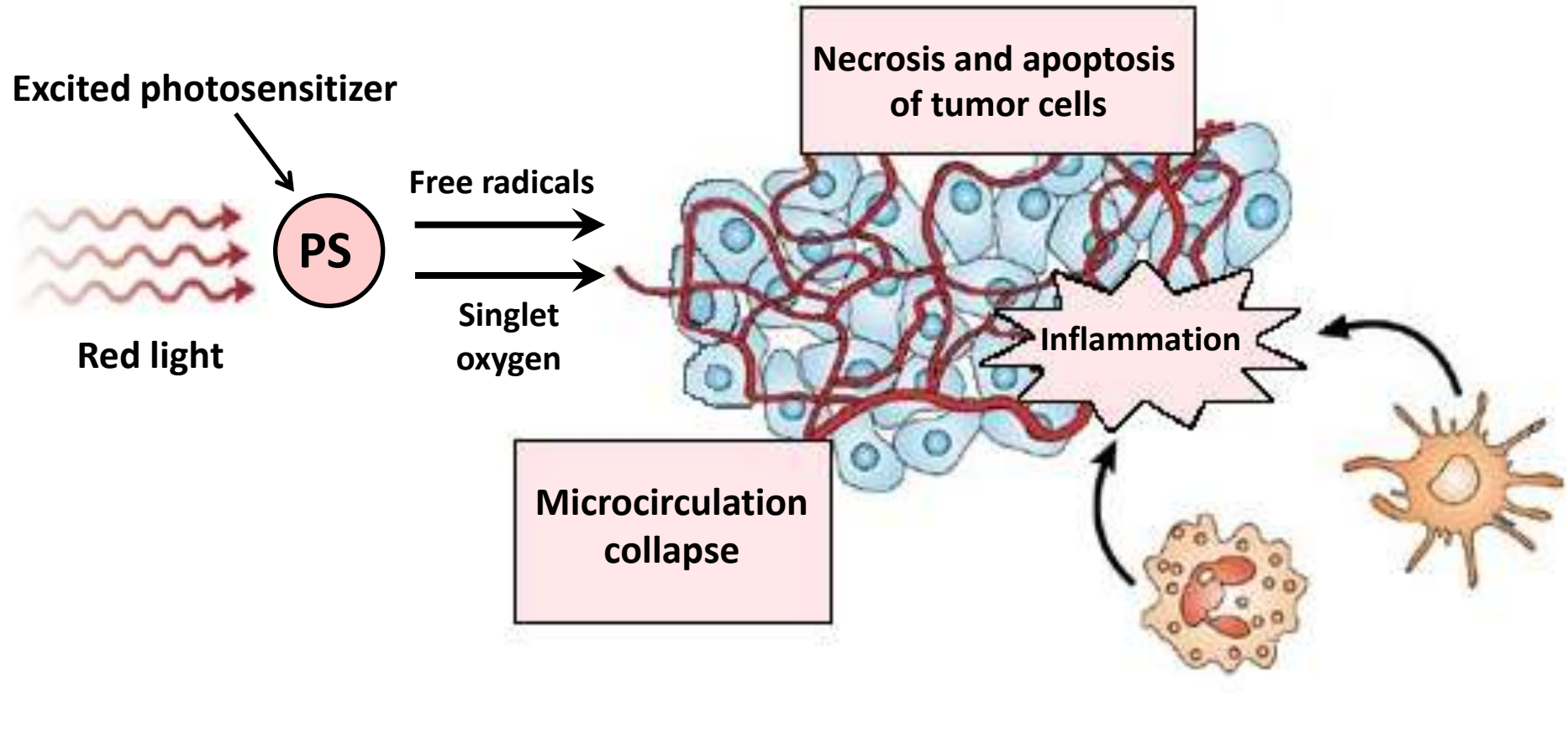
**Gold nanoparticles composite
with photosensitizer as a
potent drug in two-step cancer
therapy**

