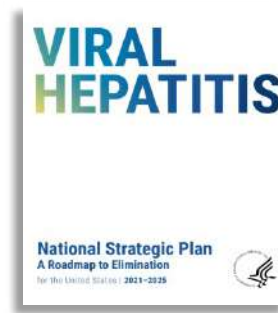


# Viral Hepatit Yönetimine Pandeminin Etkisi

## Nasıl olmalıydı?



Dr.Aytaç ÇETİNKAYA



- **Feasible** by scaling up **6 key interventions** to high coverage:

- Hepatitis B vaccination (including birth dose)
- Safe injection practices and safe blood
- Harm reduction for injecting drug users
- Safer sex (including condom promotion)
- Hepatitis B treatment
- Hepatitis C cure

### 2030 Targets

90% Diagnosed

80% Treated

65% Reduced Mortality

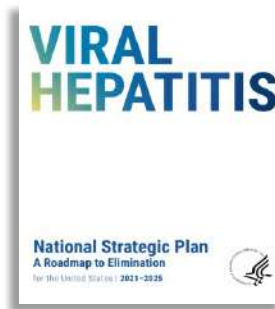
## COVID-19 and global HCV elimination efforts

Sarah Blach, MHS, CPH.  
HCV Team Lead, CDA Foundation, Lafayette, CO, USA  
Email: sblach@cdafound.org

- Tahmin
- COVID-19 pandemisi nedeniyle HCV eliminasyon
- 1 yıllık gecikme
- 2030 yılına kadar küresel olarak
  - 906.000 kişinin hiçbir zaman HCV tanısı almaması
  - 746.000 kişinin hiç HCV tedavisi almaması
  - 2030'da 623.000 ek yaygın enfeksiyon
  - 44.800 HCC vakası
  - 72.200 on yıl içinde HCV'ye bağlı ölüm



COALITION  
FOR  
**GLOBAL  
HEPATITIS  
ELIMINATION**

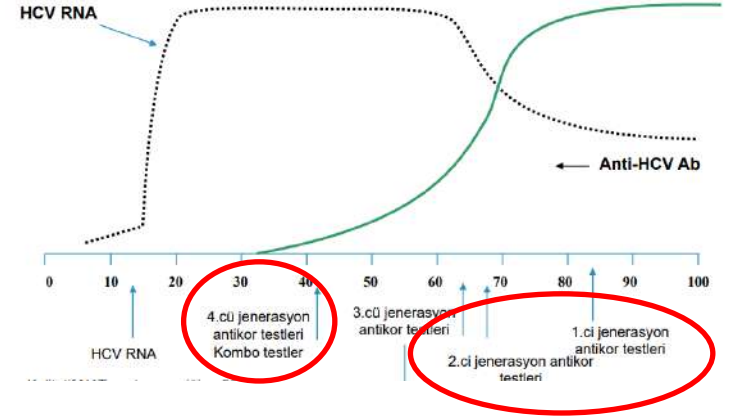


**Eliminasyon = TTTA kuralı**

**Tarama Test Takip-Tedavi Aşı**



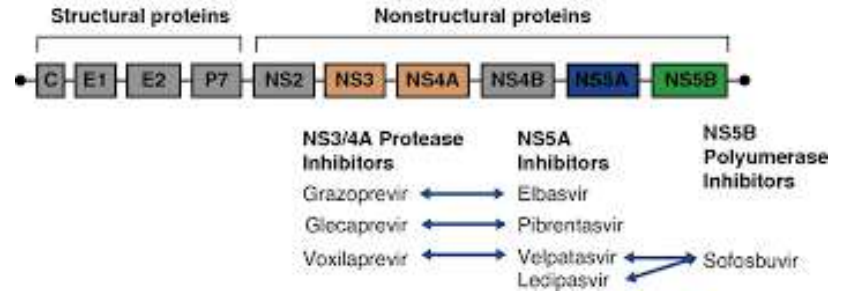
- Büyük ölçüde **basitleştirilmiş bir test**



