

In the name of God





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Super Antigen Tracking in Blood and Synovial Fluid of Rheumatoid arthritis Patients: A Comparative Study

**Gholam Hossein Alishiri. MD and Ramezan Ali
Ataee . Ph.D.**

Department of Rheumatology, Faculty of Medicine, Baqiyatallah University of Medical Sciences,
Tehran, Iran

Department of Medical Microbiology, Faculty of Medicine, Baqiyatallah University of Medical Sciences,
Tehran, Iran

Interoduction

However, the causes of rheumatoid arthritis is unknown.



Many infectious and non infectious agents such as:

- 1- Viruses
- 2- Bacteria
- 3- Fungi
- 4- Genetic factors (hereditary)
- 5- Environmental factors (**smoking**, tobacco, exposure to silica mineral and **chronic periodontal** disease) have been suspected.

It is established that the RA disease is a autoimmune Disease wich

Misdirected immune system, then attacks the body's own tissues can lead to inflammation in the joints and sometimes other organs.



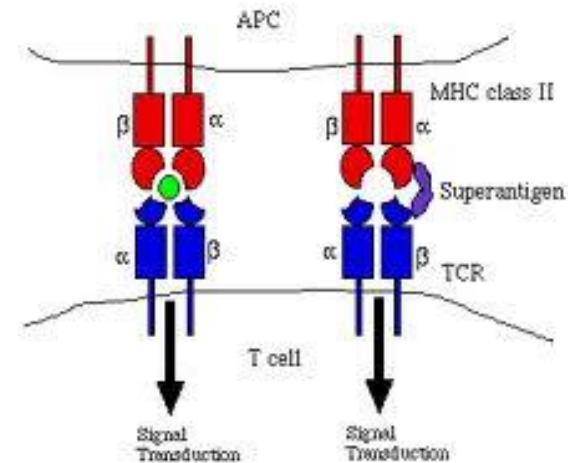
Regardless of the **exact trigger**, the Immune cells, becoming activated and cytokines, such as TNF- α , IL-1, and IL-6 are overexpressed.

Zangerle PF, De GD, Lopez M, Meuleman RJ, Vrindts Y, Fauchet F et al. Direct stimulation of cytokines (IL-1 beta, TNF-alpha, IL-6, IL-2, IFN-gamma and GM-CSF) in whole blood: II. Application to rheumatoid arthritis and osteoarthritis. Cytokine 1992; 4/6: 568-575

In this case the laboratory diagnosis factors such as:

CRP
ESR
RF
Anticcp

Superantigens in different way can trigger these cytokines storm



May have been under limitation or absent

What is the Results??

GarysS Firestein, Ralph C Budd, Edward D Harris, Iain B McInnes, Shaun Ruddy, and John S Sargent. KELLEY'S Textbook of Rheumatology. Sanders Elsevier, Canada; 2009.

Klippel H John, Stone H John, Crofford J Leslie and White H Patience. Primer on the Rheumatoid Disease in: Waldenberger M Jean and Gary S Firesin. Rheumatoid Arthritis Epidemiology, Pathology, and Pathogenesis. 13th ed. Springer; 2008. PP, 122- 133.

Laboratory Methods may failed to
detection of the Lab Diagnostic
determinants

Even though the new treatments
(biological methods), the RA disease
may be activate and relapse.

