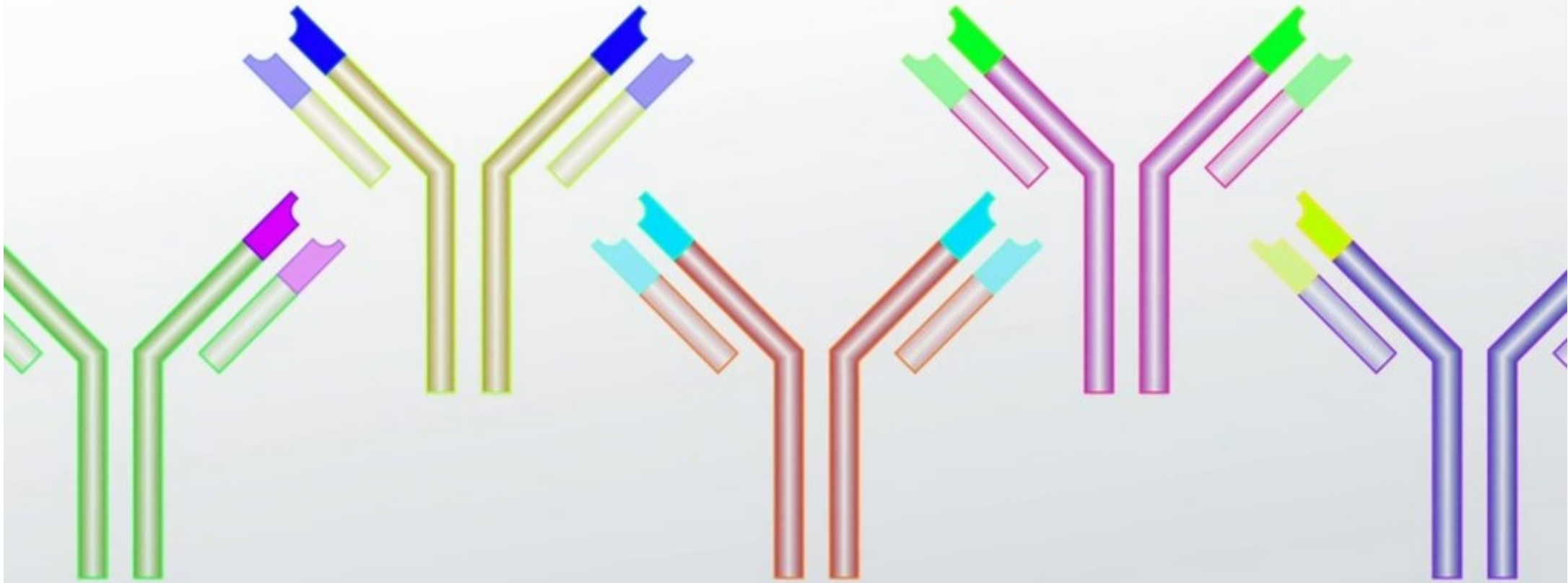




Boost the Immunity

Prof. Hein Yarzar Aung
Senior Consultant Physician

Active Immunity



Prof. Hein Yarzar Aung
Senior Consultant Physician

Active Immunity

- Active Immunity
 - results when exposure to a disease organism
 - triggers the immune system
 - to produce antibodies to that disease
- Active immunity
 - acquired through
 - natural immunity or
 - vaccine-induced immunity