- **Basitleştirilmiş tedavi paradigması**

- **“hepsini tedavi et” yaklaşımını**

DAA targets in genome and commonly prescribed combination therapies





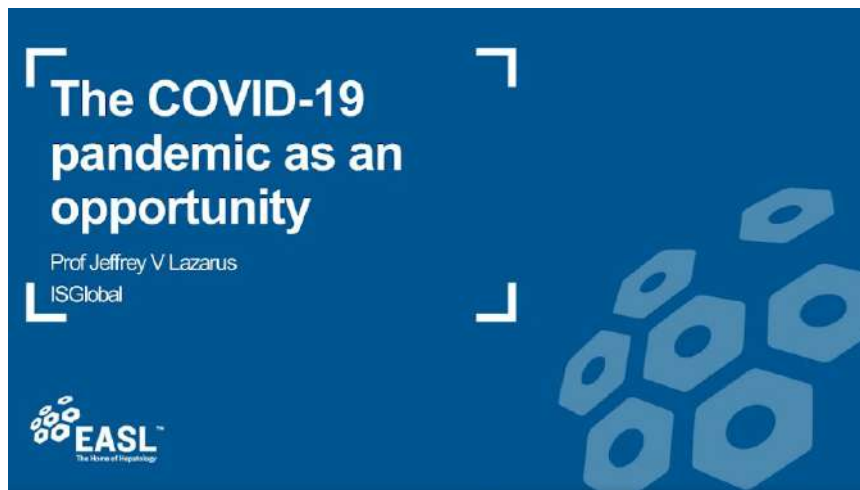
- HCV ortadan kaldırılmasına için **daha geniş bir tabanı**

- Birçok ülke COVID-19 nüfus düzeyinde **tarama**



- **Covid hasta izlem, takip**





Prof. Dr. Antonio Craxi



Prof. Dr. Mark Thursz



Prof. Dr. Loreta Kondili



Prof. Dr. Sarah Blach

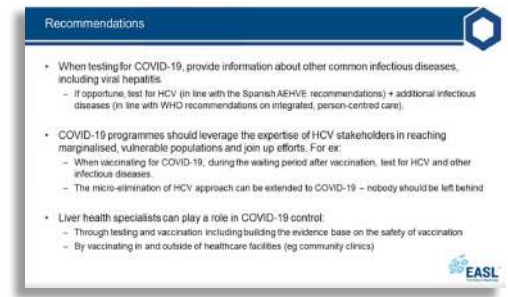
Coronavirus Cases:  
624,971,219

Deaths:  
6,555,522

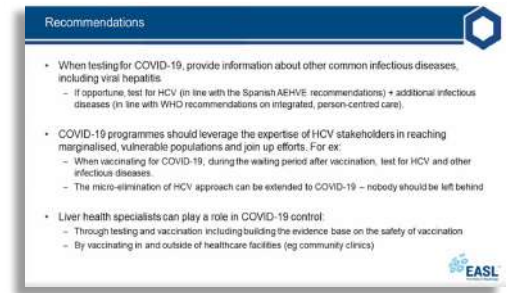
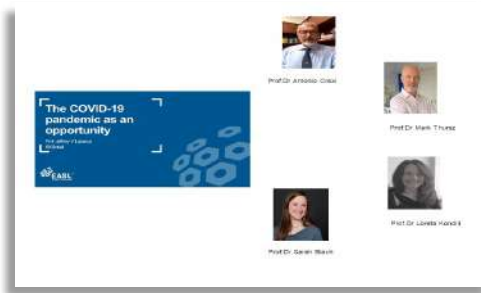
Recovered:  
604,825,983