I.A. Shton, N.F. Gamaleia

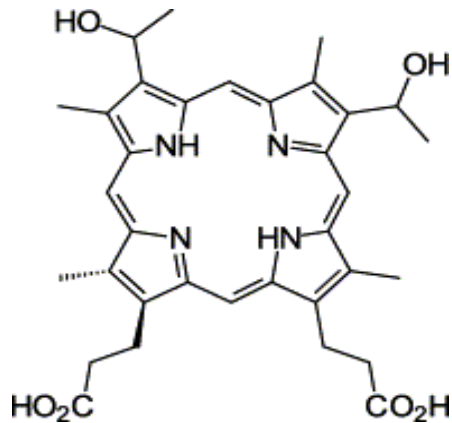
*Laboratory of Quantum Nanobiology, Kavetsky
Institute for Experimental Pathology, Oncology and
Radiobiology, Kiev, Ukraine*



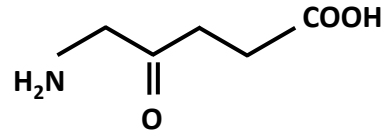
Scheme of PDT



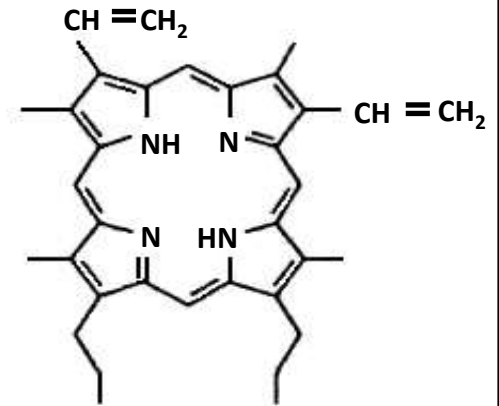
Photosensitizers



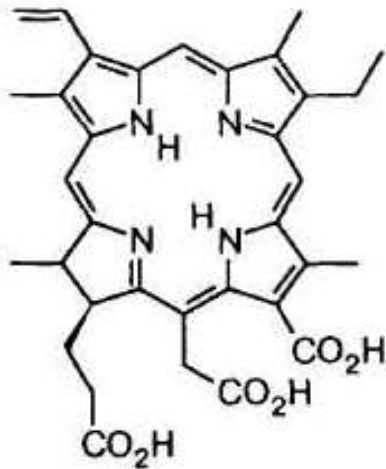
Hematoporphyrin derivative
(Photofrin®, Photogem®)



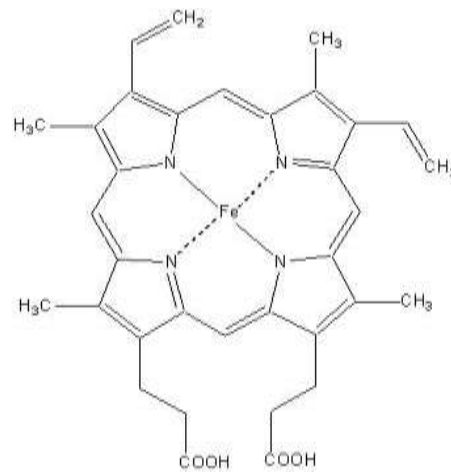
Aminolevulinic acid
(Levulan®)



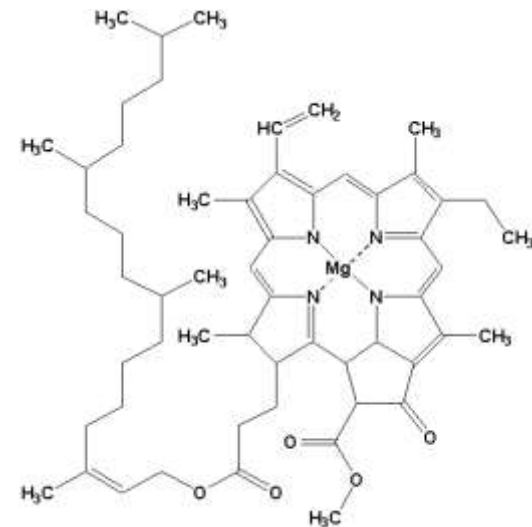
Protoporphyrin



Chlorine e₆
(Foscan®, Photolon®)