These events have led us to look for the
most common bacterial super antigens
in Blood and SF of RA patients

Materials and Methods

In this study, **103 patients (Blood and SF) investigated**

By using molecular method, different supper antigens have detected in blood and synovial fluid of RA patients

Results

By using molecular method the supperantigens of **Mycoplasma** in the **synovial fluid** of patients with RA was detected with the frequencies of

M. pneumoniae 22.9%

M. hominis 17.5%

M. arthritidis 9.9%

and

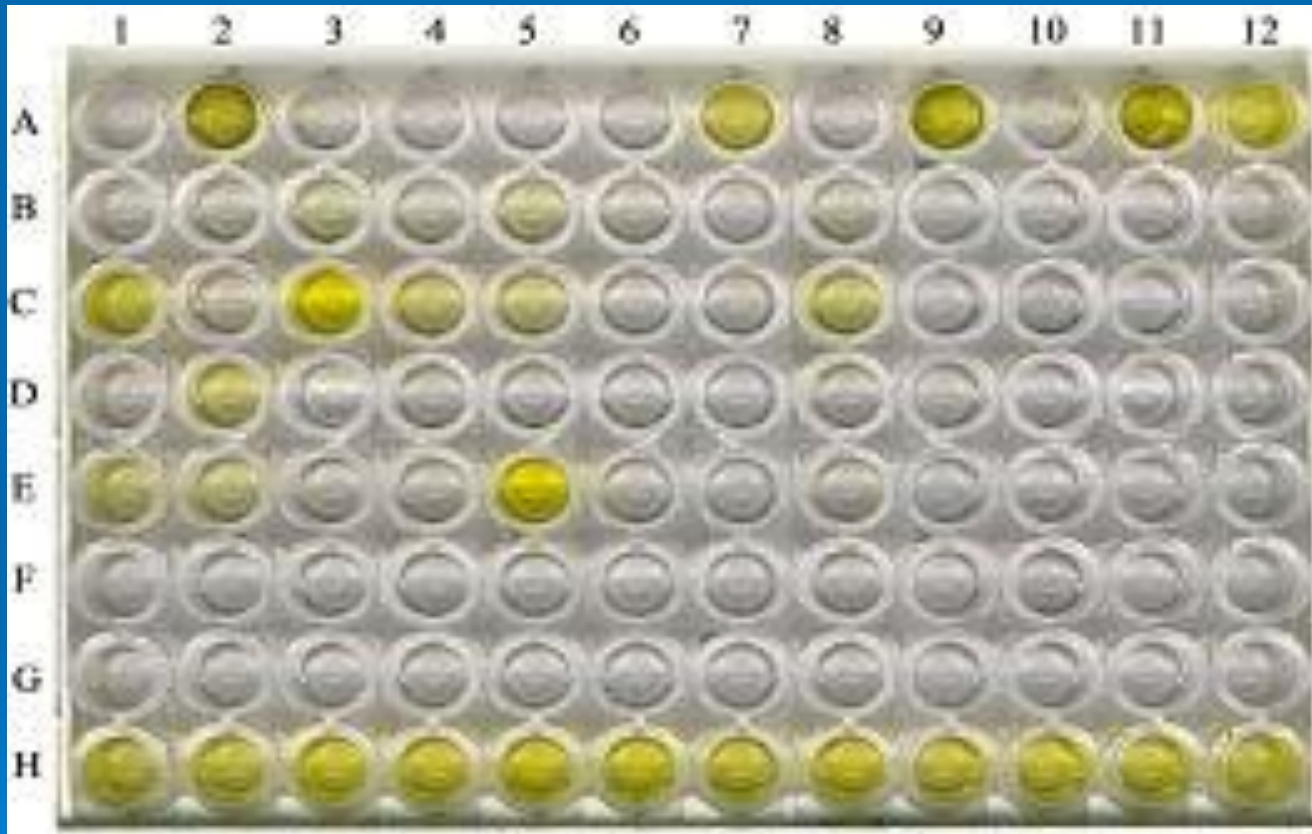
Mycoplasma genus 53.4%

Golmohammadi Reza, Ataee RamezanAli, Alishiri Gholam Hossein, Mirnejad Reza, Najafi Ali, Mehdi Tate, Esmaeili Davoode, and Jonaidi- jafari Nematollah. Molecular Diagnosis of mycoplasma pneumoniae in Synovial Fluid of Rheumatoid Arthritis Patients. IJMM 2014;8(1): 1-8.