All	Europe	North America	Asia	South America	Africa	Oceania									
#	Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	New Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop	Total Tests	Tests/ 1M pop	Population	
1	<a href="#">USA</a>	98,411,240	+36,704	1,086,685	+350	95,432,346	+94,458	1,892,209	2,733	293,936	3,245	1,119,730,103	3,344,422	334,805,269	
2	<a href="#">India</a>	44,604,463	+2,629	628,745	+12	44,043,436	+3,553	32,282	698	31,710	375	895,958,696	636,953	1,406,631,776	
3	<a href="#">UK</a>	23,672,855		190,317		23,369,518	+4,227	113,020	146	345,600	2,778	622,626,476	7,628,357	68,497,907	
4	<a href="#">Spain</a>	13,431,098		114,262		13,237,757		79,079	339	287,486	2,445	471,036,328	10,082,298	46,719,142	
5	<a href="#">Russia</a>	21,118,629	+23,757	387,779	+113	20,266,033	+44,694	464,817	2,300	144,841	2,660	273,400,000	1,875,095	145,805,947	
6	<a href="#">France</a>	35,639,699	+66,564	155,319	+47	34,676,127	+33,189	808,253	869	543,416	2,368	271,490,188	4,139,547	65,584,518	
7	<a href="#">Italy</a>	22,648,063	+45,223	177,300	+43	21,961,023	+27,251	509,740	171	375,822	2,942	247,760,912	4,111,177	60,262,770	
8	<a href="#">Austria</a>	5,195,408	+17,882	20,779	+12	5,050,046	+9,071	124,583	47	573,020	2,292	198,047,083	21,843,324	9,066,710	
9	<a href="#">UAE</a>	1,029,426	+344	2,346		1,008,493	+322	18,587		102,108	233	191,568,517	19,001,448	10,081,785	
10	<a href="#">Turkey</a>	16,873,793		101,139		16,769,595	+3,059	3,059	975	197,211	1,182	162,743,369	1,902,052	85,561,976	
11	<a href="#">China</a>	251,620	+273	5,226		243,518	+367	2,876	18	174	4	160,000,000	110,461	1,448,471,400	
12	<a href="#">Denmark</a>	3,116,316	+1,268	7,103	+15	3,096,877	+819	12,336		534,078	1,217	128,446,054	22,013,051	5,834,950	
13	<a href="#">Germany</a>	33,652,255	+132,494	150,289	+97	32,473,400	+43,000	1,028,666	1,406	401,178	1,792	122,332,384	1,458,359	83,883,596	
14	<a href="#">Indonesia</a>	6,439,292	+1,542	158,165	+9	6,264,184	+1,364	16,943	2,771	23,069	567	108,849,019	389,952	279,134,505	
15	<a href="#">Greece</a>	4,975,067		33,200		4,867,804	+6,425	74,063	115	482,237	3,218	94,835,870	9,192,518	10,316,637	
16	<a href="#">Vietnam</a>	11,483,529	+1,194	43,151		10,594,844	+858	845,534	75	116,050	435	85,826,548	867,342	98,953,541	
17	<a href="#">Australia</a>	10,244,727	+1,632	15,234	+6	10,172,662		56,831	42	392,988	564	78,836,048	3,024,116	26,068,792	
18	<a href="#">Japan</a>	21,426,855	+41,193	45,157	+74	20,407,940	+2,567	973,758	160	170,617	360	76,201,407	606,772	125,584,838	
19	<a href="#">Canada</a>	4,251,611		45,218		4,144,611	+2,623	61,782	99	110,752	1,173	65,087,211	1,695,491	38,388,419	
20	<a href="#">Malaysia</a>	4,848,314	+1,722	36,387	+2	4,788,889	+1,639	23,038	48	146,117	1,097	64,733,491	1,950,916	33,181,072	
21	<a href="#">Brazil</a>	34,743,698	+8,056	686,640	+109	33,898,481	+22,604	158,477	8,318	161,333	3,188	63,776,166	296,146	215,353,593	

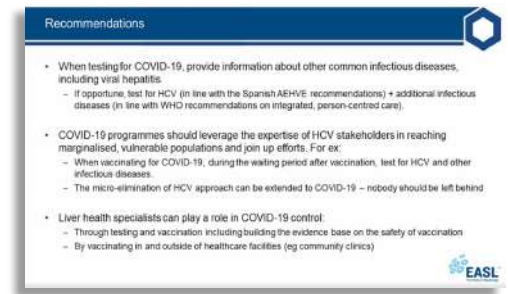




- ✓ COVID-19 taraması yapılırken, diğer bulaşıcı hastalıklar da (Hepatit dahil) sorgulanmalı
  - Mümkünse HCV + diğer bulaşıcı hastalıklar test