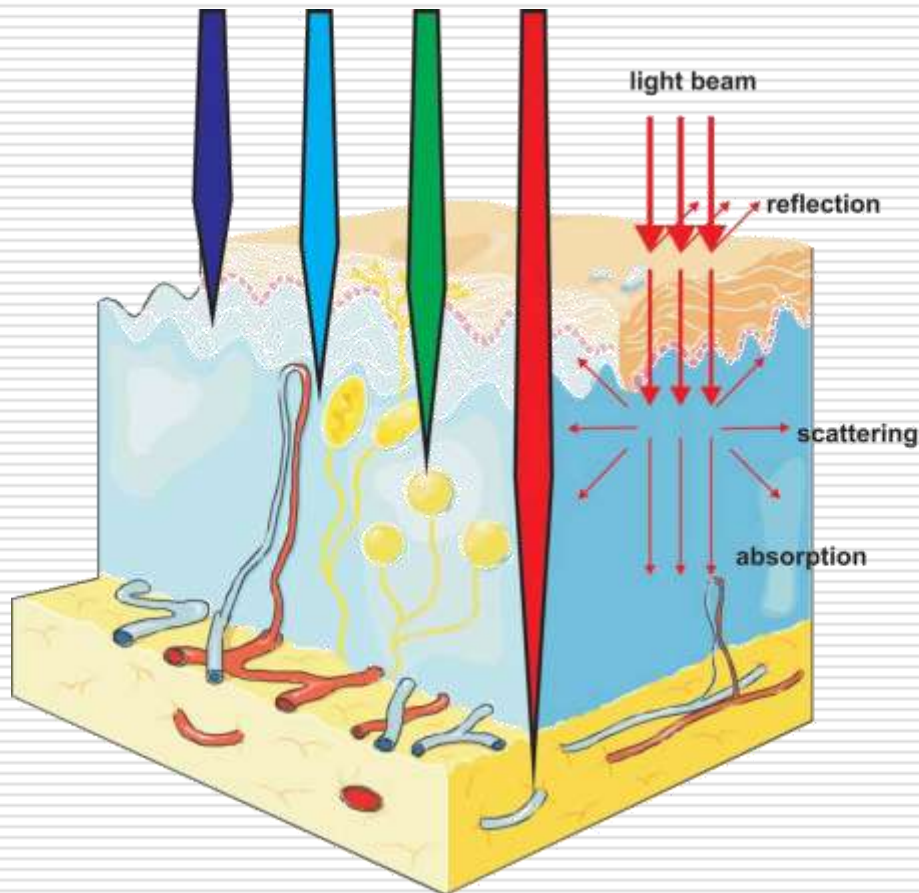


Heme

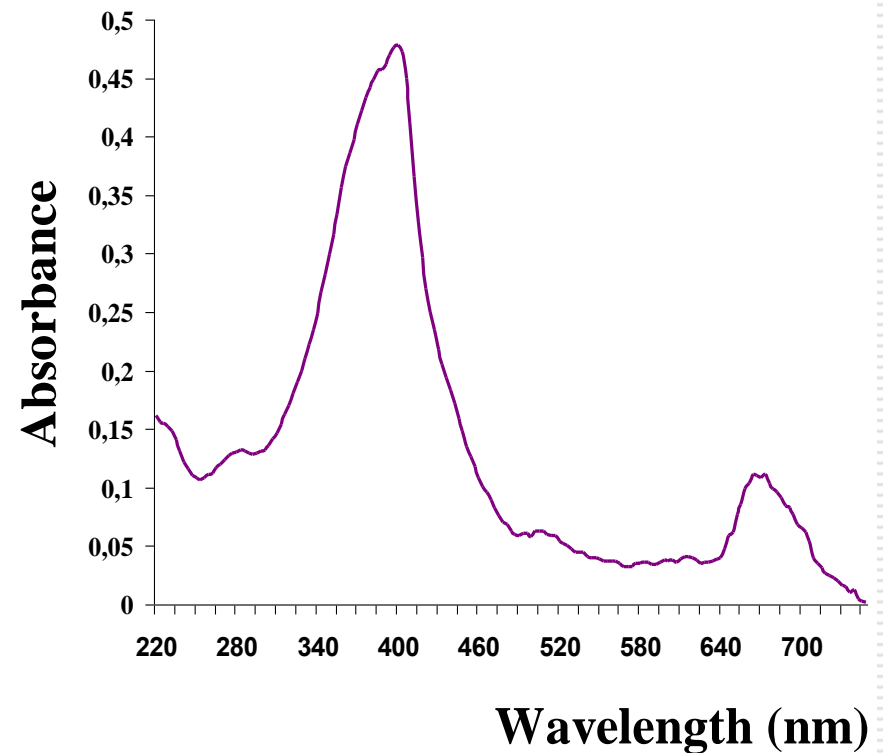


Chlorophyll

