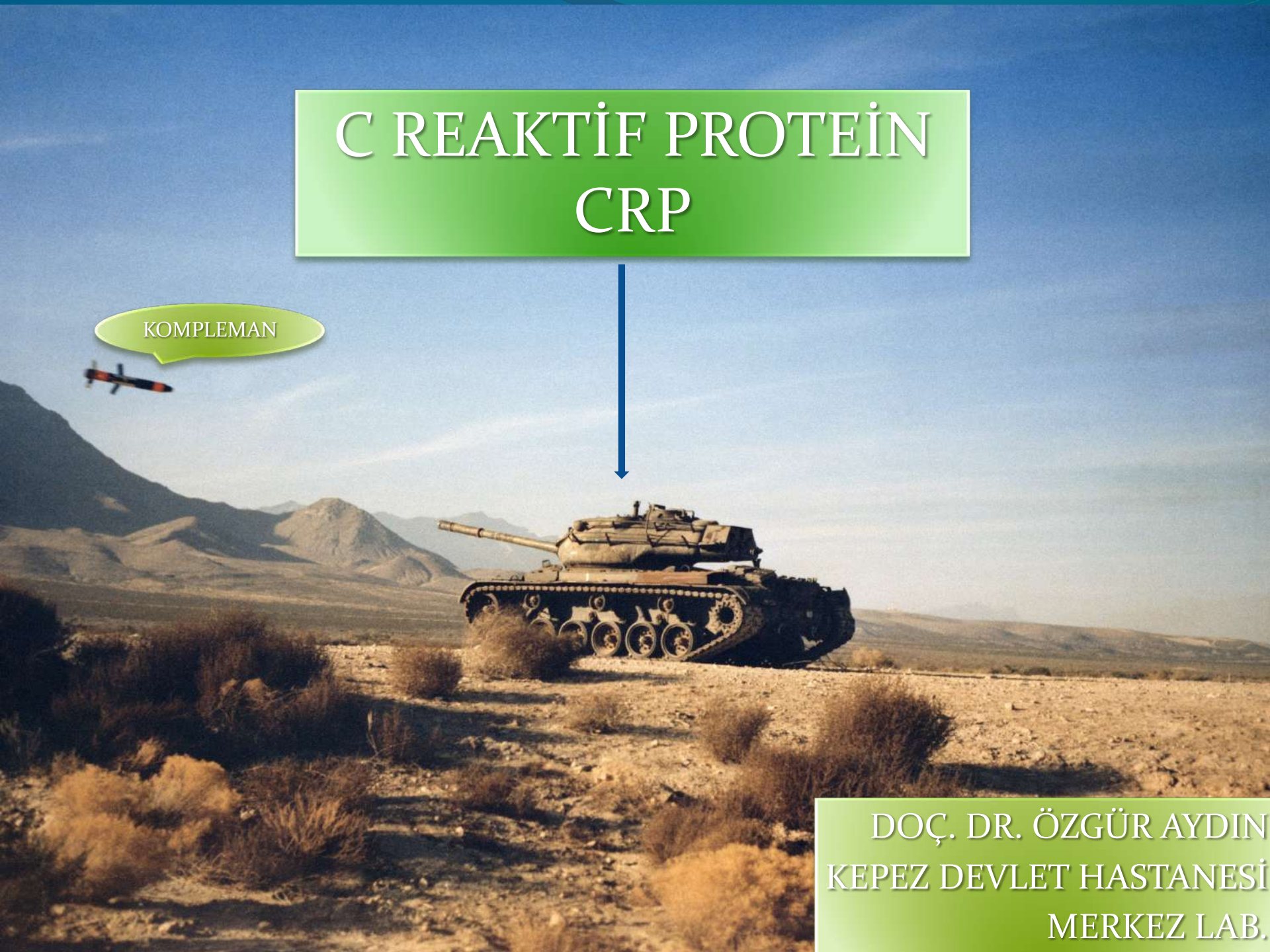
C REAKTİF PROTEİN
CRP



DOÇ. DR. ÖZGÜR AYDIN
KEPEZ DEVLET HASTANESİ
MERKEZ LAB.

CRP

- 1930 yılında Tillett ve Francis tarafından pnömonili hastalarda pnömokokun karbonhidrat maddesine karşı oluşmuş bir protein "karbonhidrat reaktif protein" (CRP) olarak değerlendirilmiş.
- Daha sonraları doku hasarı ile giden diğer birçok patolojik durumda ölçülebilir yüksek düzeylerde oluştuğu gösterilmiştir.

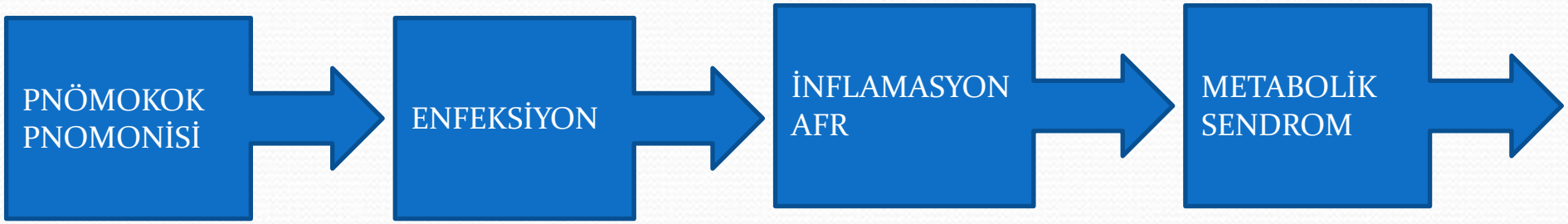
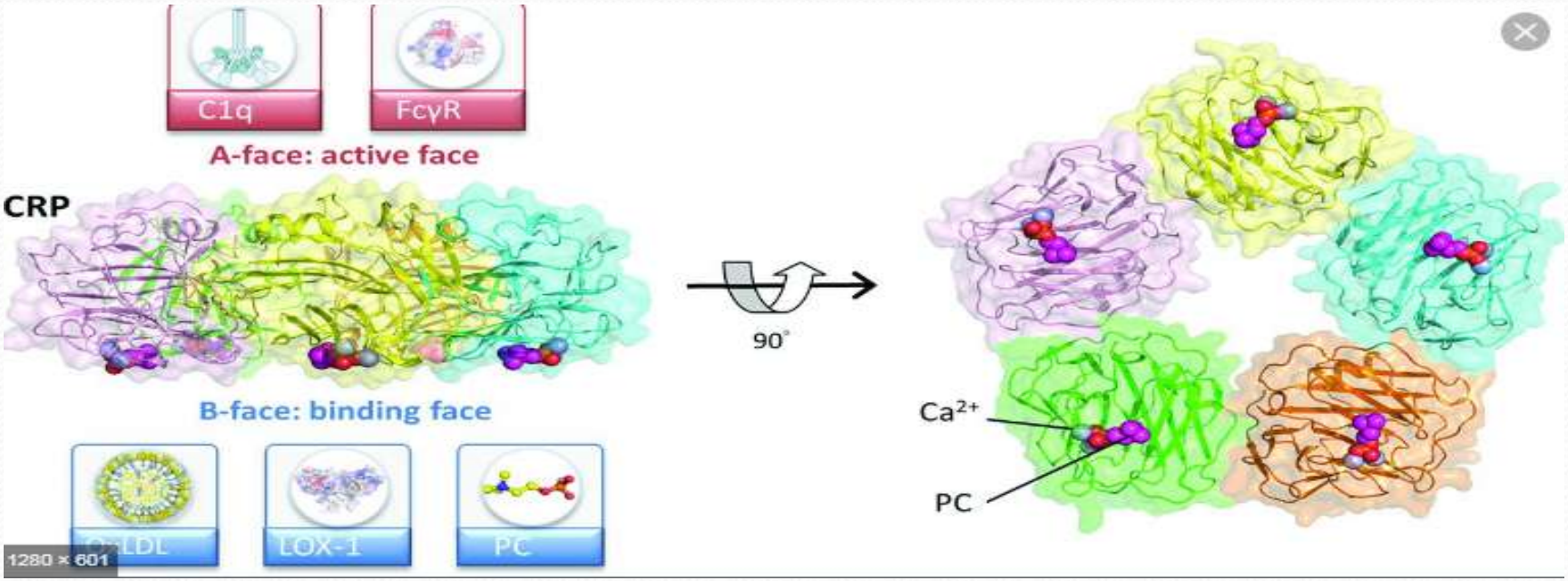
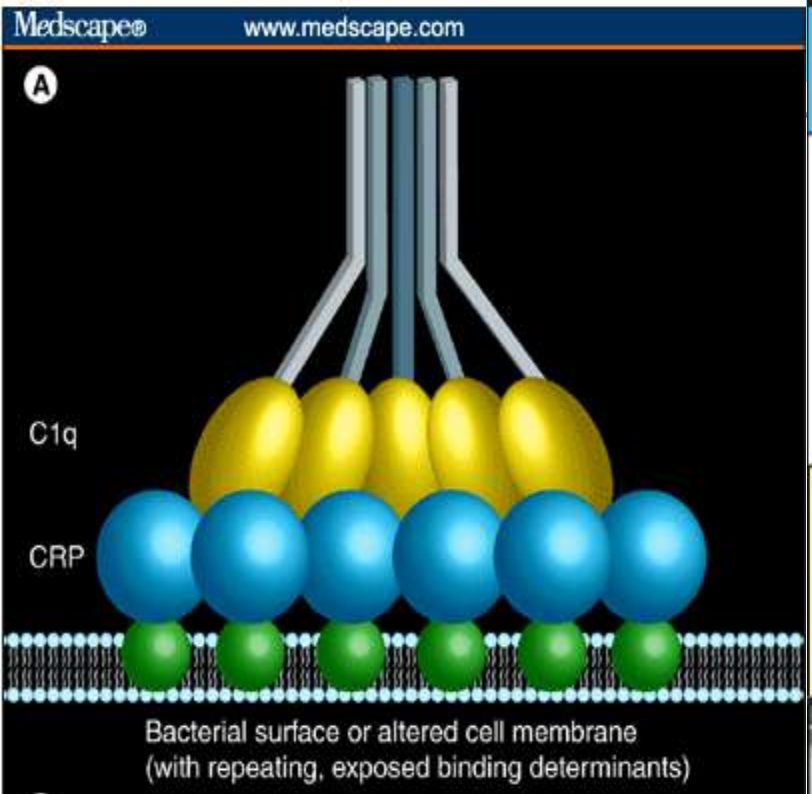


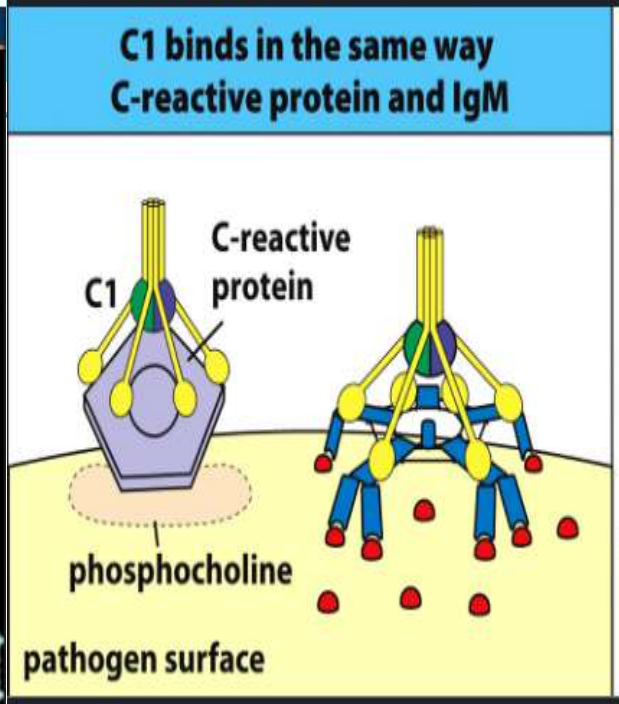
TABLE 1 | Properties of CRP isolated from various animals. See the text for scientific names of the animals.