Golmohammadi Reza, Ataee RamezanAli, Alishiri Gholam Hossein, Mirnejad Reza, Mehrabitavana Ali, Esmaeili Davoode. Design of PCR-Based Molecular Method for the Detection of Gene-encoding MAM Super antigen of *M. arthritidis* in Synovial Fluid of Rheumatoid Arthritis Patients. Iranian Journal of Microbiology 2014. Accepted article.

Golmohammadi Reza, Ataee RamezanAli, Alishiri Gholam Hossein, Mirnejad Reza, Najafi Ali, Esmaeili Davoode, and Jonaidi- jafari Nematollah..Simultaneous Detection of *Mycoplasma pneumoniae*, *M. hominis* and *M. arthritidis* in the synovial fluid of patients with

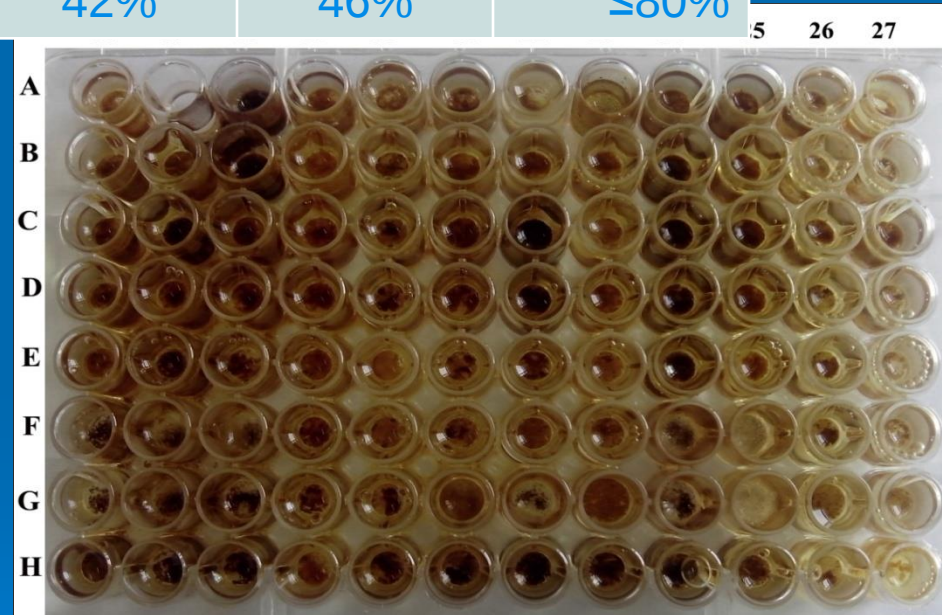
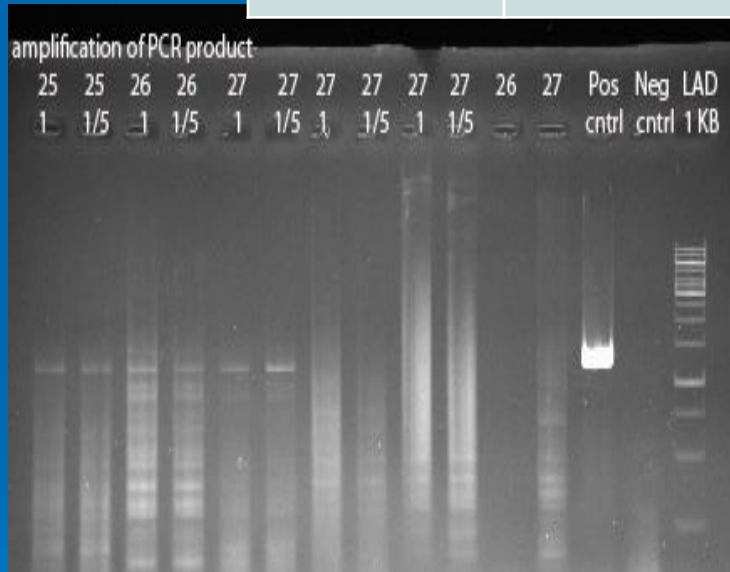
By Elisa methods and immunoblot confirmatory, we found that more than 60% of RA patients are positive for at least one of classic superantigens.



