

COVID 19' a KARŞI DNA ve PEPTİD AŞILARI

Dr. HAKAN AKBULUT

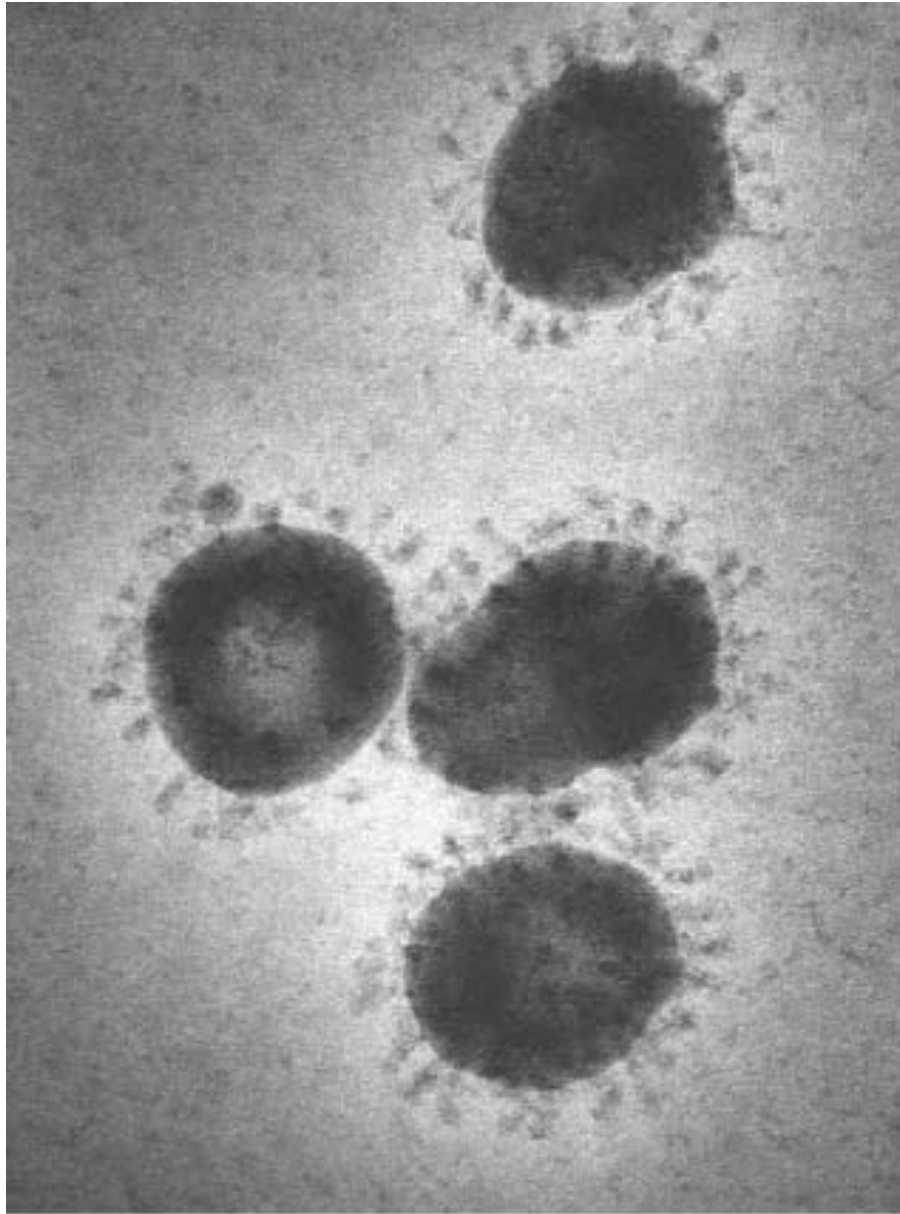
Ankara Üniversitesi Kanser Araştırma Enstitüsü