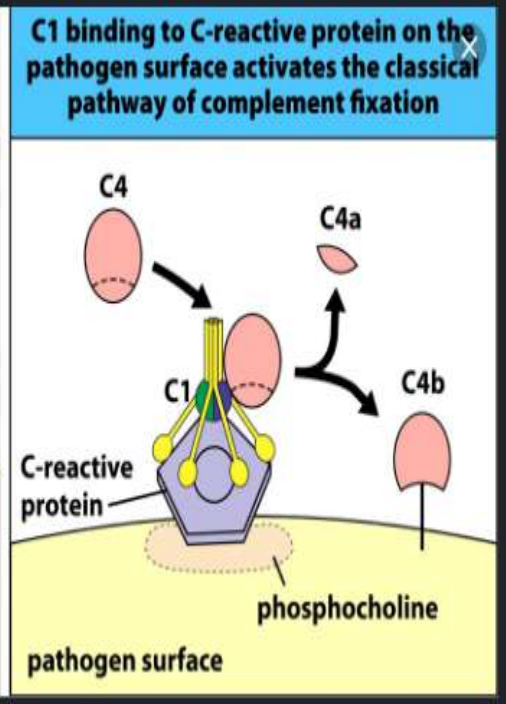
Animal	Approximate molecular weight (kDa)	Symmetry (quaternary structure)	Approximate molecular of subunits (kDa)	Glycosylation	Acute phase protein	References
Horseshoe crab	300	Hexamer (stack of two hexamers)	25	Yes	No	(10–13)
Giant African Snail	400		20 and 24	Yes	No	(14, 15)
Plaice	187	Pentamer (10 subunits)	18.7	Yes	No	(16–19)
Lumpsucker	125–150	Pentamer	20–21.5			(20, 21)
Rainbow trout	81.4	Trimer	26.6	Yes	Yes	(22)
Cod		Pentamer	22–29	Yes		(23, 24)
Eel	120	Pentamer	24	No		(25, 26)
Channel catfish	100	Pentamer		No	Yes	(27)
Striped catfish		Trimer	28	Yes		(28)
Ayu			25.2	No	Yes	(29)
Rohu		Pentamer	33	Yes	Yes	(30)
Common carp			27	Yes	Yes	(31)
Major carp			22 and 29	Yes	Yes	(32, 33)
Goldfish			25.6		Yes	(34)
Dogfish	250	Pentamer of dimers	25			(35, 36)
Zebrafish		Trimer			Yes	(37, 38)
Tonguefish			26		Yes	(39)
Rockfish	160 and 152		30 and 26	Yes	Yes	(40)
Frog			24		No	(41)
Cow	100	Pentamer	23	No	No	(42, 43)
Dog	115	Pentamer	21	Yes	Yes	(44, 45)
Harbor seal			25		Yes	(46)
Goat	120	Pentamer	24	Yes	No	(47)
Horse	118	Pentamer	24	No	Yes	(48)
Hamster	128–150	Pentamer	27–30	Yes	Yes	(49–51)
Rabbit	115–140	Pentamer	23.5	No	Yes	(52, 53)
Rat	129	Pentamer	23	Yes	Yes	(54)
Human	115	Pentamer	23	No	Yes	(55)

Figure 1
Molecular structure and morphology of human CRP. (**a**) Negatively stained electron micrograph showing the typical pentameric disc-like structure face-on and side-on (arrows). (**b**) Ribbon diagram of the crystal structure, showing the lectin fold and the two calcium atoms (spheres) in the ligand-binding site of each protomer (6). (**c**) Space-filling model of the CRP molecule, showing a single phosphocholine molecule located in the ligand-binding site of each protomer (6).



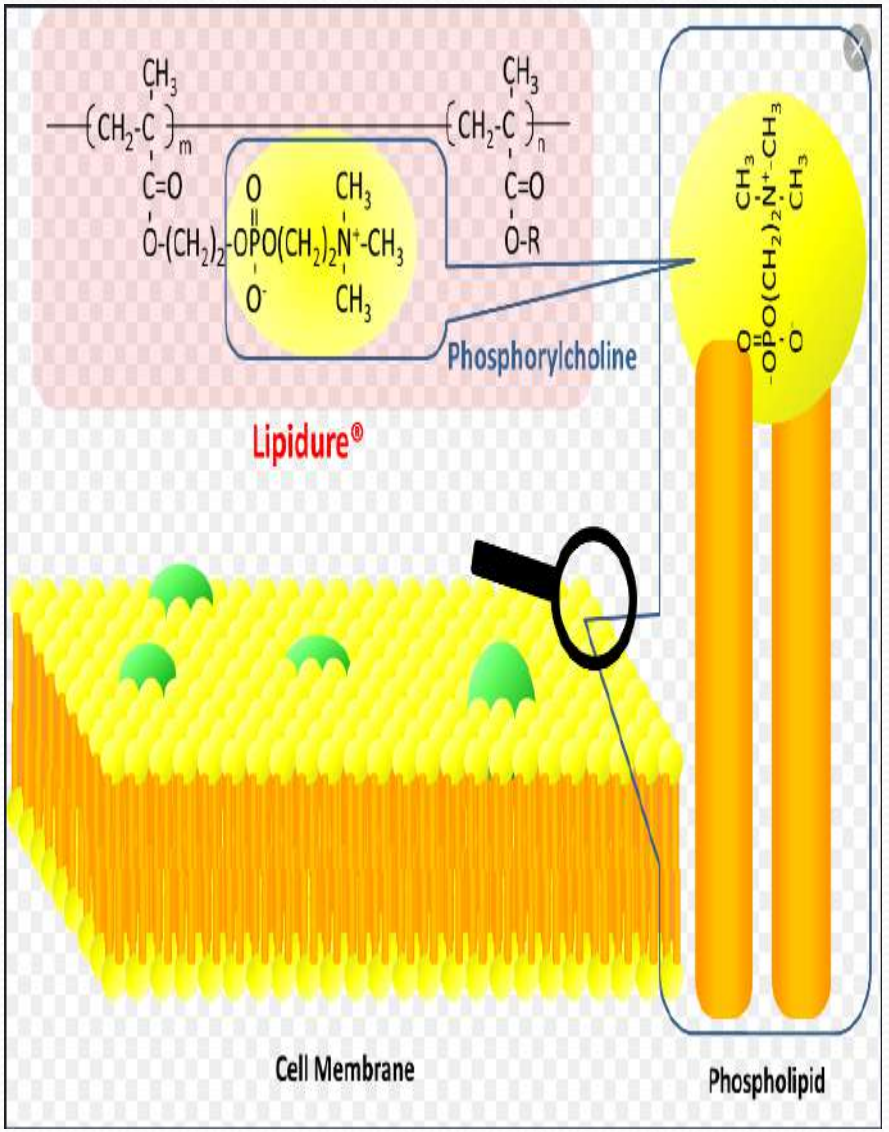

Medscape®
www.medscape.com
A
C1q
CRP
Bacterial surface or altered cell membrane
(with repeating, exposed binding determinants)
B
FcγR-bearing cells
Macrophages, DCs, PMNs
FcγR
Bacterial surface or altered cell membrane
(with repeating, exposed binding determinants)


C1 binds in the same way
C-reactive protein and IgM
C1
C-reactive protein
phosphocholine
pathogen surface

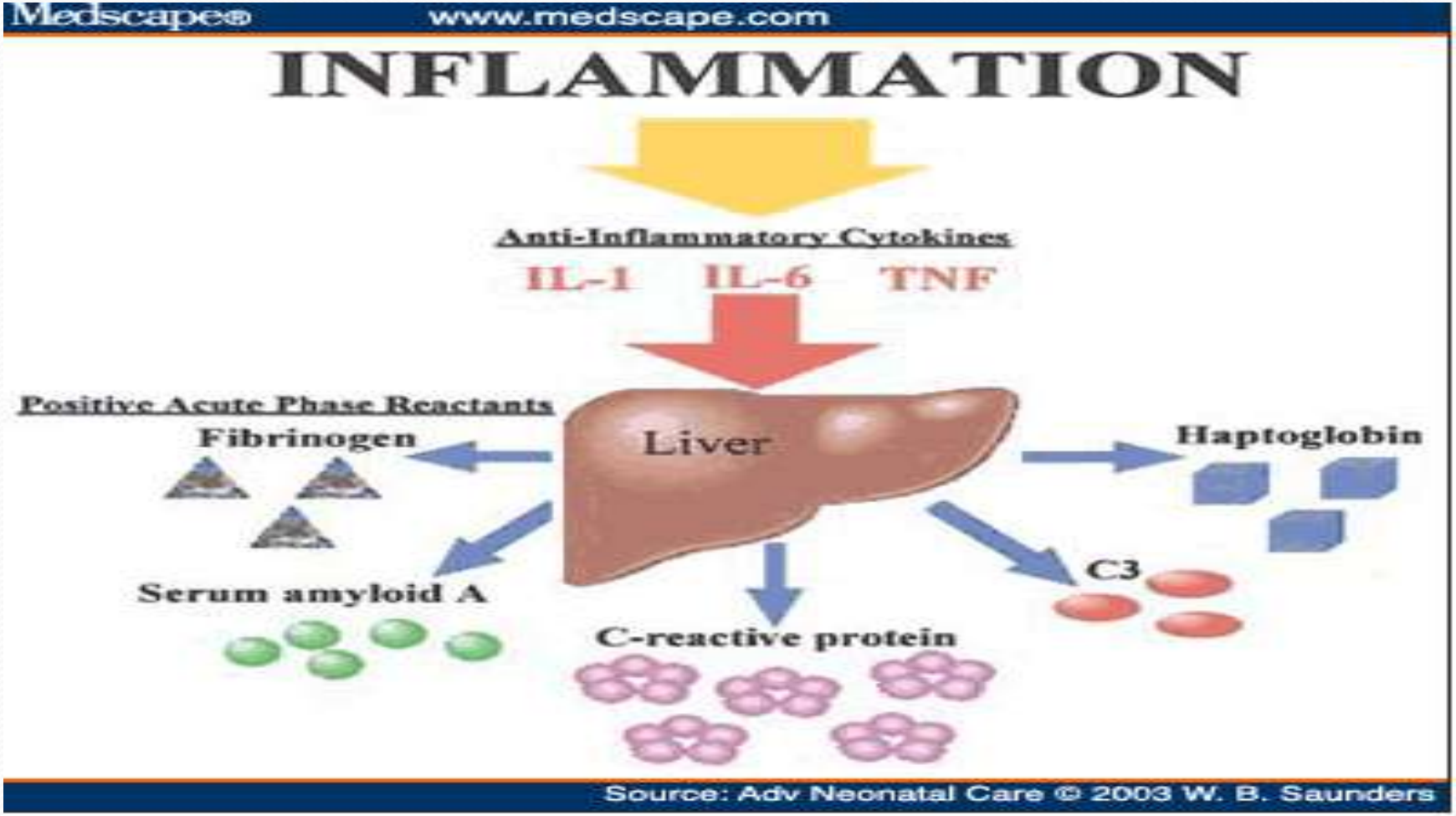

C1 binding to C-reactive protein on the pathogen surface activates the classical pathway of complement fixation
C4
C4a
C1
C4b
C-reactive protein
phosphocholine
pathogen surface