Active Immunity

Develops in response to an infection or vaccination

Natural

Antibodies developed in response to an infection

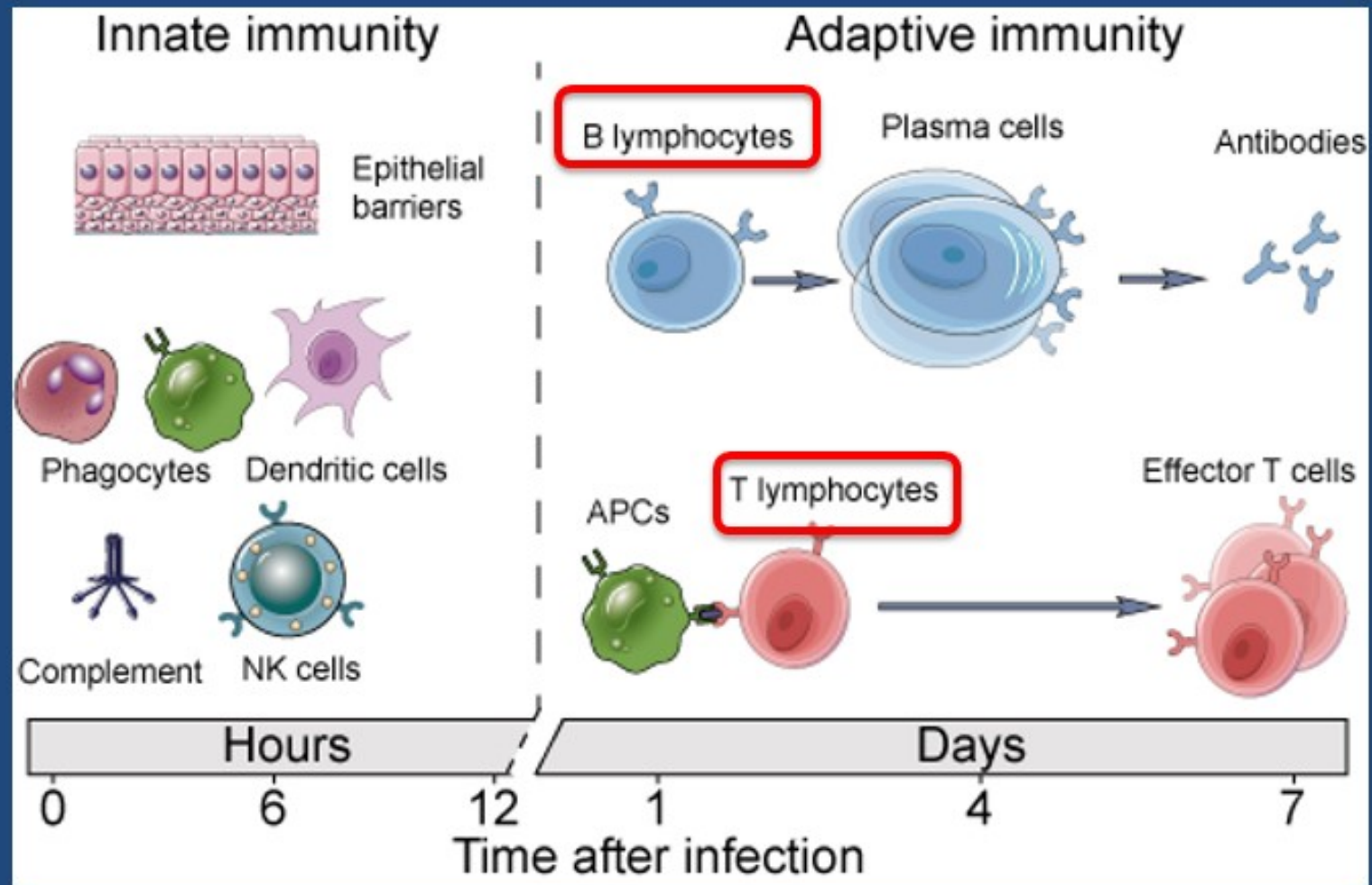


Artificial

Antibodies developed in response to a vaccination



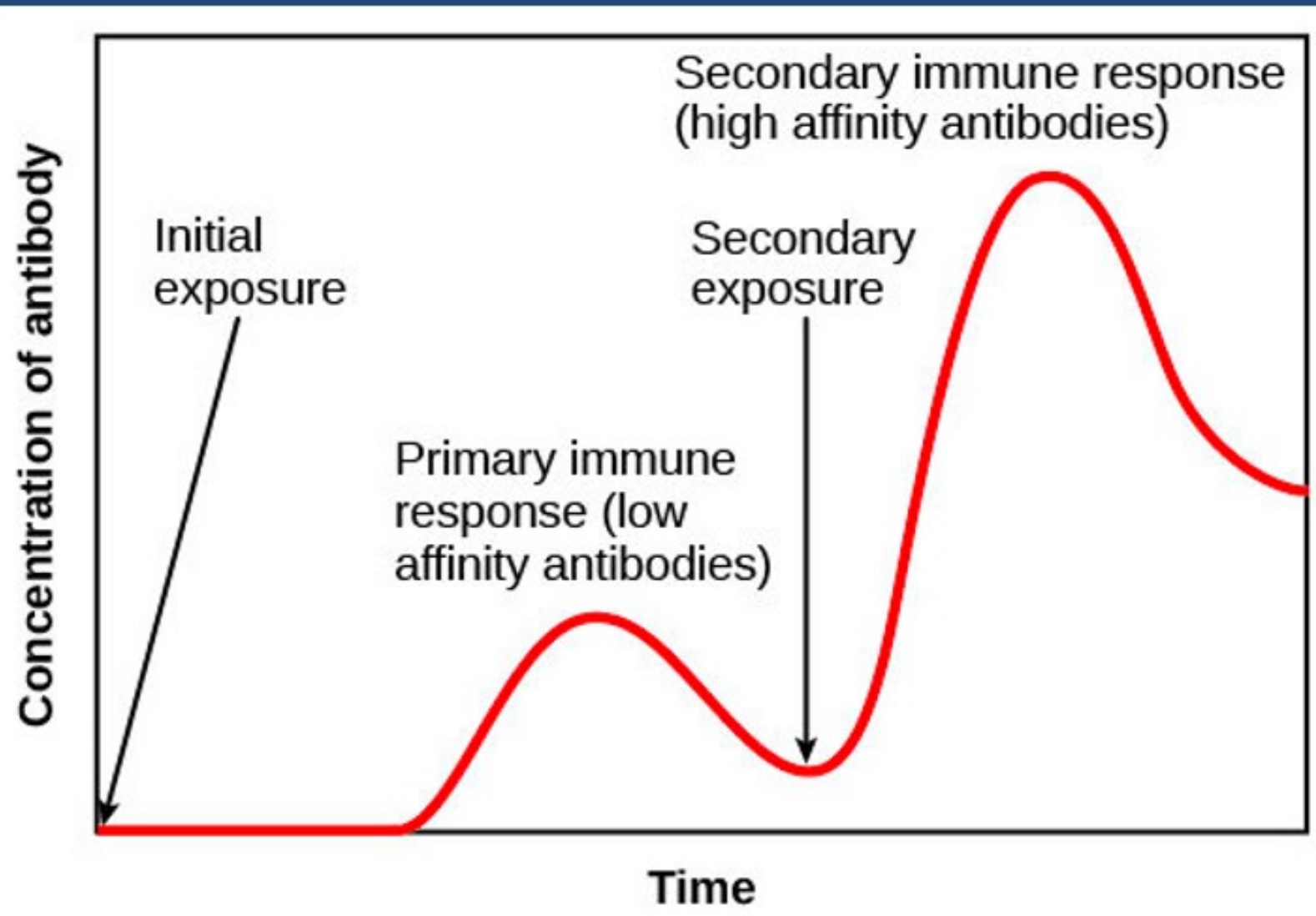
Host's Immune Response to Infection