Light propagation through the tissues

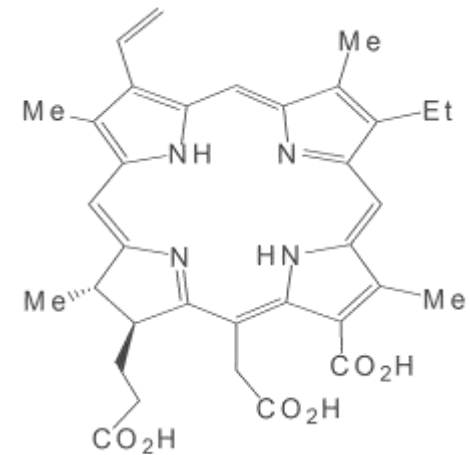


Absorption spectrum of chlorine e6



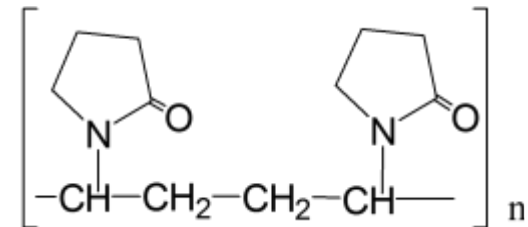
Scheme of nanocomposite

Photolon

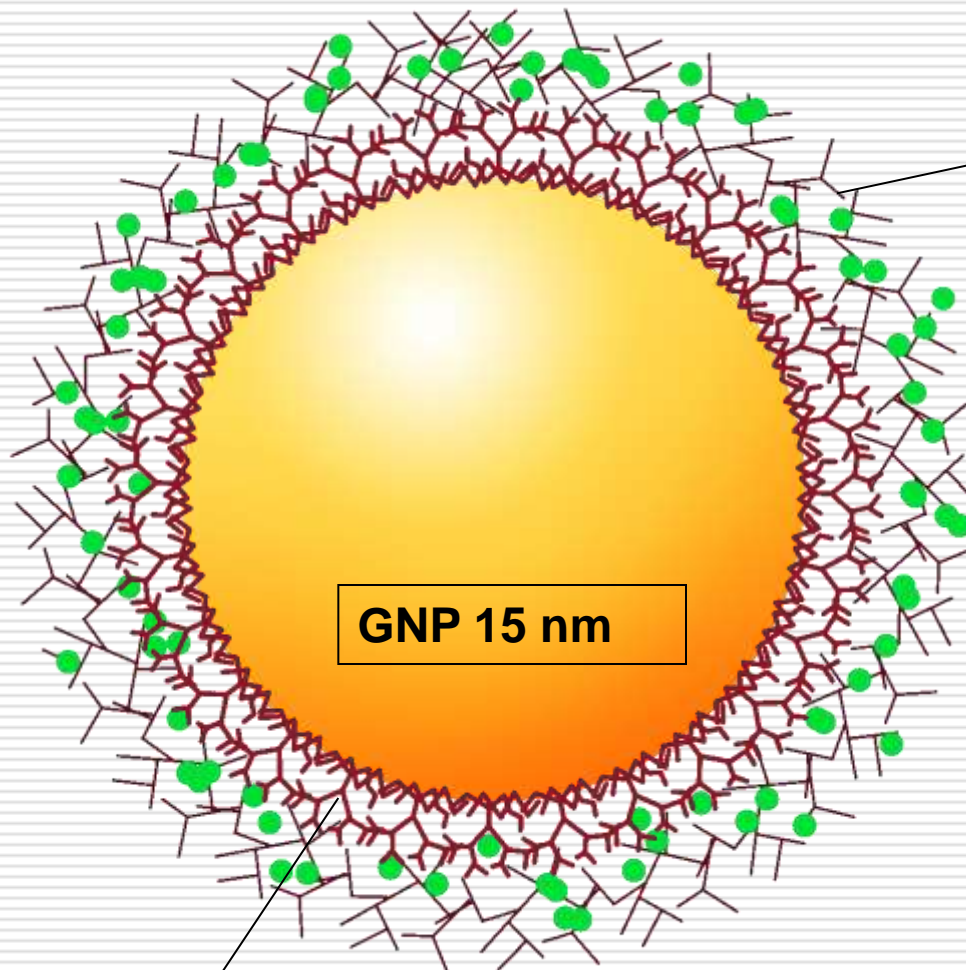


Chlorine e6