FOSFOKOLİN

- BAŞLICA CRP LİGANDI
- BAKTERİ & MANTAR
- NEKROTİK VE APOPİTOTİK ÖKARYOTİK HÜCRELER
- MODİFİYE LİPOPROTEİNLER



CRP & İNFLAMASYON



TÜRK TORAKS DERNEĞİ ERİŞKİNLERDE HASTANEDE GELİŞEN PNÖMONİ TANI VE TEDAVİ UZLAŞI RAPORU 2018

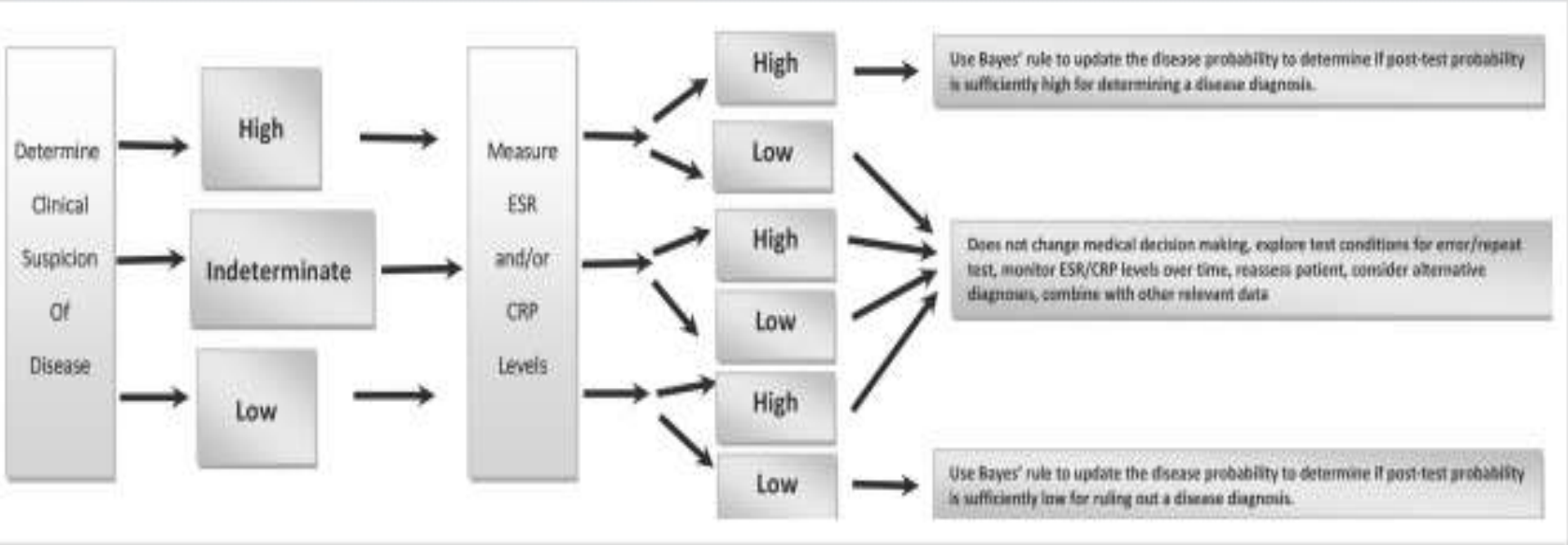
- **Prokalsitonin**

Prokalsitonin, kalsitonin prekürsörü olan 116 aminoasidli bir proteindir ve normal serum seviyesi 0.01 ng/mL'nin altındadır. Bakteriyel enfeksiyonlarda endotoksin salımınına bağlı olarak tüm parankimal dokulardan salınımı 24 saat içerisinde artar ve serum seviyesi yükselir. Bu özelliğinden dolayı sistemik bakteriyel enfeksiyonların, diğer enfeksiyon nedenlerinden (viral, mantar) ayrımı için önemli bir biyobelirteçtir. Bakteriyel enfeksiyon varlığında serum PCT seviyesindeki artışın hızlı olması nedeni ile, VİP'in erken tanısında faydalı olabileceği düşünülmüştür. Ancak yapılan çalışmalarda HGP ve VİP için tanısal yararlılığı sınırlı bulunmuştur ve klinik kriterlere ek olarak tanıya katkı sağlamadığı görülmüştür. Bu nedenle tanısal amaçla PCT kullanımı önerilmemektedir. Ancak PCT izleminin, prognostik açıdan ve özellikle antibiyotik tedavisinin süresini belirlemede faydalı olabileceği bildirilmiştir [66-69].

- **CRP**

CRP vücuttaki inflamasyonu gösteren önemli biyobelirteçlerden biridir. Birçok merkezde rahatlıkla ölçülebilir olması en önemli avantajını oluşturmaktadır. Ancak enfeksiyon dışında bir çok nedene bağlı olarak da yükselmesi, VİP tanısında kullanımını sınırlamaktadır. Seri CRP ölçümleri, prognoz ve tedaviye yanıtı takipte yararlıdır.

Figure. Utilization of ESR and/or CPR Tests to Aid in Clinical Decision Making



Epikriz Verileri

Ateş: Büyük Tansiyon: Küçük Tansiyon: Nabız: Satürasyon: Boy: Kilo: Epikriz Tarihi: 11.11.2019 00:00

Fizik Muayene:

Geçmiş:

Hikaye: **bir kaç gündür devam eden bulantı kusma +**

Klinik Seyir:

Öneriler: **HASTANIN TEDAVİLERİ DÜZENLENDİR. CRP DEĞERİ GERİLEDİ. BUN KREATİN NORMALE GELDİ. USG BATIN MR VE TORAKS BT NORMAL OLARAK DEĞERLENDİRİLDİ. SEDİM , CRP YÜKSEKLİĞİ İLE ANEMİSİ OLAN HASTA HEMATOLOJİ POLİK. KONTROLÜ ÖNERİLEREK TABURCU EDİLDİ.**

Semptom:

Şikayet: **gastroenterit, bulantı kusma ve bun kreatin yüksekliği olan hasta servise yatırıldı.**

Tedavi:

Konsültasyon Tarihi: **17.11.2019 20:15** Konsültasyon Dokto [redacted] onsültasyon Birimi: **DAHİLİYE KONSÜLTASYON**

Konsültasyon Nedeni: TDRO

Konsültasyon Sonucu: hasta değerlendirildi kusma ve ishal nedeni ile başvurdu gis kanama ekarte edildi cr:1.5 crp:100 üstü hastaya colidur 2*2 başlanması önerilir.

- ROMATOİD ARTRİT HASTASI : HASTALIK AKTİVİTESİ VE TEDATİYE YANIT TAKİP
- ATEŞLİ HASTALIKLARDA TAKİP (ANTİPİRETİK ETKİ YOK)
- SLE HASTASI : ENFEKSİYON
- < 25 mg/L AKUT APENDİSİT ALEYHİNE
- > 30 mg/L AKUT KOLESİSTİT LEHİNE
- > 210 mg/L AKUT PANKREATİT PROGNOSTİK FAKTÖR
- POST-OP > 5. GÜN YÜKSEK CRP ENFEKSİYON ?

See 1 citation found by title matching your search:

Fam Pract. 2009 Feb;26(1):10-21. doi: 10.1093/fampra/cmn095. Epub 2008 Dec 12.

C-reactive protein and community-acquired pneumonia in ambulatory care: systematic review of diagnostic accuracy studies.

Falk G[1], Fahey T.

Author information

1 Department of General Practice, RCSI Medical School, Dublin, Ireland.

Abstract

BACKGROUND: There is uncertainty regarding the diagnostic value of C-reactive protein (CRP) in patients presenting with symptoms suggestive of community-acquired pneumonia (CAP) in community or ambulatory settings.

OBJECTIVE: We assessed the diagnostic value of CRP in primary care and accident and emergency departments in terms of ruling in or ruling out CAP.

METHODS: Diagnostic accuracy systematic review, we searched PubMed from January 1966 to September 2008 and EMBASE from January 1980 to September 2008 using a diagnostic accuracy search filter. We included cross-sectional or cohort studies that assess the diagnostic utility of CRP at different cut-points against a reference standard of chest X-ray. We calculated pooled positive and negative likelihood ratios (LRs) and assessed heterogeneity using the I(2) index.

RESULTS: Eight studies incorporating 2194 patients were included. The median prevalence of CAP was 14.6% (range 5%-89%). At a CRP cut-point of < or =20 mg/l, the pooled positive LR+ was 2.1 [95% confidence interval (CI) 1.8-2.4] and the pooled negative LR- was 0.33 (95% CI 0.25-0.43). At the two other CRP cut-points (< or =50, >100 mg/l), the results were heterogeneous, so the pooled results should be interpreted with caution.

CONCLUSIONS: CRP may be of value in ruling out a diagnosis of CAP in situations where the probability of CAP >10%, typically accident and emergency departments. In primary care, additional diagnostic testing with CRP is unlikely to alter the probability of CAP sufficiently to change subsequent management decisions such as antibiotic prescribing or referral to hospital.

ANTALYADA LAB. CRP SONUÇLARININ DOĞRULUĞUNA NEDEN GÜVENMELİSİNİZ?

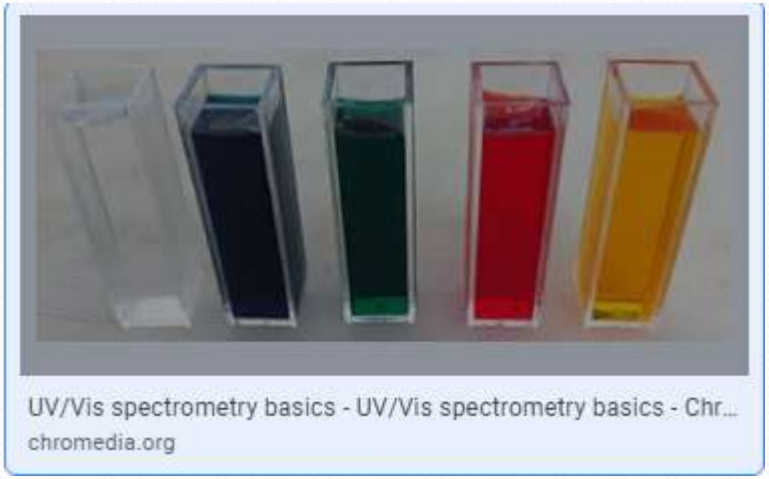
- TEST YÖNTEMİ ÜST SEVİYE
- CİHAZLARIMIZ ÇOK İYİ
- HER GÜN İÇ KALİTE KONTROL
- HER AY DIŞ KALİTE KONTROL

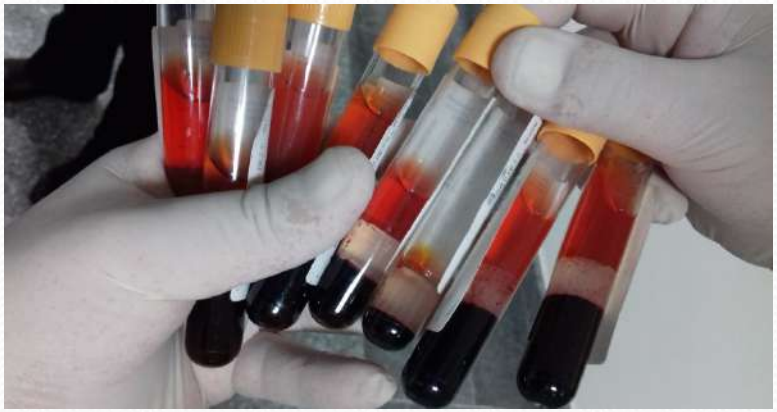

ARCHITECTPLUS
Abbott

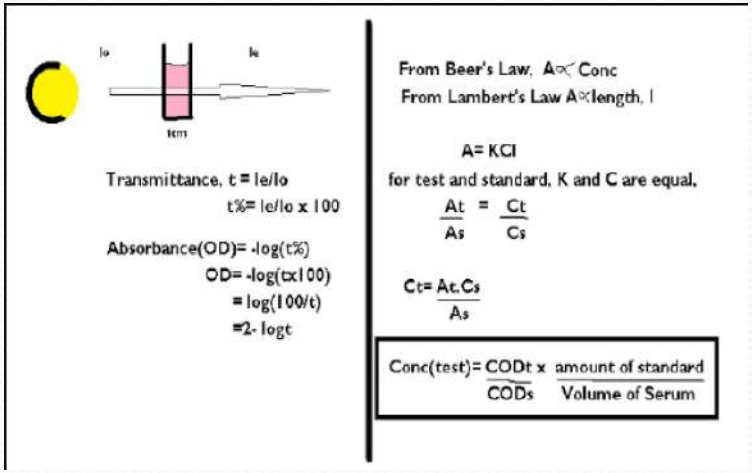
Biyokimya [SERUM] - Kabul : 25.11.2019 10:48:19 (23 dk)