CORONA VİRÜS AŞISI GELİŞTİRMEDE ÖNEMLİ NOKTALAR

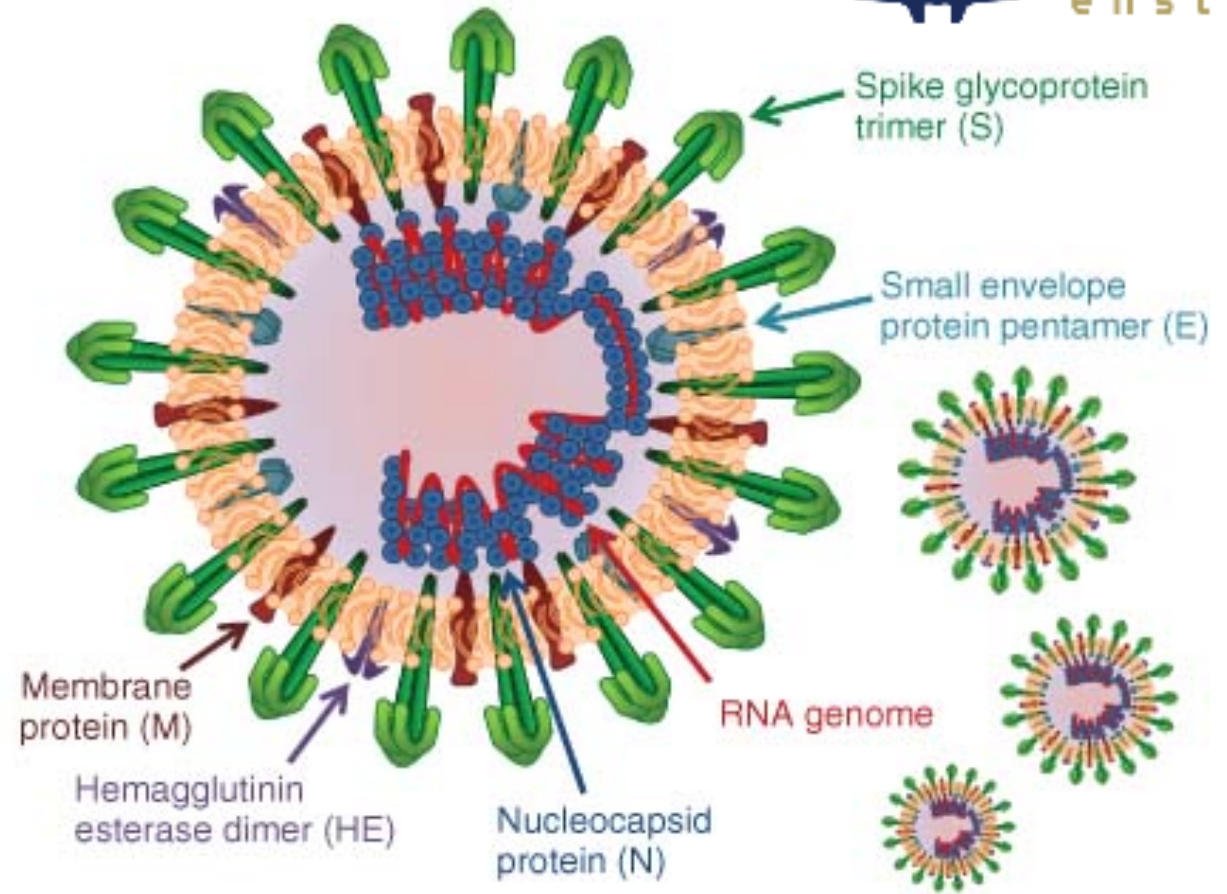
- Geliştirilecek aşı nasıl bir bağışıklık cevabı oluşturacak? (Antikor? Hücresel cevap?)
- Aşı nasıl test edilecek? (Hayvan çalışmaları, insanlarda yapılacak çalışmalar)
- Güvenlik sorunları
- COVID enfeksiyonu geçirenlerde yeterli bağışıklık cevabı oluşuyor mu?