+



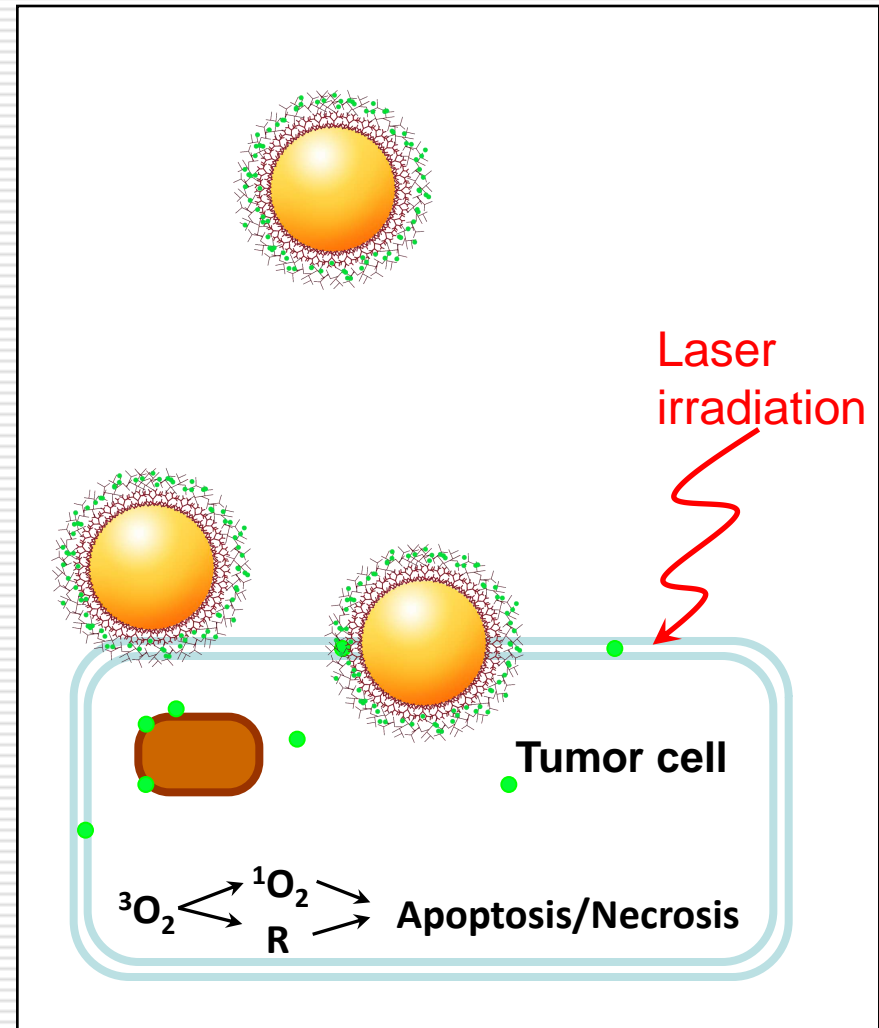
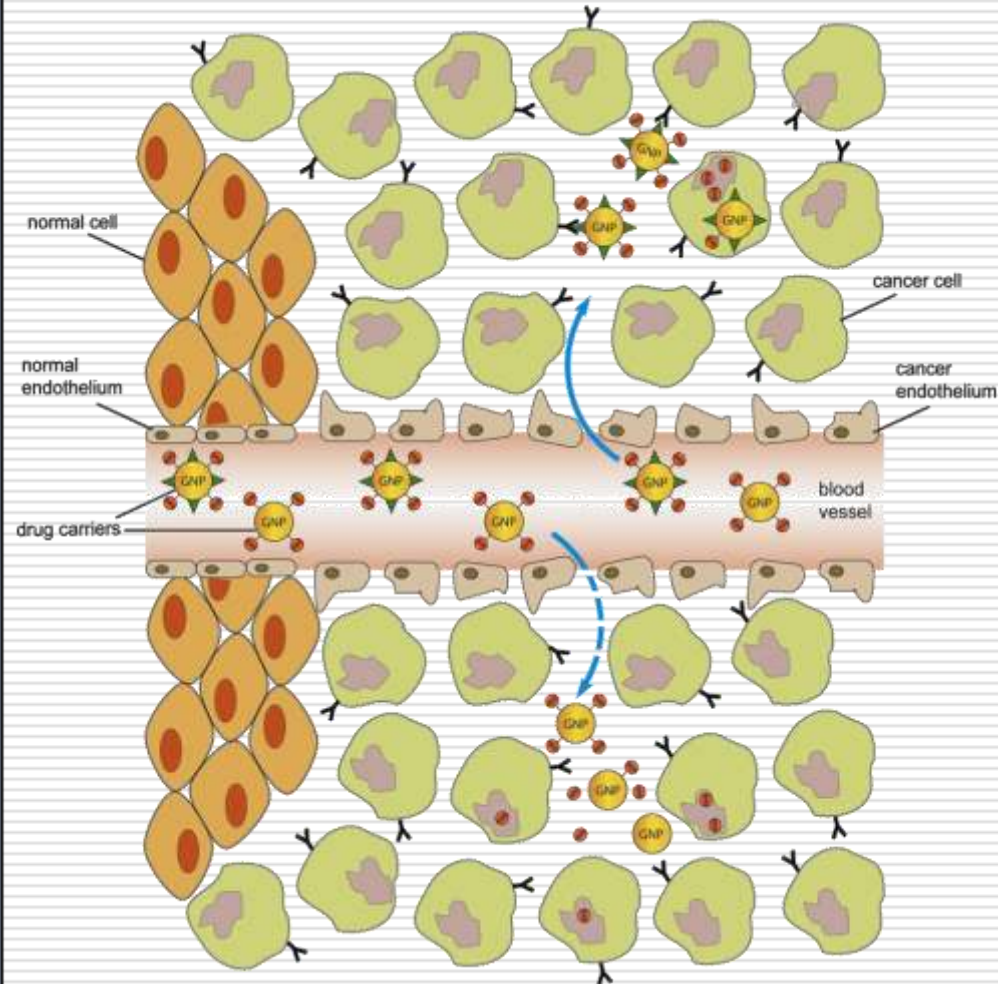
Polyvinylpyrrolidone