☑	*Glukoz (Açlık)	100	•••	✓	mg/dl	✓	83 - 110
☐	BUN	15,85	•••	✓	mg/dl	✓	8,4 - 25,7
☐	Kreatinin	1,09	•••	✓	mg/dl	✓	0,72 - 1,25
☐	eGFR	68,45	•••	◆▸		✓	
☐	AST	19	•••	✓	U/L	✓	5 - 34
☐	ALT	16	•••	✓	U/L	✓	5 - 55
☐	Alkalen fosfataz	58	•••	✓	U/L	✓	40 - 150
☐	GGT	20	•••	✓	U/L	✓	12 - 64
☐	LDH	178	•••	✓	U/L	✓	125 - 220
☐	Sodyum	137	•••	✓	mmol/L	✓	135 - 145
☐	Potasyum	4,7	•••	✓	mmol/L	✓	3,5 - 5,1
☐	Klor	102	•••	✓	mmol/L	✓	98 - 107
☐	Kalsiyum	9,7	•••	✓	mg/dl	✓	8,8 - 10
☐	Magnezyum	2,18	•••	✓	mg/dl	✓	1,6 - 2,6
☐	Fosfor	2,5	•••	✓	mg/dl	✓	2,3 - 4,7
☐	Protein(desilitre)	7,5	•••	✓	g/dL	✓	6 - 8
☐	Protein	75	•••	✓	g/L	✓	60 - 80
☐	Kolesterol	162	•••	✓	mg/dl	✓	120 - 200
☐	Trigliserid	121	•••	✓	mg/dl	✓	5 - 150
☐	***HDL kolesterol**	**35,4**	•••	↓	**mg/dl**	✓	**40 - 60**
☐	NonHDL Kolesterol	126,6	•••	◆▸	mg/dl	✓	
☐	LDL kolesterol	102	•••	✓	mg/dl	✓	70 - 130
☐	Demir	108	•••	✓	ug/dL	✓	65 - 175
☐	Demir Bağlama Kapasitesi	188	•••	✓	ug/dL	✓	120 - 370
☐	T. Demir Bağl. K.	296	•••	✓	U/L	✓	127 - 450
☐	Ürik asit	6,7	•••	✓	mg/dl	✓	3,5 - 7,2
☐	CRP	1,2	•••	✓	mg/L	✓	0 - 5
☐	Kreatin kinaz (CK)	128	•••	✓	U/L	✓	30 - 200

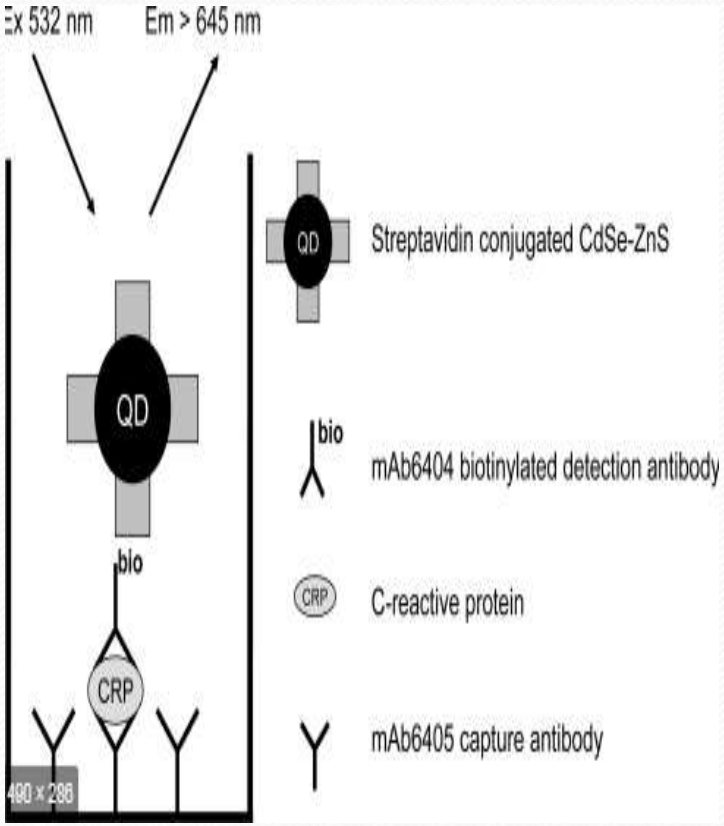
BİYOKİMYA DİĞER

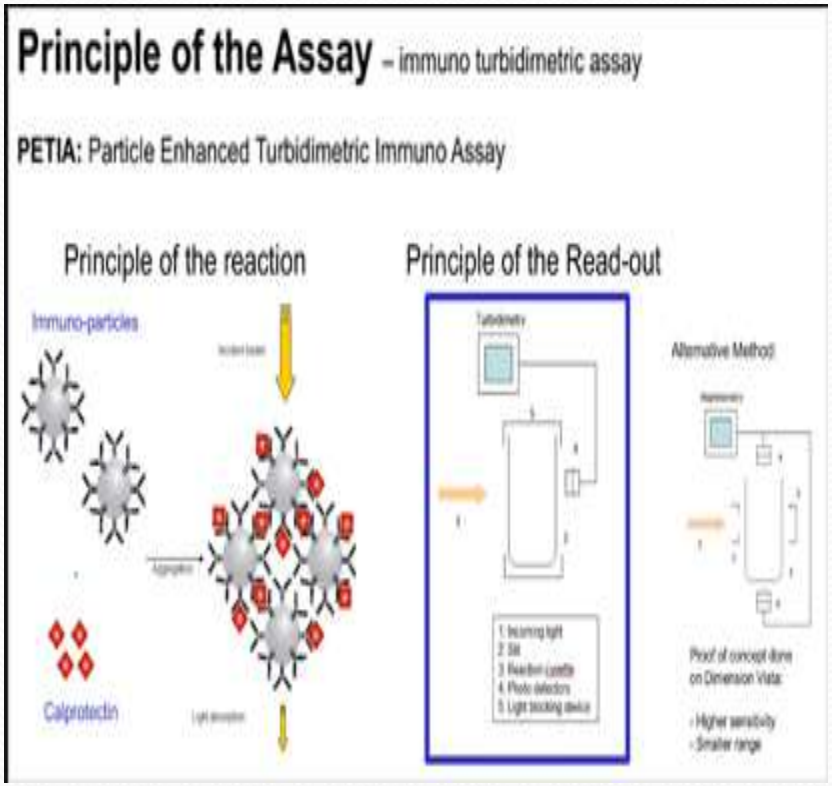




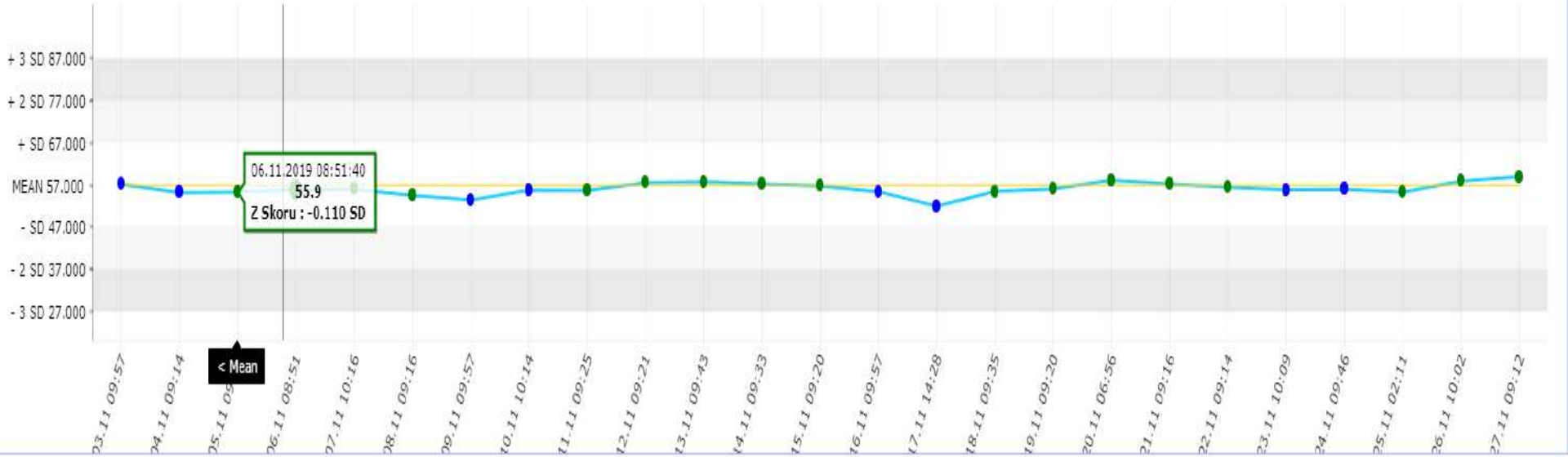


CRP


Ex 532 nm
Em > 645 nm
QD
bio
CRP
Streptavidin conjugated CdSe-ZnS
mAb6404 biotinylated detection antibody
C-reactive protein
mAb6405 capture antibody


Principle of the Assay – immuno turbidimetric assay
PETIA: Particle Enhanced Turbidimetric Immuno Assay
Principle of the reaction
Principle of the Read-out
Immuno-particles
Calprotectin
Alternative Method

Test: [CRP] - Lot: [CRP CONTLEVEL 2] - Cihaz: [Architect C16000 Merkez -2] - Kontrol Seviye: []



Protein	Architect C16000 Merkez	02.10.2019 09:14:24	MULTICHEMLEVEL 2	6.0	g/dL	6.16	0.6	4,96	7,36	%58,16	-0,27 SD	ÖZGÜR AYDIN	02.10.2019 09:30:44
Albümin	Architect C16000 Merkez	02.10.2019 09:11:15	MULTICHEMLEVEL 2	4.2	g/dL	4.25	0.425	3,4	5,1	%58,16	-0,12 SD	ÖZGÜR AYDIN	02.10.2019 09:30:44
CRP	Architect C16000 Merkez	02.10.2019 09:17:19	CRP CONTLEVEL 1	29.1	mg/L	29	5	19	39	%58,16	0,02 SD	ÖZGÜR AYDIN	02.10.2019 09:30:44
CRP	Architect C16000 Merkez	02.10.2019 09:17:24	CRP CONTLEVEL 2	54.9	mg/L	54	9.5	35	73	%58,16	0,09 SD	ÖZGÜR AYDIN	02.10.2019 09:30:44
RF	Architect C16000 Merkez	02.10.2019 09:17:28	ASO-RFLEVEL 1	48.8	IU/mL	48	5	38	58	%58,16	0,16 SD	ÖZGÜR AYDIN	02.10.2019 09:30:44