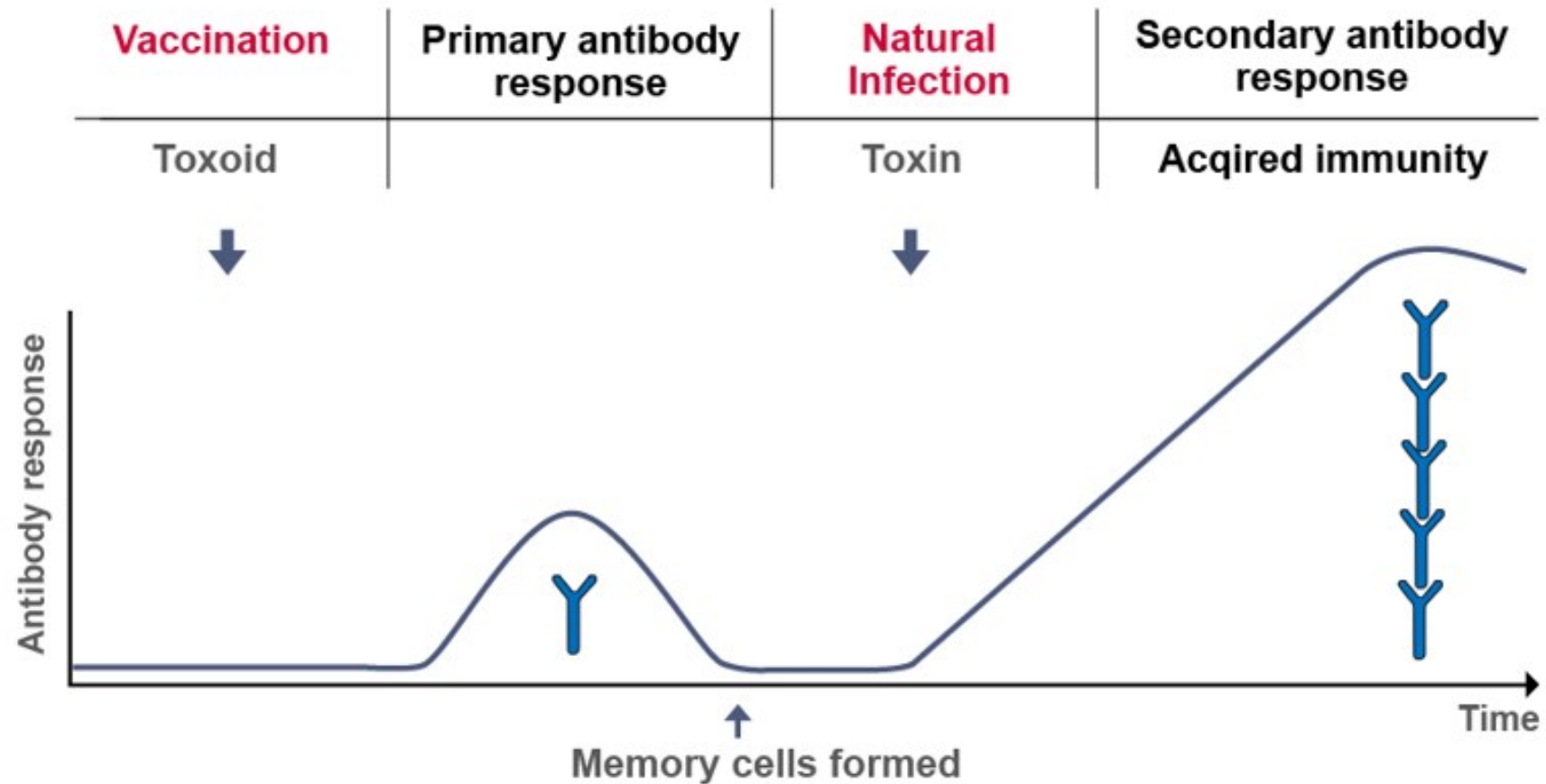
Key components of **Active** Immunity

	Component	Function
Cells	T lymphocytes	<ul style="list-style-type: none">• Activate macrophages• Help B cells produce antibodies• Kill cells infected with viruses or other intracellular pathogens
	B lymphocytes	<ul style="list-style-type: none">• Produce antibodies in response to antigens
Soluble Proteins	Antibodies	<ul style="list-style-type: none">• Bind to antigens to neutralize them or facilitate destruction of microorganisms
	Cytokines	<ul style="list-style-type: none">• Proteins secreted by cells that affect the behavior of nearby cells bearing appropriate receptors