- COVID-19 programları, ulaşımı zor olan hasta popülasyonlarını taramak için bir fırsat
  - COVID-19 aşılması sonrasında sürede, hepatit C ve diğer bulaşıcı hastalıklar test edilmeli
  - Hepatit C'yi kapsayan mikro eliminasyon programları COVID-19 kapsamalı



- Hepatologlar, COVID-19 kontrolünde aktif rol almalı
  - Testler ve aşılama: aşının güvenilirliğini içeren kanıtları sunma
  - Sağlık merkezleri içinde ve dışında (toplum klinikleri) aşılamanın yaygınlaştırılmasına katkı sağlamak



24–25 Feb 2022  
Online

## **Viral Hepatitis Elimination 2022**

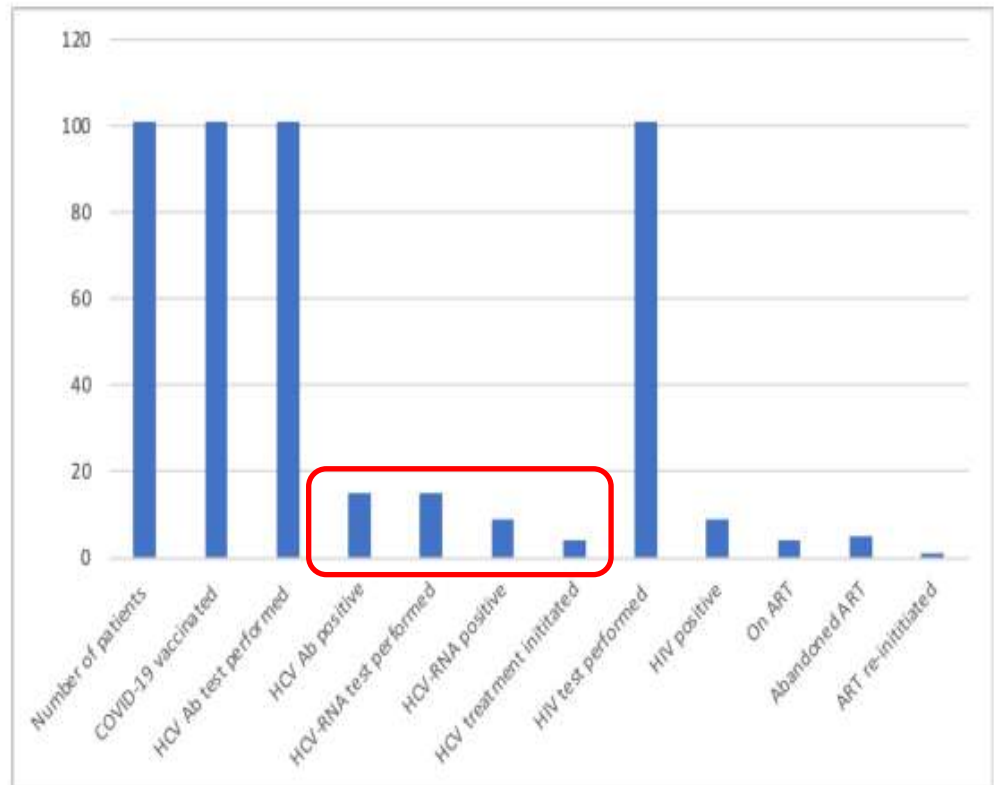
*Towards a hepatitis-free world*

### Combined COVID-19 vaccination and HIV and hepatitis C virus screening intervention for high-risk populations at a mobile testing unit in Madrid, Spain

Jorge Valencia, Pablo Ryan, Guillermo Cuevas, Julieta Domingorena, Álvaro Vicario, Marcela Villota-Rivas, and Jeffrey Lazarus



- Madrid, İspanya,
- Marjinal grup
- COVID aşısı
- HCV/HIV point-of-care testing (PoCT)
- 9/28/2021 to 10/26/2021
- 101 kişi, **AntiHCV %14.9 HCV RNA+ %9**
- AntiHIV %8.9