BIO-RAD

Lab 130893
ANTALYA KEPEZ DEVLET HASTANESI
HUSNU KARAKAS MAHALLESI, HASTANE CD. NO:
ANTALYA
TURKEY

C–Reactive Protein Report
Serum Proteins Program

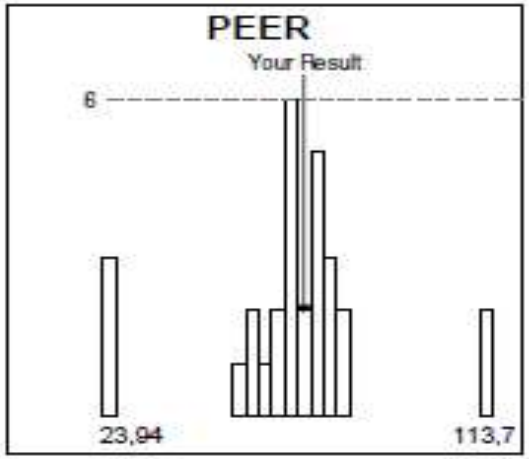
Cycle 46
Jan 2019 – Jan 2020
Sample No: 7
Sample Date: 12 Aug 19
Lot No: 183000

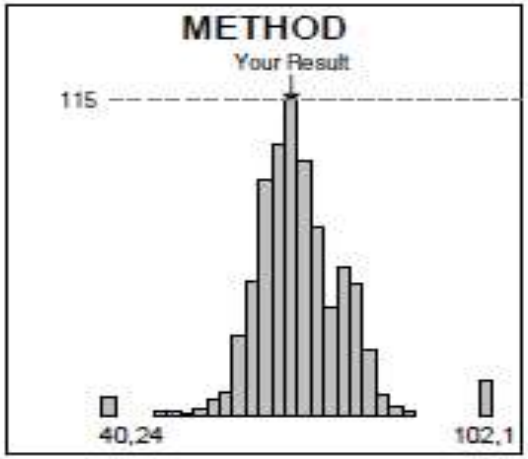
EQAS

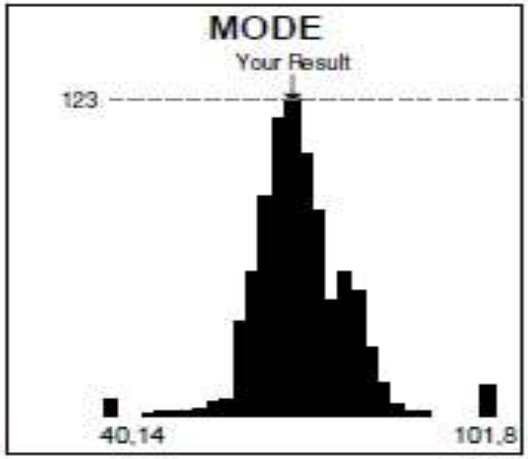
Archem Diagnostic BM400

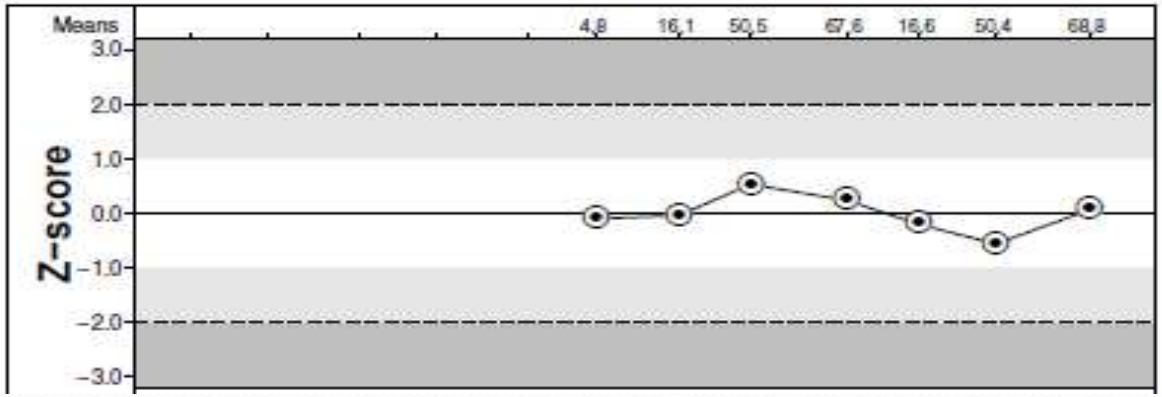
Your Result
69,4 mg/L

	Comparative Statistics					Your Deviation		
	N	Mean	SD	CV	U¹	Z-score	RMZ	%
Your Mode	840	71,0	6,16	8,69	0,532	–0,25	–0,78	–2,20
Your Method	763	71,2	6,18	8,69	0,559	–0,28	–0,88	–2,46
Your Peer	29	68,8	8,98	13,0	4,17	0,06	0,01	0,846









	N	Mean	CV	U¹
Beckman Coulter AU Series Immunoturbidimetric BC AU CRP OSR6099	126	78,1	4,79	0,834
Roche cobas 6000/8000/c 311 Immunoturbidimetric Roche Chemistry CRPL3	101	68,3	5,78	0,982
Abbott ARCHITECT/Alinity (c, i, ci ... Immunoturbidimetric Dedicated Reagent	83	71,7	4,95	0,975
Roche cobas 6000/8000/c 311 Immunoturbidimetric				

C–Reactive

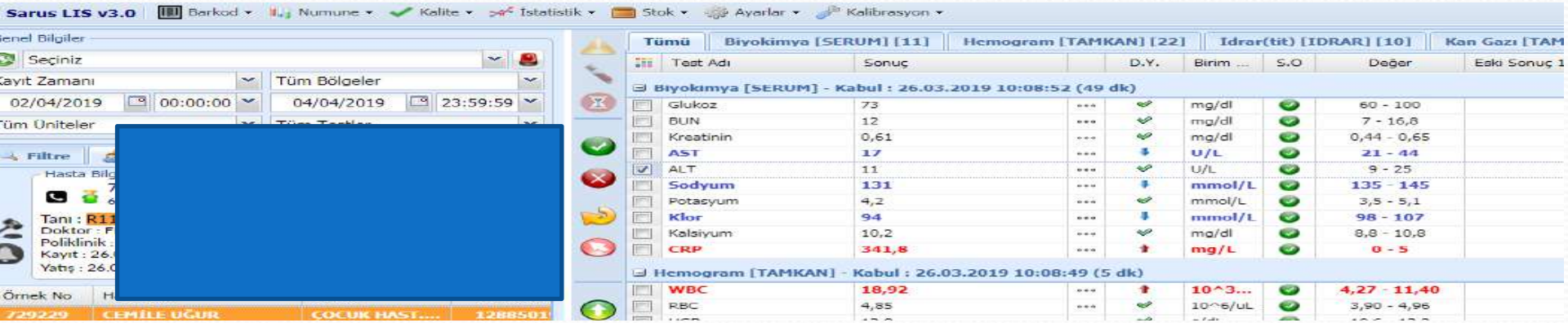
BİRİM VE REFERANS ARALIKLARI STANDART

Tümü | Biyokimya [SERUM] [22] | HBA1C [TAMKAN] [1] | Hemogram [TAMKAN] [22] | Hormon [SERUM] [5] | İdrar(tit) [IDRAR] [10]

Test Adı	Sonuç	D.Y.	Birim ...	S.O	Değer	Eski Sonuç 1	Eski Sonuç 2
Biyokimya [SERUM] - Kabul : 01.02.2019 10:27:39 (61 dk)							
*Glukoz (Açlık)	100		mg/dl		83 - 110	99 (30.11.2018)	94 (19.11.2018)
BUN	16		mg/dl		9,8 - 20,1	18 (30.11.2018)	17 (19.11.2018)
Kreatinin	0,92		mg/dl		0,57 - 1,11	0.98 (30.11.2018)	1.00 (19.11.2018)
eGFR	61,99					57.43 (30.11.2018)	56.04 (19.11.2018)
AST	19		U/L		5 - 34	23 (30.11.2018)	25 (19.11.2018)
ALT	12		U/L		5 - 55	15 (30.11.2018)	13 (19.11.2018)
Sodyum	139		mmol/L		135 - 145	142.7 (30.11.2018)	140.9 (19.11.2018)
Potasyum	4,8		mmol/L		3,5 - 5,1	4.8 (30.11.2018)	4.5 (19.11.2018)
Kalsiyum	9,5		mg/dl		8,4 - 10,2	9.50 (05.09.2018)	9.48 (04.06.2018)
Fosfor	3,4		mg/dl		2,3 - 4,7	3.96 (24.09.2017)	
Albümin (Desilitre)	4,5		g/dL		3,2 - 4,6		
Albümin	45		g/L		32 - 46		
***Kolesterol**	**252**		**mg/dl**		**120 - 200**	**282 (19.11.2018)**	**274 (05.09.2018)**
***Trigliserid**	**206**		**mg/dl**		**5 - 150**	**160 (19.11.2018)**	**232 (05.09.2018)**
HDL kolesterol	54		mg/dl		40 - 60	60 (19.11.2018)	54 (05.09.2018)
NonHDL Kolesterol	198		mg/dl				
***LDL kolesterol**	**157**		**mg/dl**		**70 - 130**	190.0000 (19.11.2018)	173.6000 (05.09.2018)
Demir	85		ug/dL		50 - 170	61 (04.06.2018)	
Demir Bağlama Kapasitesi	219		ug/dL		120 - 370	**381 (04.06.2018)**	
T. Demir Bağl. K.	304		U/L		127 - 450	442 (04.06.2018)	
Trf. Sat.	28,0		%				
CRP	2,3		mg/L		0 - 5	**0.6 (19.11.2018)**	0.3 (05.09.2018)

CRP NE KADAR YÜKSELİR

- 8 SAATTE İKİ KATINA ÇIKAR
- KLİNİK BULGU SAPTANDIĞINDA ÜST REFERANS LİMİTİ AŞMIŞTIR
- NORMAL DEĞERİNİN 1000 KATINA KADAR YÜKSELEBİLİR.



TANIDA CRP?

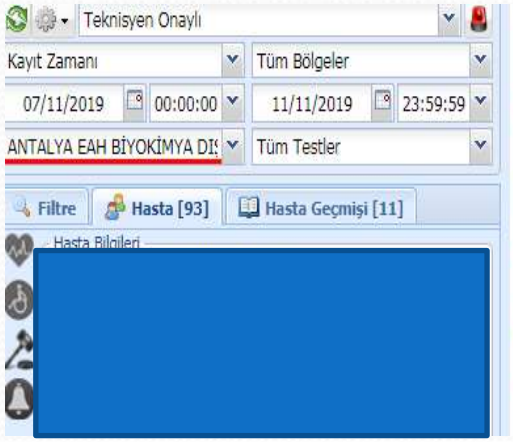
- MEDİAN NORMAL 0,8 mg/L
- > 100 mg/L ≈ BAKTERİYEL ENFEKSİYON
- <5 mg/L ≠ BAKTERİYEL ENFEKSİYON
- 10-50 mg/L ≈ BAKTERİYEL/VİRAL ENFEKS

Table 2

Conditions causing elevation of C-reactive protein

Major elevations	
Bacterial infections	pyelonephritis pelvic infections meningitis endocarditis
Hypersensitivity complications of infections	rheumatic fever erythema nodosum
Inflammatory disease	rheumatoid arthritis juvenile chronic arthritis ankylosing spondylitis psoriatic arthritis systemic vasculitis polymyalgia rheumatica Reiter's disease Crohn's disease familial Mediterranean fever
Transplantation	renal transplantation
Cancer	lymphoma sarcoma
Necrosis	myocardial infarction tumour embolisation acute pancreatitis
Trauma	burns fractures
Minor or no elevations	
Inflammatory disease	systemic lupus erythematosus systemic sclerosis dermatomyositis ulcerative colitis Sjogren's syndrome
Transplantation	graft versus host disease
Cancer	leukaemia