Ataee & Alishriri et al. Enzyme-linked Immunosorbent Assay for Detection of Staphylococcal Enterotoxins in Synovial Fluid of Rheumatoid Arthritis Patients. JOURNAL OF PURE AND APPLIED MICROBIOLOGY, June 2013. Vol. 7(2), p. 1113-1119

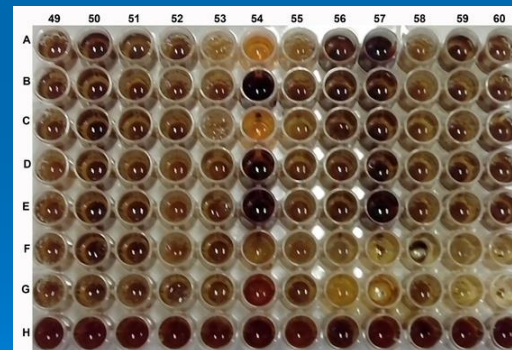
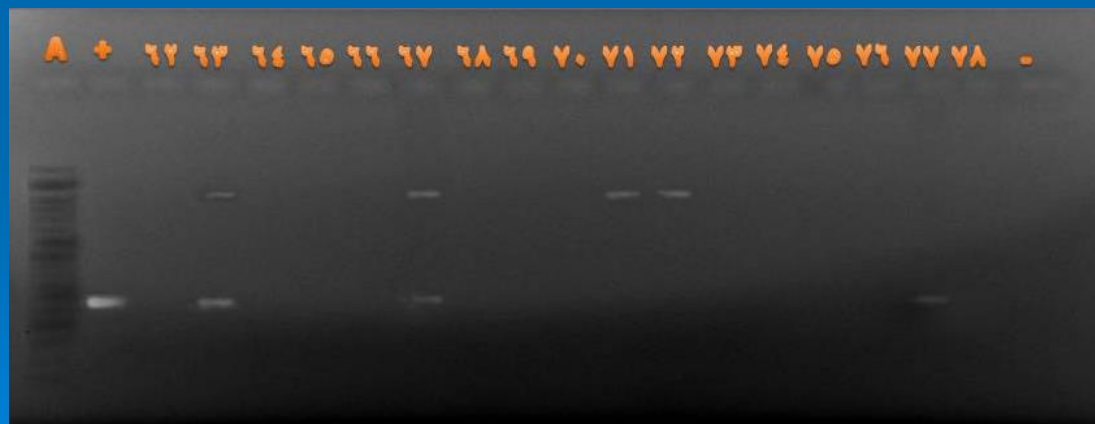
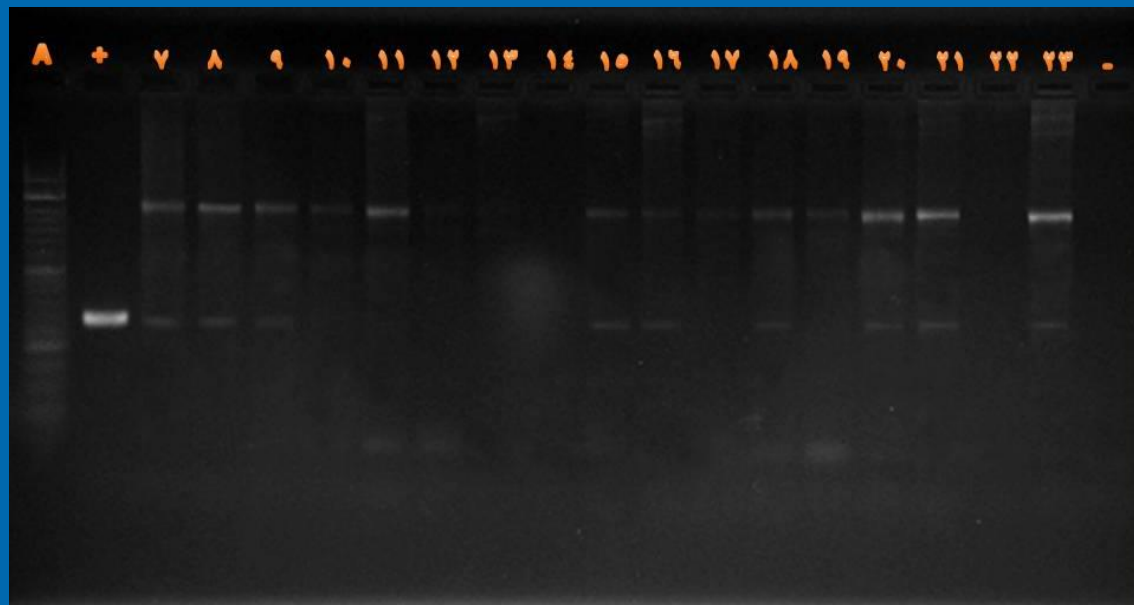
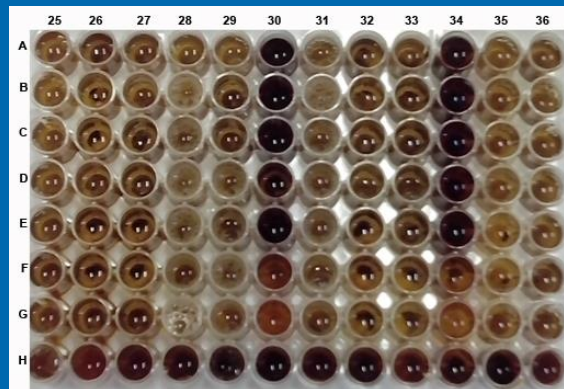
By combined **PCR** and **Elisa** methods, we found that more than 80% cases of RA patients were positive for Classical superantigens