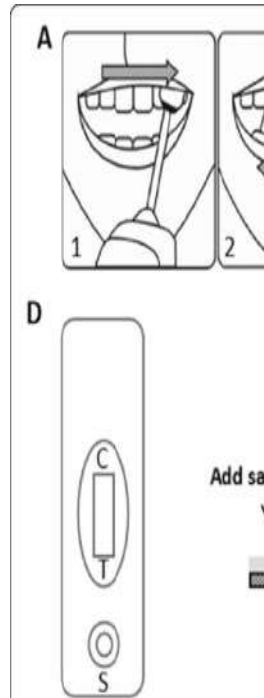


## HCV elimination among People Who Use Drug in Rome outside the hospital setting is possible during the COVID19 pandemic.

Elisabetta Teti<sup>1</sup>, Loredana Sarmati<sup>1</sup>, Tiziana Mulas<sup>1</sup>, Ludovica Ferrari<sup>1</sup>, Giuseppe De Simone<sup>1</sup>, Davide Checchi<sup>1</sup>, Mirko Compagno<sup>1</sup>, Marco Iannetta<sup>1</sup>, Beatrice Coladarce<sup>2</sup>, Paola Sammarco<sup>2</sup>, Daniela Masci<sup>2</sup>, Giancarlo Rodoquino<sup>2</sup>, Tania Di Giovanni<sup>2</sup>, Ettore Rossi<sup>2</sup>, Massimo Andreoni<sup>1</sup>, Massimo Barra<sup>2</sup>  
<sup>1</sup>University Hospital of Rome Tor Vergata, Clinical Infectious Diseases, Rome, Italy, <sup>2</sup>Villa Maraini Foundation, Rome, Italy  
 Email: [elisabetta.teti@gmail.com](mailto:elisabetta.teti@gmail.com)



- Roma, İtalya
- İlaç bağımlısı
- Şüpheli covid hastası
- Bigilendirilmiş onam
- Ocak – Mayıs 2020 333 hasta
- 141/331 Anti HCV **pozitif**



## Simple Fingerstick Testing Procedure

<b>STEP 1</b> <i>Collect sample</i>		
<b>STEP 1B</b> <i>Mix sample in buffer</i>		
<b>STEP 2</b> <i>Insert the device into the buffer</i>		
<b>STEP 3</b> <i>read between 20 and 40 minutes</i>		
<b>NON-REACTIVE</b> <i>Line in the C Zone</i>		
<b>REACTIVE</b> <i>Line in the C and T Zones</i>		

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<sup>1</sup>University Hospital of Rome Tor Vergata, Clinical Infectious Diseases, Rome, Italy, <sup>2</sup>Villa Maraini Foundation, Rome, Italy  
 Email: [elisabetta.teti@gmail.com](mailto:elisabetta.teti@gmail.com)



- Roma, İtalya
- 141/331 Anti HCV pozitif (%42)
- 91 / 139 hızlı moleküler test yaptırmayı kabul
- 34/91 hasta Hızlı moleküler test pozitif
- 17/34 hastaneye gitmeyi kabul
- 10/17 tedavi oldu KVV12

## Simple Fingerstick Testing Procedure

<p>A</p>	<p><b>STEP 1</b> Collect sample</p>		
<p>B</p>	<p><b>STEP 1B</b> Mix sample in buffer</p>		
<p>C</p>	<p><b>STEP 2</b> Insert the device into the buffer</p>		
<p>D</p>	<p><b>STEP 3</b> read between 20 and 40 minutes</p>		
<p><b>NON-REACTIVE</b> Line in the C Zone</p>			
<p><b>REACTIVE</b> Line in the C and T Zones</p>			

## Point of care screening tests for hepatitis B and commitment of a dedicated nurse lead to successful linkage to care of ethnic minorities

Axelle Vanderlinden<sup>1,2</sup>, Erwin Ho<sup>1,2</sup>, Liesbeth Govaerts<sup>1</sup>, Bo De Fooz<sup>2</sup>, Pierre Van Damme<sup>3</sup>, Peter Michiels<sup>1,2</sup>, Thomas Vanwolleghem<sup>1,2</sup>