Potansiyel COVID antijenlerinin belirlenmesi

- Spike proteini
- Nükleokapsid proteini



(a)



(b)

COVID-19 S Gene Genomic Location	Number of variant virus strains	Variation type	Base changes and virus strains	Position. Amino acid changes
21658	1	SNP	C->T:1	p.32F
21656	2	SNP	T->A:1; T-> G:1	p.32F>I; QHD43416.1:p.32F>V
22432	1	SNP	C->T:1	
21644	1	SNP	T->A:1	
21641	1	SNP	G->K:1	
22323	2	SNP	C->T:1; C-> Y:1	p.254S>F
22303	1	SNP	T->G:1	
22280	1	Deletion	ACTTTACTTG- >A:1	p.254S>F

COVID-19 S Gene Genomic Location	Number of variant virus strains	Variation type	Base changes and virus strains	Position. Amino acid changes	COVID-19 S Gene Genomic Location	Number of variant virus strains	Variation type	Base changes and virus strains	Position. Amino acid changes
23900	1	SNP	G->C:1	p.780E>Q	24389	3	SNP	A->C:3	p.943S>R
21584	2	SNP	T->G:2	p.8L>V	24383	1	SNP	A->G:1	p.941T>A
23816	1	SNP	C->T:1	p.752L>F	24382	1	SNP	C->T:1	p.940S
23758	2	SNP	C->T:2	p.732T	24381	2	SNP	C->T:2	p.940S>F
23755	1	SNP	G->T:1	p.731M>I	24378	2	SNP	C->T:2	p.939S>F
23717	1	SNP	A->G:1	p.719T>A	24370	1	SNP	C->T:1	p.936D
23635	2	SNP	C->T:2	p.691S	24351	1	SNP	C->T:1	p.930A>V
23605	2	SNP	T->G:2	p.681P	24325	5	SNP	A->G:5	p.921K
23587	2	SNP	G->C:2	p.675Q>H	24267	1	Deletion	TG->T:1	p.902M>X
23575	3	SNP	C->T:3	p.671C	24144	1	SNP	T->A:1	p.861L>*
23569	2	SNP	T->C:2	p.669G	24143	1	SNP	T->A:1	p.861L>M
23525	1	SNP	C->T:1	p.655H>Y	24142	1	SNP	T->A:1	p.860V
23520	1	SNP	C->T:1	p.653A>V	24141	1	SNP	T->A:1	p.860V>D
23405	1	SNP	G->C:1	p.615V>L	24140	1	SNP	G->C:1	p.860V>L
23403	158	SNP	A->G:158	p.614D>G	24117	2	SNP	C->T:2	p.852A>V
23185	4	SNP	C->T:4	p.541F	24034	9	SNP	C->T:7; C-> Y:2	p.824N; QHD43416.1:p.824-
23118	1	SNP	A->C:1	p.519H>P	24011	1	SNP	T->C:1	p.817F>L
23116	1	SNP	A->T:1	p.518L	23996	1	SNP	C->T:1	p.812P>S
21707	5	SNP	C->T:5	p.49H>Y	23952	1	SNP	T->G:1	p.797F>C
23010	5	SNP	T->C:5	p.483V>A	23926	1	SNP	T->C:1	p.788I
22935	1	SNP	A->G:1	p.458K>R					
22865	1	SNP	G->T:1	p.435A>S					
22787	1	SNP	C->G:1	p.409Q>E					
22785	1	SNP	G->T:1	p.408R>I					
22661	6	SNP	G->T:6	p.367V>F					
22652	1	SNP	G->T:1	p.364D>Y					
22622	1	SNP	A->G:1	p.354N>D					
22586	1	SNP	T->Y:1	p.342-					
22583	1	SNP	G->A:1	p.341V>I					

Herst CV^a, Burkholz S^a, Sidney Jⁱ, Sette Aⁱ, Harris PE^g, Massey S^b, Brase
T^b, Cunha-Neto E^{c,d,e}, Rosa DS^{d,f}, Chao WCH^j, Carback R^a, Hodge T^a,
Wang L^a, Ciotlos S^a, Lloyd P^a,
Rubsamen R^{a,h,*}

[illegible]

Figure 15: Part 2 of 2. Sequences from 54 subjects with COVID-19 were found to have highly conserved nucleocapsid peptide sequences from positions 1-419 with the exception of three positions. At position 194, three individual sequences differ with non-conserved amino

COVID-19' a KARŞI DNA ve PEPTİD AŞILARI

NELER YAPILABİLİR?