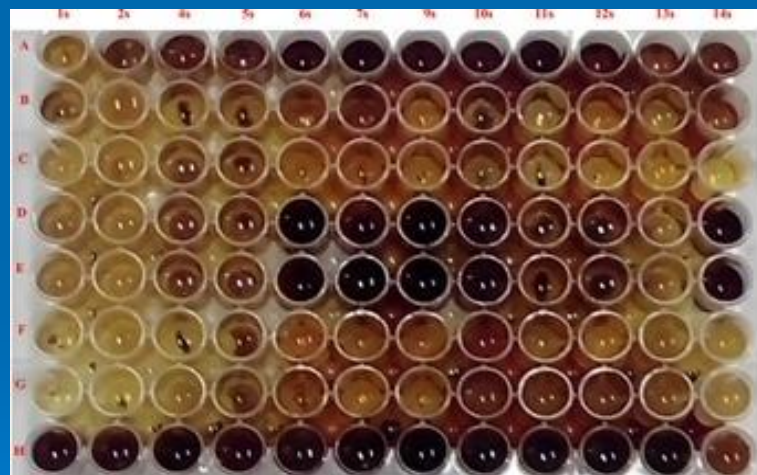
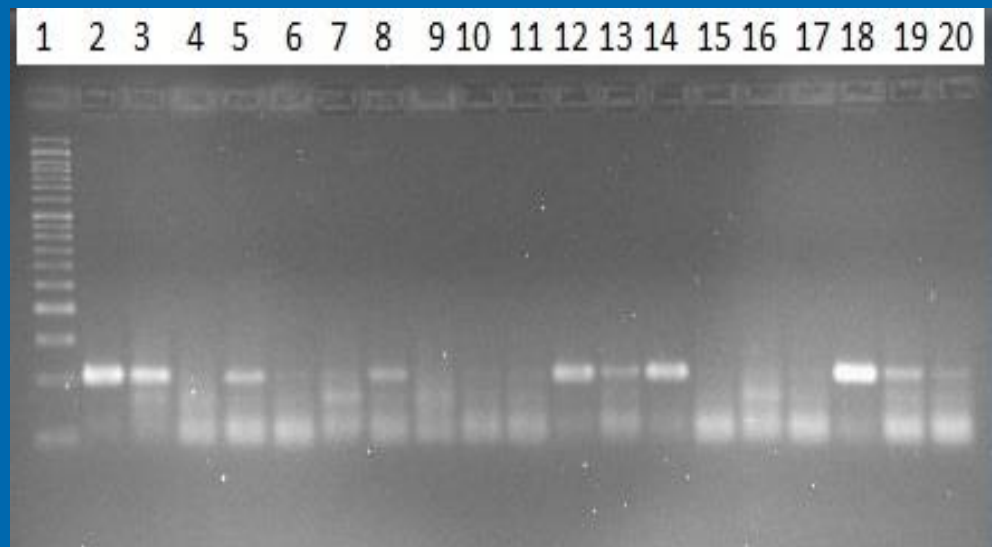
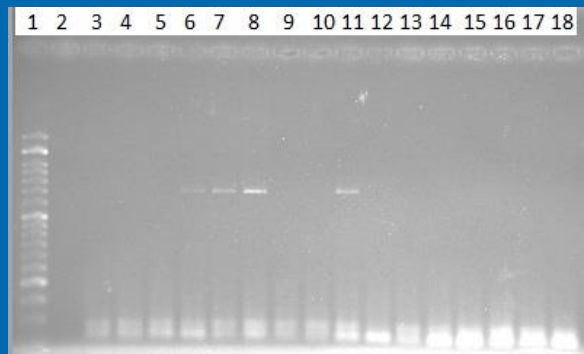
SEs in Blood	ent SEs in Blood	SEs in SF	Ent SEs SF	Totally
33%	38%	42%	46%	≤80%