- Belçika
- HBV enfeksiyon **düşük endemik ülke**
- Göçmen, maliyet etkin
- 2017 yılı, point of care tests (POCT)
- Hemşire
- 2017-2020 & **2020- Mart 2021**
- **521 hasta**
- **Telefon, sosyal medya, filiasyon tedavi başarısı**
- COVID öncesi ve sonrası (p = 0.0049)





# Combined telephone and home assessment and home treatment delivery improves drug service client access to hepatitis c care and treatment uptake during the COVID-19 pandemic

Natasha Baker<sup>1</sup>, mark cassell<sup>1</sup>, Ben Stone<sup>1</sup>

<sup>1</sup>Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom



- İngiltere, Tek bir uyuşturucu servisi
- COVID-19 öncesi 12 ay
- 43 hasta HCV tedavisi
- 40 poliklinik, 3'ü uyuşturucu servisi
- 2020 Mart
- Sokağa çıkma, hastaneye eczane gidememe
- Pilot alternatif uygula
- Bilinen 60 HCV hastası



$$\text{APRI} = \frac{\frac{\text{AST Level}}{\text{AST (Upper Limit of Normal)}}}{\text{Platelet Count (10}^9\text{/L)}} \times 100$$

$$\text{FIB-4} = \frac{\text{Age (years)} \times \text{AST (U/L)}}{\text{Platelet Count (10}^9\text{/L)} \times \sqrt{\text{ALT (U/L)}}}$$



# Combined telephone and home assessment and home treatment delivery improves drug service client access to hepatitis c care and treatment uptake during the COVID-19 pandemic

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<sup>1</sup>Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom



- Bilinen 60 HCV hastası
- Telefon
- iki hemşire
- HCV RNA ± genotip, AST, ALT, PLT
- INR, APRI ± FIB-4.
- Video-telekonferans
- 42/60 hasta ulaşım, 31/60 tedavi , 25/31 KVV12
- 2 hasta ex KVV öncesi
- 1 tedavi uyumsuz
- 3 takip dışı



$$\text{APRI} = \frac{\frac{\text{AST Level}}{\text{AST (Upper Limit of Normal)}}}{\text{Platelet Count (10}^9\text{/L)}} \times 100$$

$$\text{FIB-4} = \frac{\text{Age (years)} \times \text{AST (U/L)}}{\text{Platelet Count (10}^3\text{/L)} \times \sqrt{\text{ALT (U/L)}}}$$



# AŞI?



Eliminasyon = TTTA kuralı

Tarama Test Takip-Tedavi Aşı

THE LANCET  
Gastroenterology & Hepatology

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EDITORIAL | VOLUME 6, ISSUE 4, P353, APRIL 01, 2021

PDF [112 KB] Figures

## The hunt for a vaccine for hepatitis C virus continues

The Lancet Gastroenterology & Hepatology


Published: April, 2021 - DOI: [https://doi.org/10.1016/S2468-1253\(21\)00073-X](https://doi.org/10.1016/S2468-1253(21)00073-X)

Check for updates

The hunt for

Article Info

The past year has been marked by unprecedented successes in the development of several effective vaccines against SARS-CoV-2 within 12 months of discovery of the virus. Alas, the same can not be said for the development of vaccines against hepatitis C virus.



World Journal of  
Hepatology

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<a href="#">Abstract</a>	<b>Copyright</b> ©The Author(s) 2021. Published by Bolshideng Publishing Group Inc. All rights reserved.	
<a href="#">Core Tip</a>	World J Hepatol. Oct 27, 2021; 13(10): 1234-1268	
<a href="#">Full Article (PDF)</a>	Published online Oct 27, 2021. doi: <a href="https://doi.org/10.4254/wjh.v13.i10.1234">10.4254/wjh.v13.i10.1234</a>	
<a href="#">Full Article (WORD)</a>	<b>In the era of rapid mRNA-based vaccines: Why is there no effective hepatitis C virus vaccine yet?</b>	
<a href="#">Full Article (HTML)</a>		

