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/ / :  
/ / :

### C4 , C3

- - -  
- - -

C4 , C3 ( )

± , / ± , ± / ±  
( , T3) (T2) ,(T1)  
(T1,T2,T3) C3  
(T3) (% / ) (T2) C3  
C4 (P = / )  
(% ) (P =

.C3 C4



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) ( )

(

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A C  
) CRP C4 C3 .( )  
( α1 (  
C3 C4 .( )

- 
- 1 - Acute Phase Response (APR)
  - 2 - Positive Acute Phase Protein
  - 3 - Negative Acute Phase Protein
  - 4 - Ceruloplasmi
  - 5 - C-Reactive Protein (CRP)
  - 6 - Rum Amyloid A
  - 7 - Proinflammatory
  - 8 - Anti - Inflammatory

C4,C3

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(Natural Killer) NK

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( )

C3 C4

C4 C3

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C3 C4

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Ig

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- C3 C4

(VO<sub>2</sub>max %

( )

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( )

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- 1 - Nieman
  - 2 - Emet D, et al
  - 3 - Wolach B, et al
  - 4 - Chemotoxic

C4,C3

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C3 C4

+

,Seca

, Omron , HBF-306

,Digmed

,Polar

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The Binding Site                      Minineph Human C3,C4 Kit  
C3,C4

– / g/l) C4 ( / – / g/l) C3

( /  
(

( )

) HRmax

( )

( ) (

( )

( )

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C4,C3

( ) T1  
( ) T3 ( ) T2 ,( T1  
T3,T2  
(  
(ANOVA)  
P ≤ / ( ) SPSS

( ± )

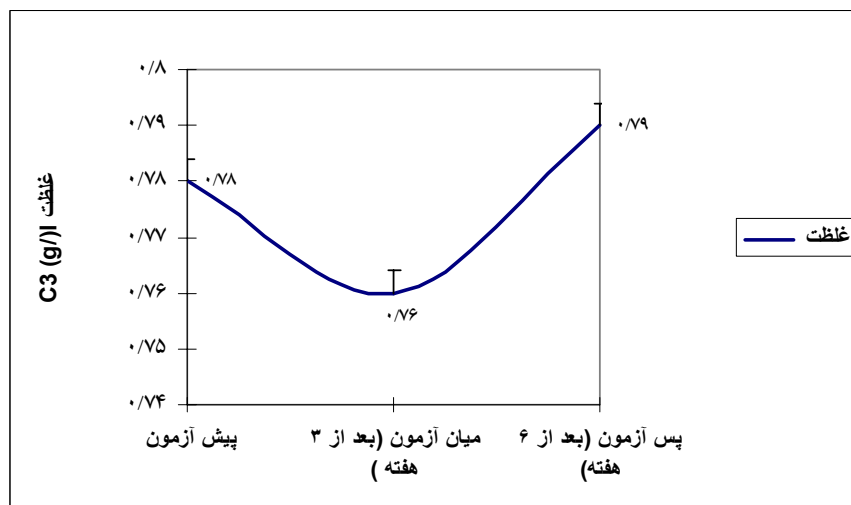
( )		( )	( )	( )	
/ ± /	/ ±	/ ±	±	±	( )

( \* )  
C3,C4

C3, C4				
(sig)	(T3)	(T2)	(T1)	
/	/ ± /	/ ± /	/ ± /	(g/l) C3
* /	/ ± /	/ ± /	/ ± /	(g/l) C4

(P ≤ / ) \*

C3 (P ≤ ۰/۰۵) C3  
 (T3) (T2)  
 (p = / )



C3

C4

(P = / )

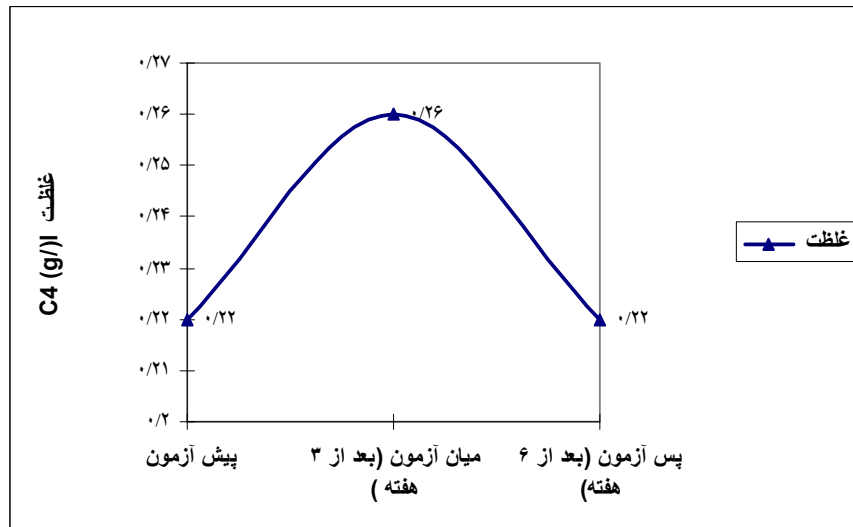


C4, C3

C4

( ) (P ≤ / )