Ataee RA, Alishiri GH, Mohoseni- Moghadam Z, Latifi AM and Ataee MH. Enzyme-linked Immunosorbent Assay for Detection Staphylococcal Enterotoxins in Synovial fluid of heumatoid Arthritis patients. *Journal of Pure and Applied Microbiology* 2013; 7(2): 1113-1119.

Ataee M H, Alishiri G H, Esmaeili D, Eidei A and Ataee R A. Study of Three Pair Primers PCR to Detect SEC Gene in Synovial Fluid of Rheumatoid Arthritis Patients and Comparison with Elisa. *Journal of Pure and Applied Microbiology* 2014; 8(Spl. Edn. 1): 125-132.





Conclusion

While the results of bacteriological assay was negative for all patients.

An important question arised

**where is the origin of this
superantigens???!.**

The background of the slide features several faint, concentric circles in a lighter shade of blue, resembling ripples in water, located primarily in the lower right and bottom center areas.

Conclusion

Based on our findings and several other published researches, Due to activity of these Superantigens may causes exacerbate of RA disease.

In addition, these results may provide a novel model for inflammatory joint diseases, such as: rheumatoid arthritis or juvenile idiopathic arthritis.

Grenache K, Tomuschat C, Finke R, Staeger MS, Brütting C, Brandt J, et al. Experimental Arthritis in the Rat Induced by the Superantigen Staphylococcal Enterotoxin A. Scand J Immunol 2017 Mar;85(3):191-6 ■

Conclusion

The diagnosis of these super antigens in blood and SF of patients with RA, in absence of RA indicators may be important to show the activity of the disease.

The background of the slide features several faint, concentric circles in a lighter shade of blue, resembling ripples in water, located primarily in the lower half of the image.