## Vaccines against hepatitis C virus: Harnessing Immunity to Eliminate Global Hepatitis C [Hosted by NIAID]

March 24 2022 | Two days | NIH Research Advancing Hepatitis Elimination

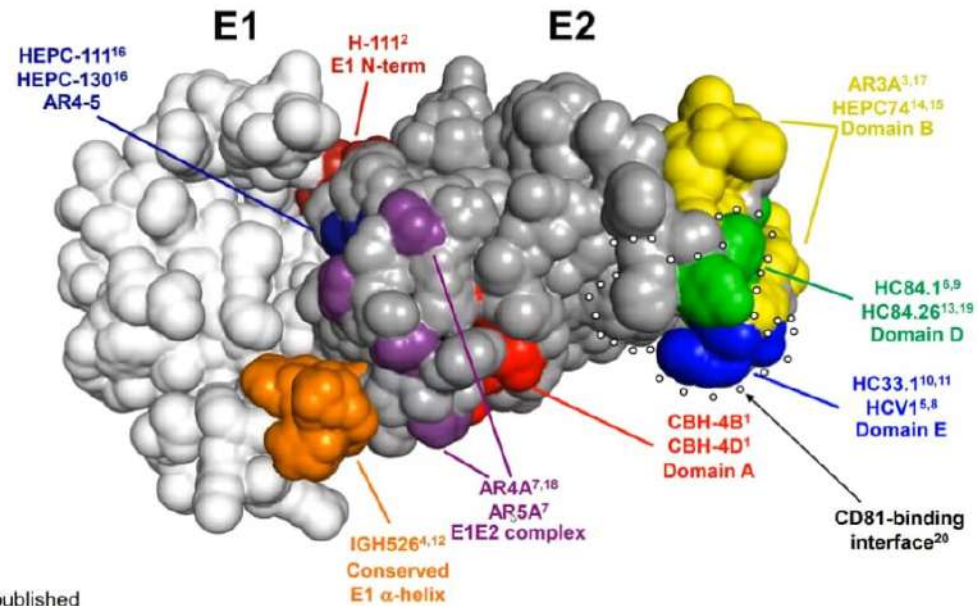
# Aşı?



Eliminasyon = TTTA kuralı

Tarama Test Takip-Tedavi Aşı

## Mapping of HCV monoclonal antibodies



<sup>1</sup>Hedlock, K.G., et al., (2000) *J. Virol.*, **74**:10407-16; <sup>2</sup>Keck, Z.Y., et al., (2004) *J. Virol.*, **78**:7257-63; <sup>3</sup>Law, M., et al., (2008) *Nat. Med.*, **14**:25-7; <sup>4</sup>Meurier, J.C., et al., (2009) *J. Virol.*, **82**:366-73; <sup>5</sup>Broering, T.J., et al., (2009) *J. Virol.*, **83**:12473-82; <sup>6</sup>Keck, Z.Y., et al., (2012) *PLoS Pathog.*, **8**:e1002653; <sup>7</sup>Giang, E., et al., (2012) *PNAS*, **109**:6205-10; <sup>8</sup>Kong, L., et al., (2015) *PNAS*, **109**:9499-9504; <sup>9</sup>Kray, T., et al., (2013) *PLoS Pathog.*, **9**:e1003364; <sup>10</sup>Keck, Z.Y., et al., (2013) *J. Virol.*, **87**:37-51; <sup>11</sup>Li, Y., et al., (2015) *JBC*, **290**:10117-25; <sup>12</sup>Kong, L., et al., (2015) *J. Mol. Biol.*, **427**:2617-28; <sup>13</sup>Keck, Z.Y., et al., (2016) *Hepatology*, **64**:1922-33; <sup>14</sup>Bailey, J.R., et al., (2017) *JCI Insight*, **2**:e92872; <sup>15</sup>Flyak, A.I., et al., (2018) *Cell Host Microbe*, **24**:703-16; <sup>16</sup>Colbert, M.D., et al., (2019) *J.4 Virol.*, **93**:e02070-16; <sup>17</sup>Tzarum, N., et al., (2019) *Sci. Adv.*, **5**:eaav1882; <sup>18</sup>de la Peña, A.T., et al., (2022) *bioRxiv*; <sup>19</sup>Shahid, S., et al., to be published; <sup>20</sup>Kumar, A., et al., (2021) *Nature*, **596**:521-5.