CRP & ESR



Test Adı	Sonuç		D.Y.	Birim ...	S.O	Değer	Eski Sonuç 1	Eski Sonuç 2	Tekrar Sonucu	S
Biyokimya [SERUM] - Kabul : 11.11.2019 12:11:49 (95 dk)										
CRP	109,1	...	↑	mg/L		0 - 5	103.8 (04.11.2019)			
Sedimentasyon [TAMKAN] - Kabul : 11.11.2019 11:31:22 (135 dk)										
Sedim 60	46	...	↑	mm		0 - 20	47 (04.11.2019)			

9	ASO	< 50,0	...	✓	IU/mL		0,00 - 200	34 (27.09.2018)	24 (12.09.2018)
10	CRP	61,4	...	↑	mg/L		0 - 5	32.3 (29.01.2019)	63.5 (25.01.2019)
11	RF	< 20,0	...	✓	IU/mL		0 - 30	< 20.0 (10.01.2019)	11.0 (12.09.2018)
Hemogram [TAMKAN] - Kabul : 06.02.2019 09:34:42 (81 dk)									
Sedimentasyon [TAMKAN] - Kabul : 06.02.2019 10:23:26 (80 dk)									
34	Sedim 60	92	...	↑	mm		0 - 15	88 (29.01.2019)	104 (25.01.2019)
35	Sedim 30	27	...	↑	mm		0 - 15	27 (29.01.2019)	31 (25.01.2019)

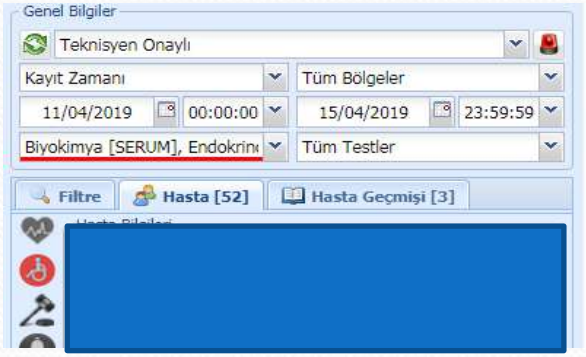
Table 2. Discordant Values in Hospitalized Patients

High ESR/Low CRP	High CRP/Low ESR
• Infections (Bone and joint)	• Infections (urinary tract, gastrointestinal tract, lung and bloodstream)
• Connective tissue disease (SLE)	• Myocardial infarction
• Ischemic stroke	• Venothromboembolic disease
• Malignancy	• Rheumatoid arthritis
• Renal insufficiency	• Low serum albumin
• Low serum albumin	

Abbreviations: ESR, erythrocyte sedimentation rate; CRP, C-reactive protein; SLE, systemic lupus erythematosus.

CRP & WBC

	Ürik asit	3,4	•••		mg/dl		2,6 - 6		
	CRP	193,8	•••		mg/L		0 - 5	302.4 (05.10.2019)	188.1 (04.10.2019)
	Hemogram [TAMKAN]								
	WBC	15,80	•••		10^3...		4,49 - 12,68	28.96 (05.10.2019)	17.23 (04.10.2019)
	RBC	3,53	•••		10^6...		3,92 - 5,08	3.79 (05.10.2019)	3.74 (04.10.2019)



Test Adı	Sonuç		D.Y.	Birim ...	S.O	Değer	Eski Sonuç 1	Eski Sonuç 2
Biyokimya [SERUM] - Kabul : 15.04.2019 09:52:32 (61 dk)								
CRP	< 0,1	•••		mg/L		0 - 5	108.1 (12.04.2019)	0.1 (27.06.2018)
Hemogram [TAMKAN] - Kabul : 15.04.2019 09:43:44 (36 dk)								
WBC	7,40	•••		10^3/uL		5,14 - 13,38	14.51 (12.04.2019)	7.3 (27.06.2018)
RBC	4,60	•••		10^6/uL		3,89 - 4,97	4.96 (12.04.2019)	4.78 (27.06.2018)
HGB	10,5	•••		g/dL		10,2 - 12,7	11.5 (12.04.2019)	11.1 (27.06.2018)
HCT	32,1	•••		%		31,0 - 37,7	35.0 (12.04.2019)	33.9 (27.06.2018)
MCV	**69,8**	•••		**fL**		**71,3 - 84,0**	**70.6 (12.04.2019)**	**70.9 (27.06.2018)**
MCH	**22,8**	•••		**pg**		**23,7 - 28,3**	**23.2 (12.04.2019)**	23.3 (27.06.2018)
MCHC	32,7	•••		g/dL		32,0 - 34,7	32.9 (12.04.2019)	32.8 (27.06.2018)

	Albümin	29	•••		g/L		32 - 46	32 (18.11.2019)	
	CRP	155,3	•••		mg/L		0 - 5	240.4 (18.11.2019)	248.2 (16.11.2019)
	Hemogram [TAMKAN] - Kabul : 20.11.2019 06:43:32 (26 dk)								
	WBC	10,69	•••		10^3/uL		3,91 - 10,90	12.34 (18.11.2019)	12.71 (16.11.2019)
	RBC	3,61	•••		10^6...		4,44 - 5,61	3.78 (18.11.2019)	3.92 (16.11.2019)

CRP & TAKİP

Ürik asit	5,6	•••	✓	mg/dl	●	2,6 - 6		
CRP	**30,6**	•••	↑	**mg/L**	●	**0 - 5**	**56.7 (24.10.2019)**	**2.3 (12.08.2018)**
Hemogram [TAMKAN] - Kabul : 05.11.2019 10:35:55 (28 dk)								
WBC	**16,89**	•••	↑	**10^3...**	●	**4,49 - 12,68**	**18.16 (24.10.2019)**	**17.5 (12.08.2018)**
RBC	4,12	•••	✓	10^6/uL	●	3,92 - 5,08	4,27 (24.10.2019)	4,31 (12.08.2018)

Klor	103	•••	✓	mmol/L	●	98 - 107	101 (18.11.2019)	
Kalsiyum	10,2	•••	✓	mg/dl	●	8,4 - 10,2	9.1 (18.11.2019)	9.9 (05.11.2019)
CRP	**24,8**	•••	↑	**mg/L**	●	**0 - 5**	**43.6 (18.11.2019)**	**30.6 (05.11.2019)**
Hemogram [TAMKAN] - Kabul : 21.11.2019 15:58:46 (25 dk)								
WBC	**13,21**	•••	↑	**10^3...**	●	**4,49 - 12,68**	**16.53 (18.11.2019)**	**16.89 (05.11.2019)**
RBC	4,38	•••	✓	10^6/uL	●	3,92 - 5,08	4.03 (18.11.2019)	4.12 (05.11.2019)
HGB	12,1	•••	✓	g/dL	●	11,9 - 14,6	**11.5 (18.11.2019)**	**11.6 (05.11.2019)**

Fosfor	3,0	•••	✓	mg/dl	●	2,3 - 4,7	3.8 (23.11.2019)	4.7 (05.11.2019)
Ürik asit	**7,4**	•••	↑	**mg/dl**	●	**2,6 - 6**	**7.8 (23.11.2019)**	5.6 (05.11.2019)
CRP	**7,1**	•••	↑	**mg/L**	●	**0 - 5**	**20.7 (23.11.2019)**	**24.8 (21.11.2019)**
Hemogram [TAMKAN] - Kabul : 25.11.2019 10:01:05 (25 dk)								
WBC	12,42	•••	✓	10^3/uL	●	4,49 - 12,68	10.61 (23.11.2019)	**13.21 (21.11.2019)**
RBC	4,01	•••	✓	10^6/uL	●	3,92 - 5,08	4.04 (23.11.2019)	4.38 (21.11.2019)

Differential diagnosis of elevated erythrocyte sedimentation rate and C-reactive protein levels: a rheumatology perspective
Berivan Bitik,[1] Rıdvan Mercan,[1] Abdurrahman Tufan,[1] Engin Tezcan,[1] Hamit Küçük,[1] Mustafa İlhan,[2] Mehmet Akif Öztürk,[1] Seminur Haznedaroğlu,[1] and Berna Göker[1]Eur J Rheumatol. 2015 Dec; 2(4): 131–134.

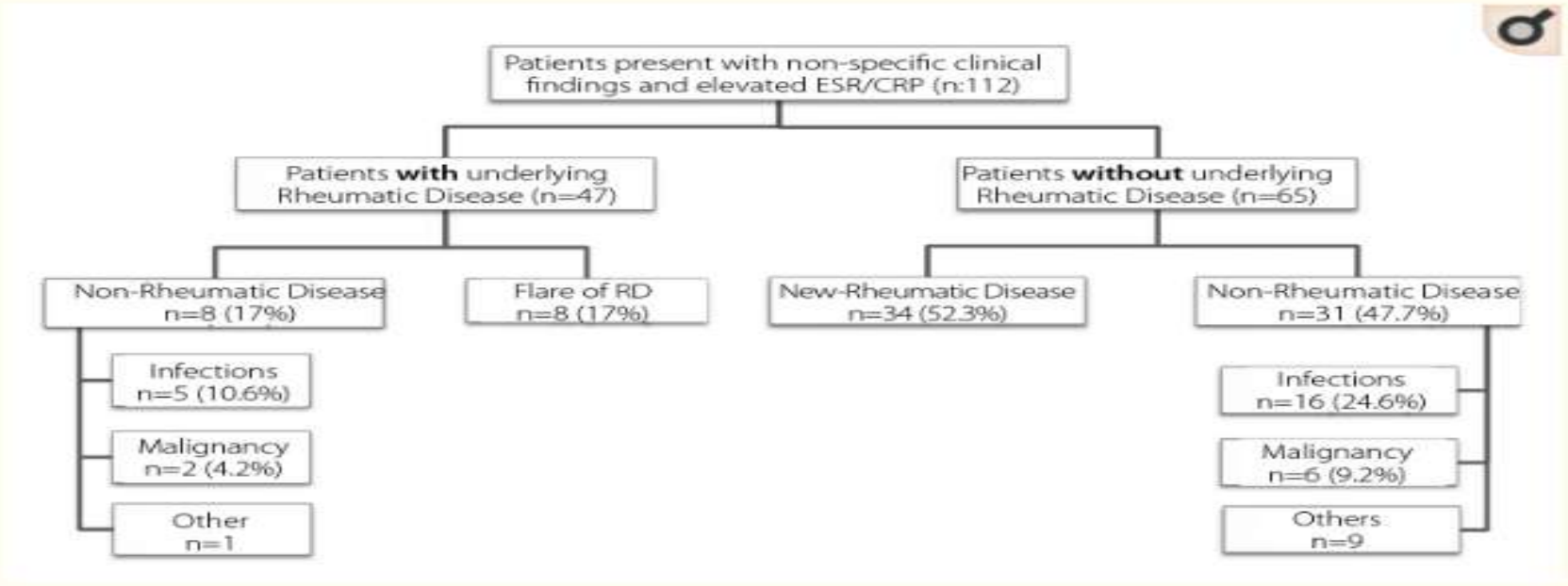
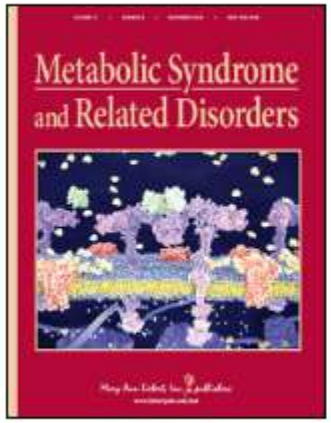


Figure 1

Distribution of definitive diagnoses in patients with nonspecific clinical findings and elevated serum ESR & CRP levels

METABOLİK SENDROM



Metabolic Syndrome and Related Disorders

Editor-in-Chief: Adrian Vella, MD

ISSN: 1540-4196 | Online ISSN: 1557-8518 | 10 Issues Annually | Current Volume: 17

Impact Factor:* 1.597

*2018 Journal Impact Factor, Journal Citation Reports (Web of Science Group, 2019)

The only peer-reviewed journal focused on the pathophysiology, recognition, and treatment of metabolic syndrome, a cluster of conditions linked to obesity, type 2 diabetes, cardiovascular disease, stroke, fatty liver, cancer, and other diseases.