Table 1 Major COVID-19 vaccine development programs

Consortium	Candidate vaccine	Reference
Whole virus vaccines		
Janssen (Johnson & Johnson)	Adenovirus-vectored vaccine using AdVac® and PER.C6® technology	[10]
Codagenix/Serum Institute of India	Live-attenuated vaccine	[11]
Subunit vaccines		
University of Queensland/CEPI	Protein-based vaccine using Molecular Clamp platform	[12]
Novavax	Recombinant nanoparticle technology	[13]
Clover Bipharmaceuticals	S-trimer recombinant protein using Trimer-Tag technology	[14]
Baylor College of Medicine, Fudan University, New York Blood Center, Univ Texas Medical Branch	Coronavirus RBD protein-based vaccine	[15]
Vaxart	Oral recombinant protein vaccine using VAAST platform	[16]
Nucleic acid vaccines		
Inovio/Beijing Advaccine Biotechnology Co./CEPI	DNA vaccine (INO-4800, based on INO-4700 MERS vaccine)	[17]
Moderna/NIH/CEPI	mRNA vaccine	[18]
CureVac/CEPI	mRNA vaccine	[19]

clinicaltrials.gov da 2.4.2020 tarihi itibarıyla yer alan virüs tabanlı COVID 10 aşı çalışmaları

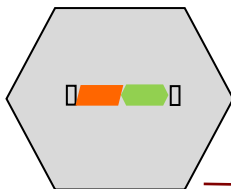
Recruiting	Immunity and Safety of Covid-19 Synthetic Minigene Vaccine	•Pathogen Infection Covid-19 Infection	•Biological: Injection and infusion of LV-SMENP-DC vaccine and antigen-specific CTLs	•Shenzhen Geno-immune Medical Institute Shenzhen, Guangdong, China •Shenzhen Second People's Hospital Shenzhen, Guangdong, China •Shenzhen Third People's Hospital Shenzhen, Guangdong, China
Not yet recruiting	A Study of a Candidate COVID-19 Vaccine (COV001)	•Coronavirus	•Biological: ChAdOx1 nCoV-19 •Other: Saline Placebo	•NIHR WTCRF, University Hospital Southampton NHS Foundation Trust Southampton, Hampshire, United Kingdom •Imperial College Healthcare NHS Trust London, United Kingdom •CCVTM, Unive
Active, not recruiting NEW	A Phase I Clinical Trial in 18-60 Adults	•COVID-19	•Biological: Recombinant Novel Coronavirus Vaccine (Adenovirus Type 5 Vector)	•Hubei Provincial Center for Disease Control and Prevention Wuhan, Hubei, China

Viral Antijenlerin İmmünojenitelerinin arttırılması

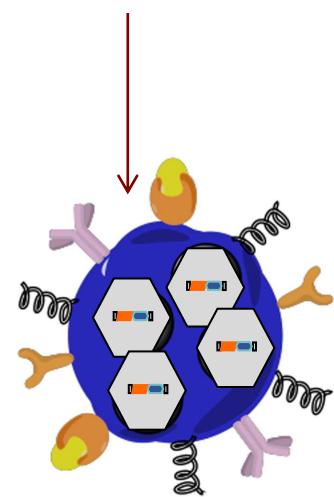
- Viral vektörlere, nanopartiküllere antijen genlerinin yerleştirilmesi (COVID-19 S ve nükleokapsid genleri)
- Rekombinant antijen üretilmesi
- Viral vektörlerin ve rekombinant antijen proteinlerinin subkutan, intramusküler uygulaması