NIH National Institute of Health

GLOBAL HEPATITIS ELIMINATION

**VACCINES AGAINST HEPATITIS C VIRUS: HARNESSING IMMUNITY TO ELIMINATE GLOBAL HEPATITIS C**

Virtual Symposium

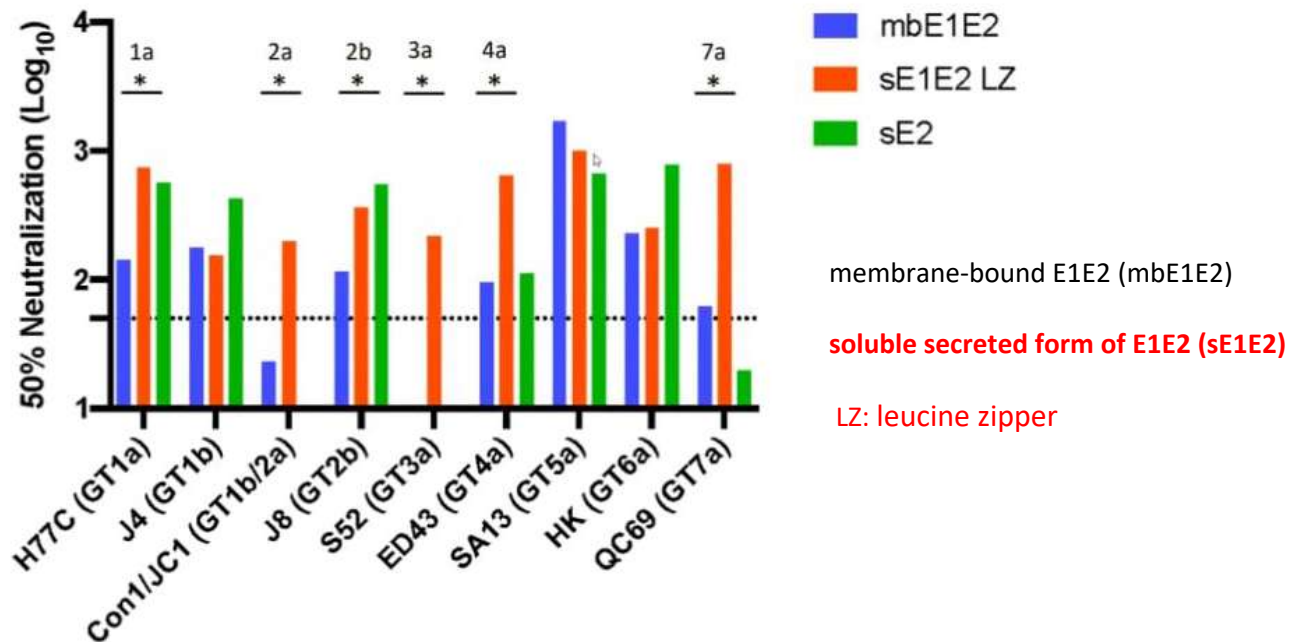
MARCH 24<sup>th</sup> & 25<sup>th</sup>  
12-2:30 pm ET

Hosted by the National Institute of Allergy and Infectious Diseases (NIAID)

WELCOME!

# AŞI?

## Breadth of neutralization against all HCV genotypes *HCVcc assay system*



➤ sE1E2.LZ serum showed high neutralization activity against most strains

R Wang *et al.*, *PNAS* 2022<sup>13</sup>

# Pandemi Eliminasyon Nasıl olmalıydı?

Eliminasyon = TTTA kuralı

Tarama Test Takip-Tedavi Aşı



COALITION  
FOR  
GLOBAL  
HEPATITIS  
ELIMINATION