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962616	AYLA ŞAHİN ATEŞ	ÇALIŞAN POLİKLİNİĞİ
962618	ZEYNEP ATİK AKGÜÇ	ÇALIŞAN POLİKLİNİĞİ
961248	TURGUT KİRAZ	ÇOCUK HAST. POLK.2
962969	HAYRİYE MELİSA DİLSİ..	ÇOCUK HAST. POLK.3
963043	HASAN BAHŞİ	ÇOCUK HAST. POLK.3
962960	SERKAN PURTAŞ	ÇOCUK HAST. POLK.4
962950	ALİYE KURŞUN	ÇOCUK HAST. POLK.5
962936	SELİN ELİNÇ	ÇOCUK HAST. POLK.5

Sodyum	138	...	✓	mmol/L		135 - 145	136.7 (01.11.2018)	138 (23.11.2017)
Potasyum	4,3	...	✓	mmol/L		3,5 - 5,1	4.7 (01.11.2018)	4.6 (23.11.2017)
Kalsiyum	10,0	...	✓	mg/dl		8,4 - 10,2	10.02 (01.11.2018)	9.99 (23.11.2017)
Fosfor	3,7	...	✓	mg/dl		2,3 - 4,7	3.00 (01.11.2018)	
Albümin (Desilitre)	4,6	...	✓	g/dL		3,2 - 4,6	4.41 (01.11.2018)	4.5 (23.11.2017)
Albümin	46	...	✓	g/L		32 - 46		
*Kolesterol	224	...	↑	mg/dl		120 - 200	238 (01.11.2018)	229 (23.11.2017)
Trigliserid	116	...	✓	mg/dl		5 - 150	145 (01.11.2018)	89 (23.11.2017)
HDL kolesterol	60,5	...	↑	mg/dl		40 - 60	66 (01.11.2018)	62 (23.11.2017)
NonHDL Kolesterol	163,5	...	↔	mg/dl				
*LDL kolesterol	140	...	↑	mg/dl		70 - 130	143.0000 (01.11.2018 ...	149.2000 (23.11.2017 09:37:43)
Ürik asit	6,4	...	↑	mg/dl		2,6 - 6	5.4 (23.11.2017)	5.0 (11.05.2017)
CRP	8,6	...	↑	mg/L		0 - 5	8.6 (28.05.2019)	0.8 (01.11.2018)

Effects of C-reactive protein on human pulmonary vascular cells in chronic thromboembolic pulmonary hypertension

Marijke Wynants, Rozenn Quarck, Alicja Ronisz, Ernesto Alfaro-Moreno, Dirk Van Raemdonck, Bart Meyns, Marion Delcroix

European Respiratory Journal 2012 40: 886-894; **DOI:** 10.1183/09031936.00197511

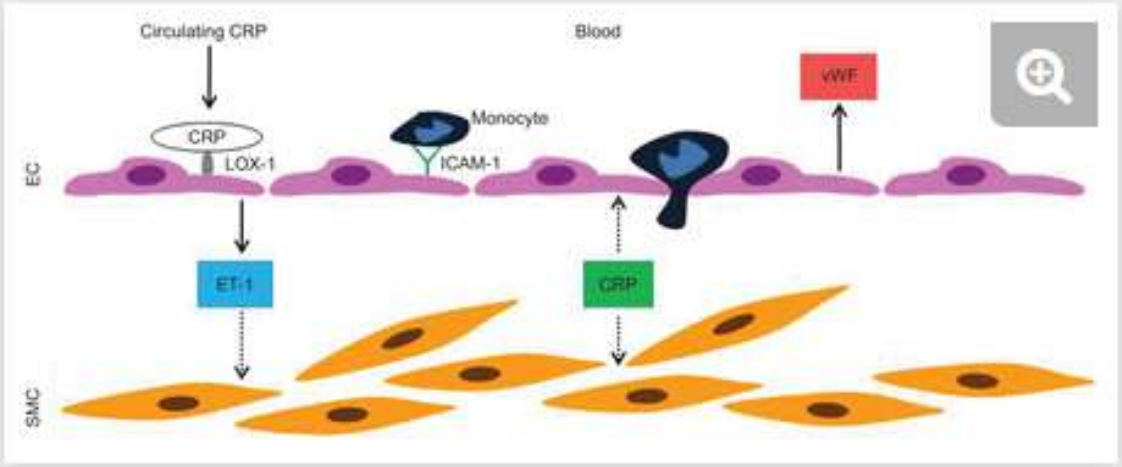

Figure 7–

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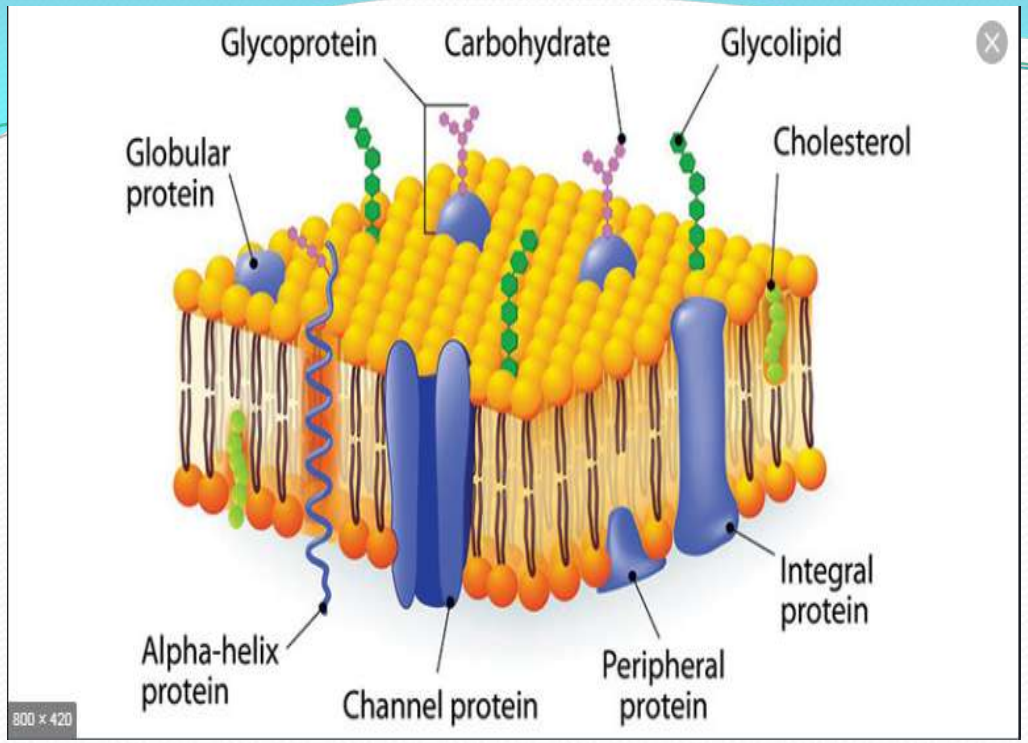
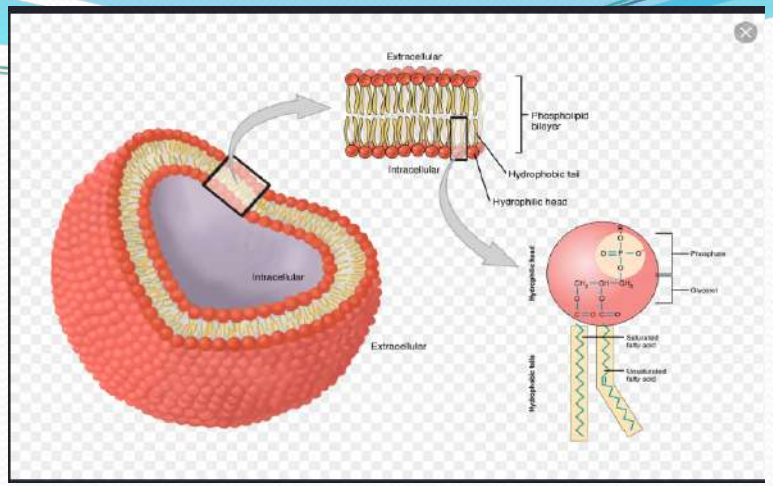
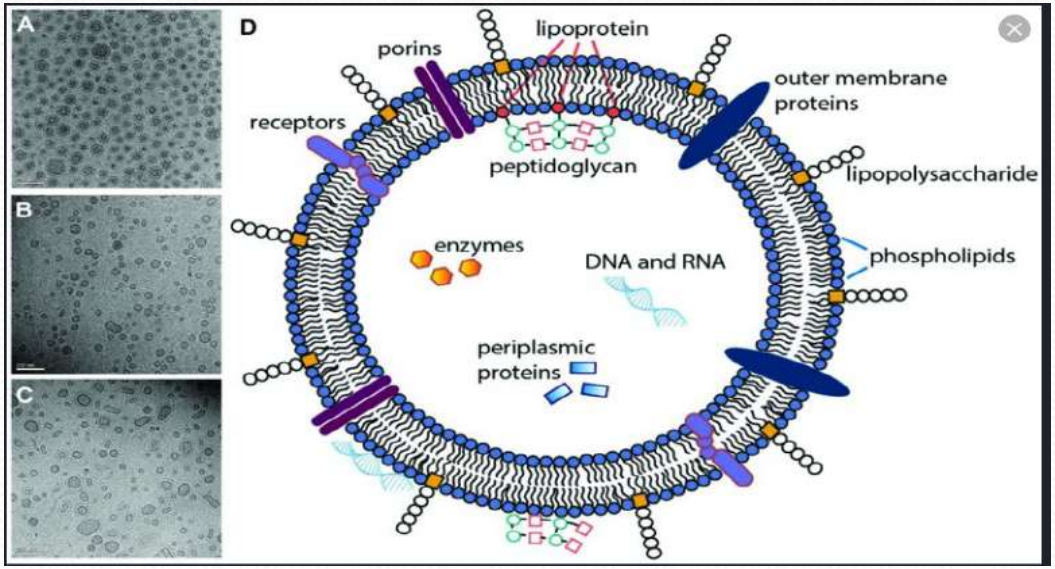
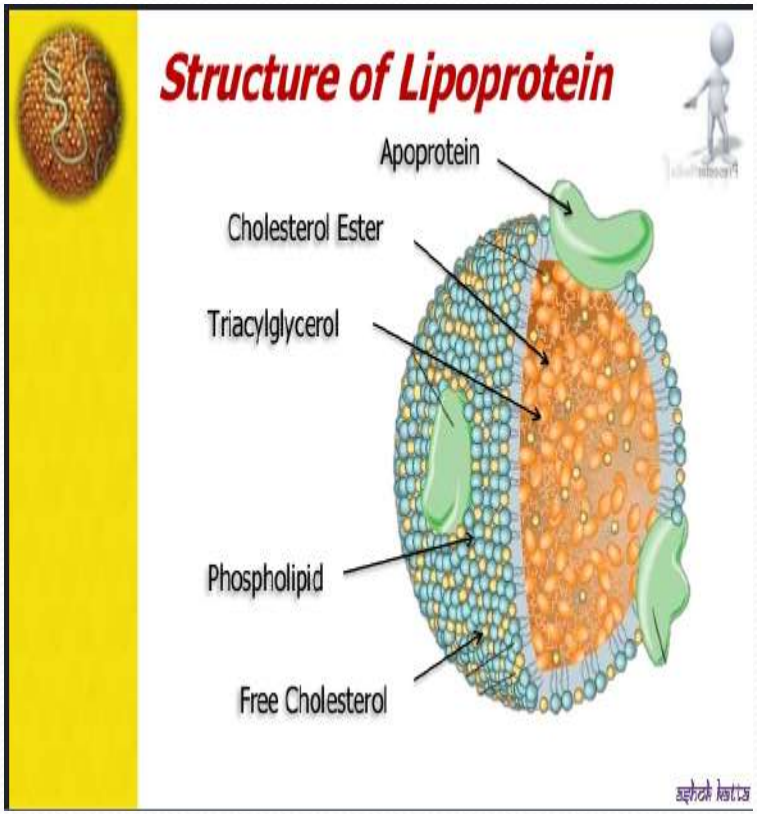
Direct and indirect effects of C-reactive protein (CRP) on endothelial function and vascular remodelling in chronic thromboembolic pulmonary hypertension (CTEPH). Increased circulating CRP levels in CTEPH contribute to activating the endothelium through the receptor lectin-like oxidised low-density lipoprotein receptor (LOX)-1, resulting in 1) expression of intercellular adhesion molecule (ICAM)-1 at the endothelium surface, 2) attraction of circulating monocytes, 3) secretion of von Willebrand factor (vWF) and 4) secretion of endothelin (ET)-1, which, in turn, may induce smooth muscle cell (SMC) proliferation. Within the vascular wall, SMC proliferation may be induced by CRP produced either by endothelial cells (ECs) or by SMCs themselves.