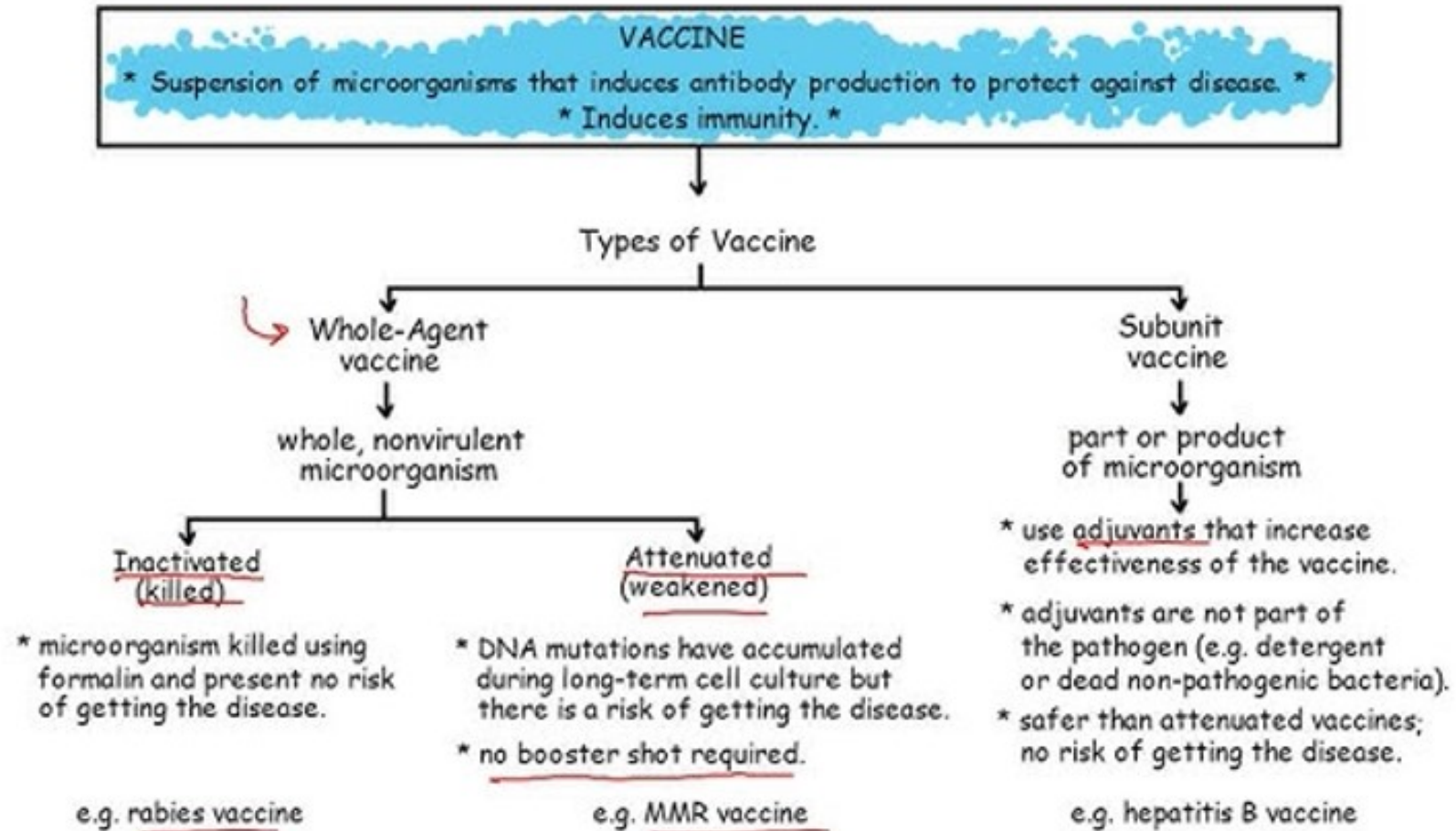
Active Immunity



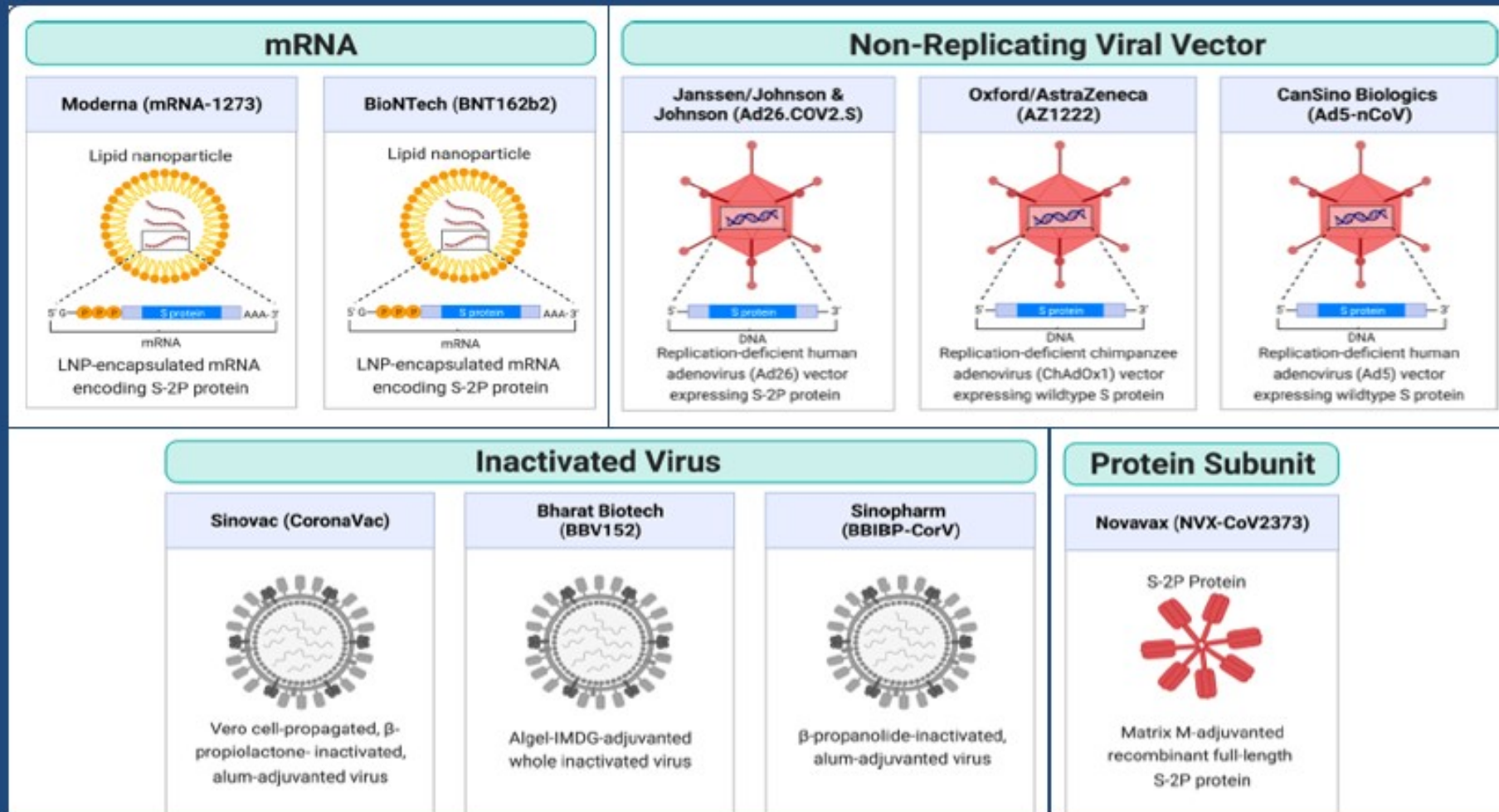
Active Immunity



Classification of vaccines



Different types of established Covid-19 Vaccine



Francis AI, et al. Postgrad Med J 2022;98:389–394. doi:10.1136/postgradmedj-2021-140654

Covid-19 Vaccine list and efficacy (as of August 2022)

	Manufacturer	Vaccine	Platform	No. of Countries in Use	Efficacy* (Infection)	Efficacy* (Severe)
1	Moderna	Spikevac (mRNA-1273)	RNA	87	93.2%	98.2%
2	Pfizer/BioNTech	Comirnaty (BNT162b2)	RNA	146	91.3%	96.7%
3	Janssen (Johnson & Johnson)	Ad26.COV2.S	Non Replicating Viral Vector	111	52.4%	74.6%
4	Oxford/AstraZeneca	Vaxzevria (ChAdOx1 nCoV-19, AZD1222)	Non Replicating Viral Vector	141	74.0%	100%
5	Serum Institute of India	Covishield (Oxford/AstraZeneca formulation)	Non Replicating Viral Vector	49		
6	Bharat Biotech	Covaxin (BBV152)	Inactivated	14	77.8% (symp-tomatic), 63.6% (asymptomatic)	93.4%
7	Beijing Institute of Biological Products/Sinopharm	Covilo (BBIBP-CorV)	Inactivated	91	78.1%	100%
8	Sinovac Biotech	CoronaVac (PiCoVacc)	Inactivated	56	50.7% (Brazil) 65.3% (Indonesia) 83.5% (Turkey)	100% (Brazil)
9	Novavax	Nuvaxovid (NVX-CoV2373)	Protein subunit	38	89.7 (UK) 90.4% (US&Mexico)	100%
10	Serum Institute of India	COVOVAX (Novavax formulation)	Protein subunit	5		
11	CanSino Biologics	Convidecia (AD5-nCoV)	Non Replicating Viral Vector	10	57.5%	91.7%

Active Immunity

Take-home message



Active Immunity

- produced due to contact with pathogen or antigen
- antibodies are produced
- usually lasts for long time
- almost no side effects
- slow in action and provides slow relief
- generates immunological memory

Thank you