C4



C4

(C3, C4)

( )

( )



( )

( ) C3,C4 C4,C3 (VO<sub>2</sub>max%

C3,C4

( )

:

: C3

/ ,C3

C3 ,( )

C3

C3

( )

( ) C3,C4

C3,C4

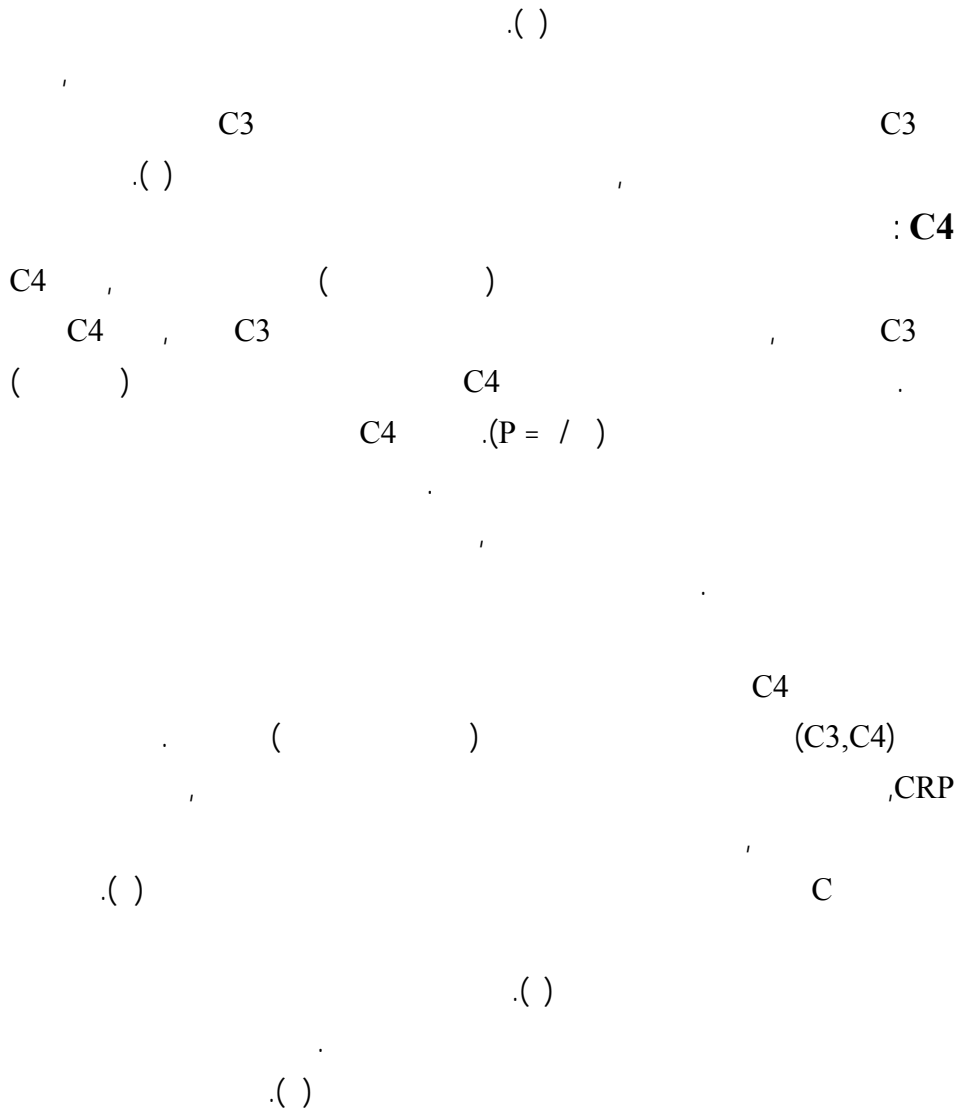
C3 (.)

C3

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- 1 - Sawaka et al
  - 2 - Espersen et al
  - 3 - Hanson and Flaherty
  - 4 - Inflammatory /Complement Casecade

C4, C3

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- 1 - Classical Pathway
  - 2 - Alternative
  - 3 - Lectin Pathway



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IgA,IgM,IgG,C3,C4 ( )  
( )  
C3,C4 ( )

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( )  
( )

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1 - Karacabey et al  
2 - Semple et al

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- C3, C4 A, G
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