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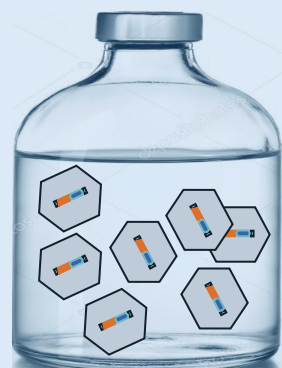
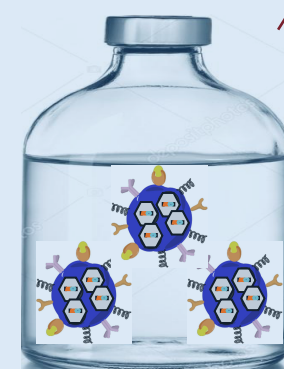


Ad-Spike
Ad-Nucleokapsid

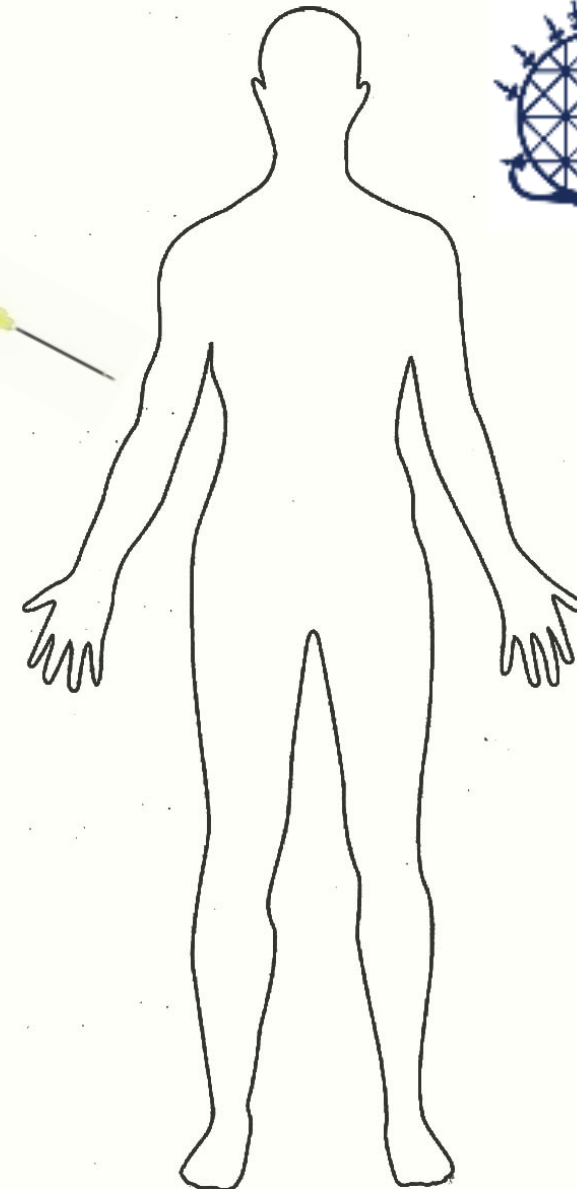


Nanoparticül
Taşıyıcı
formülasyon

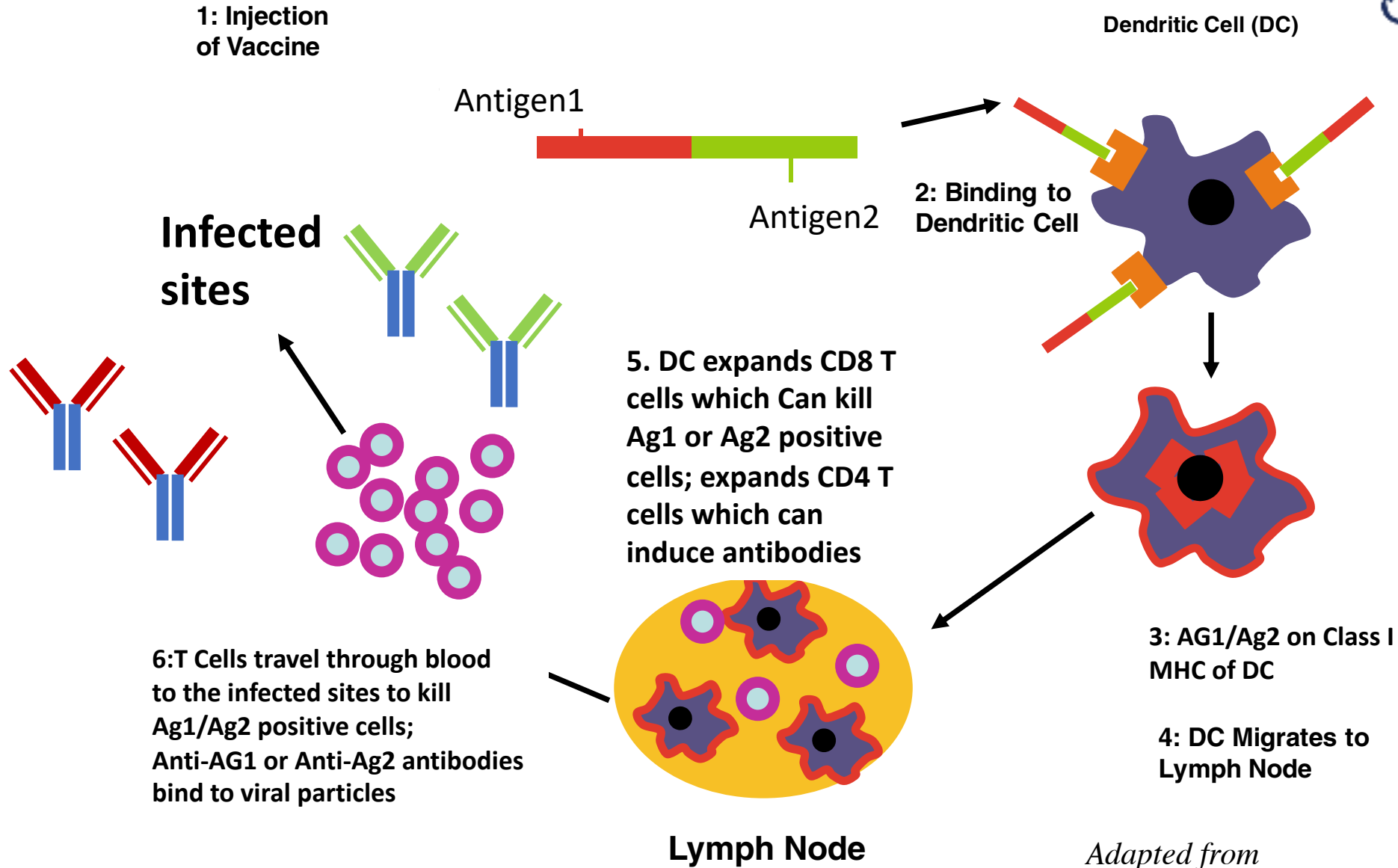
Aşı Geliştirme



GMP üretimi



Sağlıklı, risk grubu



❖ COVID 19 Pandemisi sürecinde
pandemiyle mücadelede katkıda bulunan herkese

❖ COVID 19 pozitif hastalara, kendi sağlıklarını tehlikeye
atarak her türlü desteği veren fedakar meslektaşlarıma

COVID 19 için ilaç, aşı ve tedavi araştırmalarına destek
veren TÜBİTAK nezdinde devletimize

TEŞEKKÜR EDİYORUM

COVID 19 için ilaç, aşı ve tedavi araştırmalarına katkıda
bulunan tüm ekiplere başarılar diliyorum