Glycoprotein
Carbohydrate
Glycolipid
Globular protein
Cholesterol
Integral protein
Alpha-helix protein
Channel protein
Peripheral protein
800 × 420


Extracellular
Phospholipid bilayer
Intracellular
Hydrophobic tail
Hydrophilic head
Intracellular
Extracellular
Phosphate
Glycerol
Saturated fatty acid
Unsaturated fatty acid
Hydrophilic head
Hydrophobic tails


A
B
C
D
porins
lipoprotein
outer membrane proteins
receptors
peptidoglycan
lipopolysaccharide
enzymes
DNA and RNA
phospholipids
periplasmic proteins


Structure of Lipoprotein
Apoprotein
Cholesterol Ester
Triacylglycerol
Phospholipid
Free Cholesterol
ashok katta

Front Immunol. 2018 May 28;9:1089. doi: 10.3389/fimmu.2018.01089. eCollection 2018.

pCRP-mCRP Dissociation Mechanisms as Potential Targets for the Development of Small-Molecule Anti-Inflammatory Chemotherapeutics.

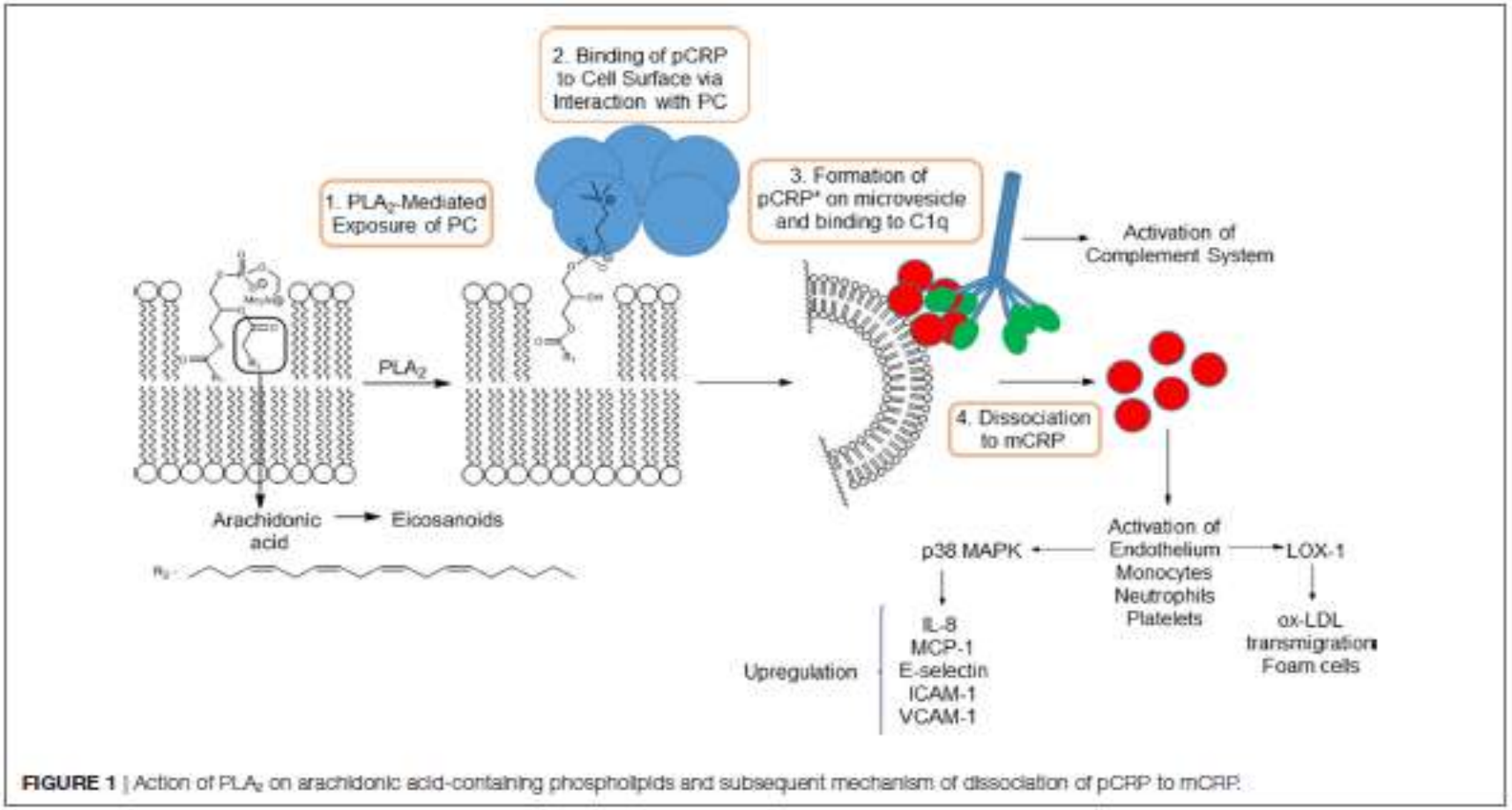


FIGURE 1 | Action of PLA_2 on arachidonic acid-containing phospholipids and subsequent mechanism of dissociation of pCRP to mCRP.

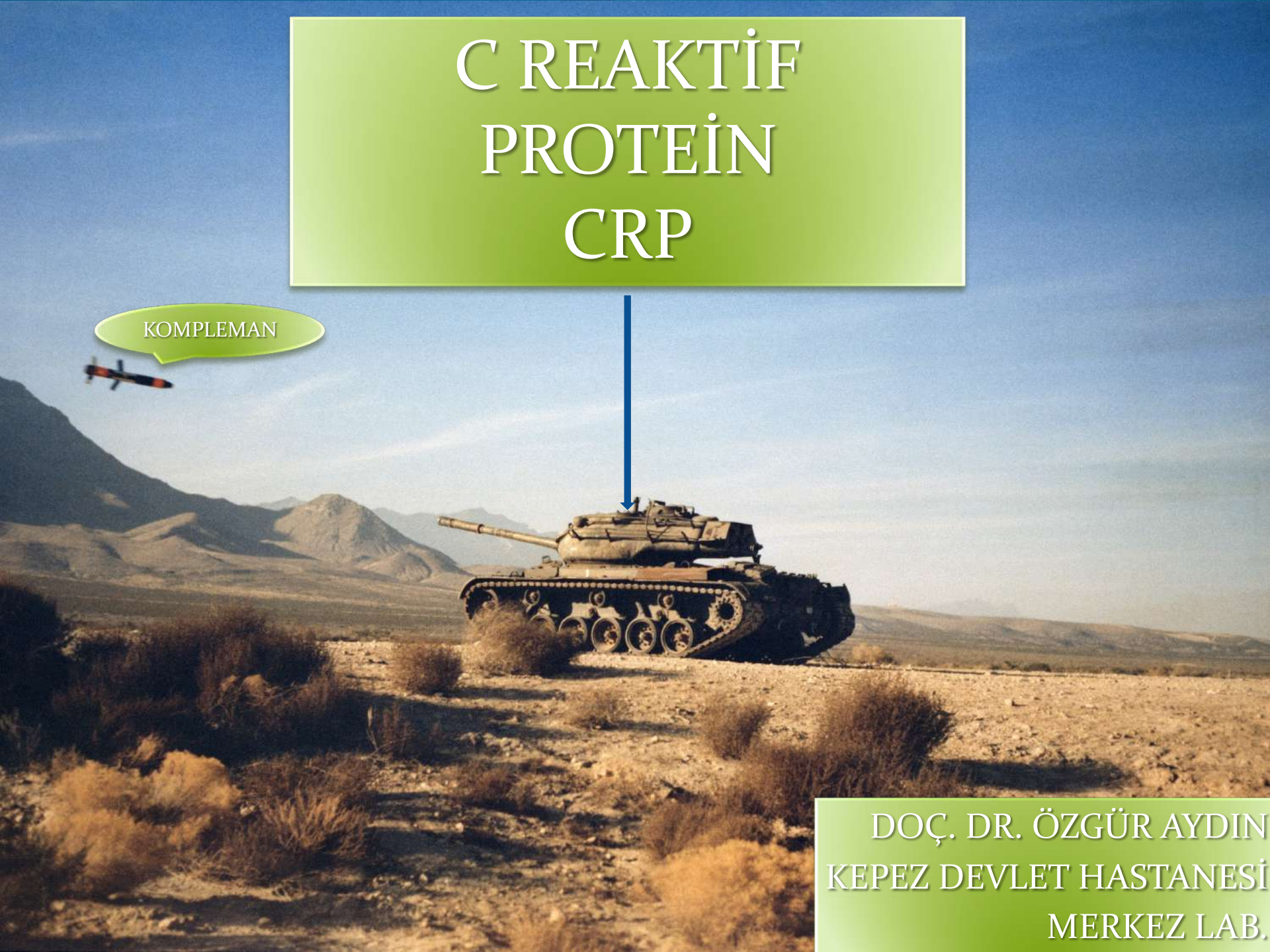
Cardiovascular Disease and CRP

Source	No. of Patients	Comment
		Symptomatic
Berk et al[22]	99	CRP associated with acute coronary events in patients with unstable angina
Pietila et al[24]	108	Post-MI CRP correlates with infarct size
Liuzzo et al[23]	92	CRP predicts coronary events in patients with unstable angina
Haverkate et al[25]	2099	CRP predictive of MI or stroke
Toss et al[26]	965	CRP associated with mortality
		Asymptomatic
Kuller et al[27]	256	CRP associated with coronary heart disease mortality
Mendall et al[36]	388	High CRP associated with CVD
Tracy et al[37]	146	CRP associated with CVD
Ridker et al[28]	543	Baseline CRP predicts MI or stroke
Ridker et al[29]	144	Baseline CRP predicts symptomatic PAD
Ridker et al[30]	122	CRP an independent risk factor for cardiovascular disease in women
Koenig et al[31]	936	CRP predicts coronary heart disease
Harris et al[32]	1293	CRP associated with increased mortality
Roivainen et al[39]	241	CRP associated with coronary events in dyslipidemic men
Danesh et al[38]	506	CRP associated with future coronary disease
Ridker et al[33]	122	CRP associated with coronary disease and stroke in women
Lowe et al[34]	1690	CRP associated with ischemic heart disease
Ridker et al[35]	140	CRP an independent predictor of PAD

Abbreviations: CRP, C-reactive protein level; CVD, cardiovascular disease; MI, myocardial infarction; PAD, peripheral arterial disease.

HsCRP

C REAKTİF PROTEİN CRP



DOÇ. DR. ÖZGÜR AYDIN
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