GNP 15 nm

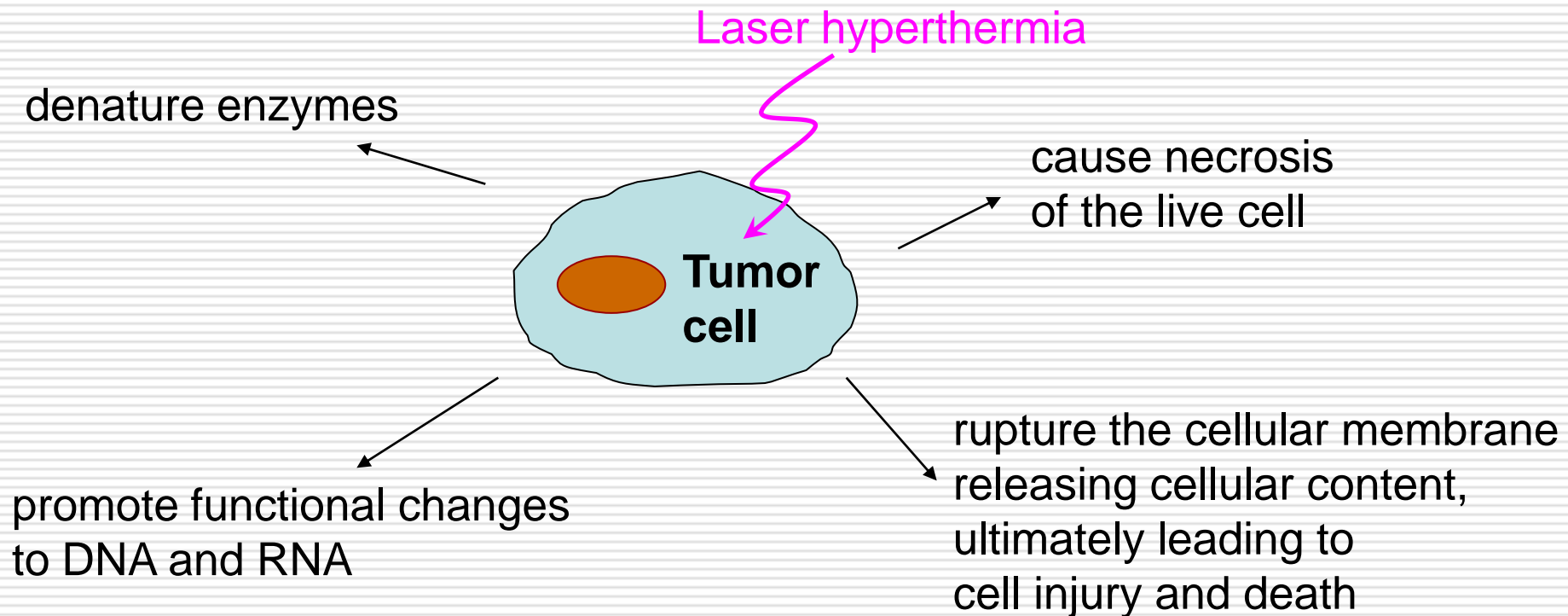
Polyvinylpyrrolidone

Tumor damage mechanism



Laser hyperthermia

- **Caused by infrared laser**
- **Eliminate tumor cells with a temperature above 40°C**



Thank you for attention
