

Association Between Singe Nucleotide Polymorphism of Toll-like Receptors (TLR)-7 and Behçet Uveitis in a Turkish Population

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Financial interests:None

Background

- Behçet disease has multifactorial pathogenesis
- Inflammatory response is triggered by various environmental factors in genetically susceptible individuals.
- BD has common features with autoinflammatory diseases which is believed that the innate immune system has an important role in initiation.
- TLRs are the key components of innate immune system.
- Single nucleotide polymorphisms (SNPs) in *TLR-7* gene were analyzed in patients with Behçet uveitis.

Patients & Methods

- Prospective cross-sectional clinical and genetic study
- Genomic DNA obtained from 198 individuals:
 - 89 patients with BU
 - 109 healthy controls
- 2 SNP in *TLR-7* gene were determined by using PCR with spesific primers.
 - rs179008
 - rs 179009
- DNA sequencing and bioinformatic analysis were done.

SNP	Genotype/allele	Patients (n=89) (%)	Controls (n=109) (%)	χ^2	P value	OR (%95CI)
TLR-7 rs179009	TT	75(84,0)	92(84,0)	0.621*	0.73	
	TC	2(2,00)	1(1,00)			
	CC	12(14,0)	16(15,0)			
	CC+TC:TT	14 : 75	17 : 92	0.006	0.97	1.01 (0.459-2.198)
	TC+TT:CC	77 : 12	93 : 16	0.057	0.81	0.90 (0.390-2.043)
	C	26	33	0.021	0.88	0.959 (0.545-1,66)
	T	152	185			
TLR-7 rs179008	AA	75 (84,30)	89 (81,6)	2,983	0.39	
	AT	2 (2,30)	7 (6,4)			
	TT	12(13,40)	13(12,0)			
	AT+TT:AA	14:75	20 :89	0.236	0.62	0,831 (0,385-1,762)
	AA+AT:AA	12: 77	13: 96	0.107	0.74	1,150 (0,486-1,702)
	T	26	33	0.020	0.88	0,959 (0,545-1,676)
	A	152	185			

Results

- Patient group:
 - 65 (%73) male, 24 (%27) female
 - Mean age 35.1 ± 12.35 (11-63)
- Control group
 - 67 (%61) male, 42 (%39) female
 - Mean age 33.75 ± 14.48 (21-55)
- There was no statistically significant difference in genotype distribution for *TLR-7* rs179009 T/C and *TLR-7* rs 179008 A/T genotypes in patient and control group (p=0.73, p=039 respectively)
- In the combined genotype analysis, there was no statistically significant difference (p=0.09)

SNP-SNP	SNP Genotypes	Patients n (%)	Controls n (%)	χ^2	P value
rs 179009 (T→C) rs 179008 (A→T)	TLR-7				
	AATT	72 (45,9)	85 (54,1)	9,355	0,09
	AACC	3 (42,9)	4 (57,1)		
	ATTC	2 (66,7)	1 (33,3)		
	TTTT	3 (100)	0 (0.0)		
	TTGG	9 (40,9)	13 (59,1)		
	ATTT	0 (0,0)	6 (100)		
Total		89	109		

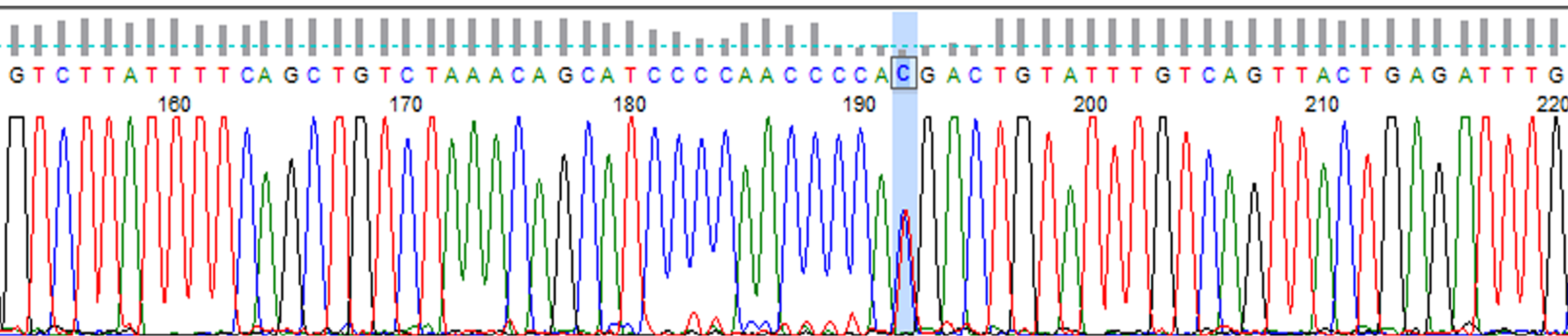


Figure: *TLR-7* rs 179009 allele T/C

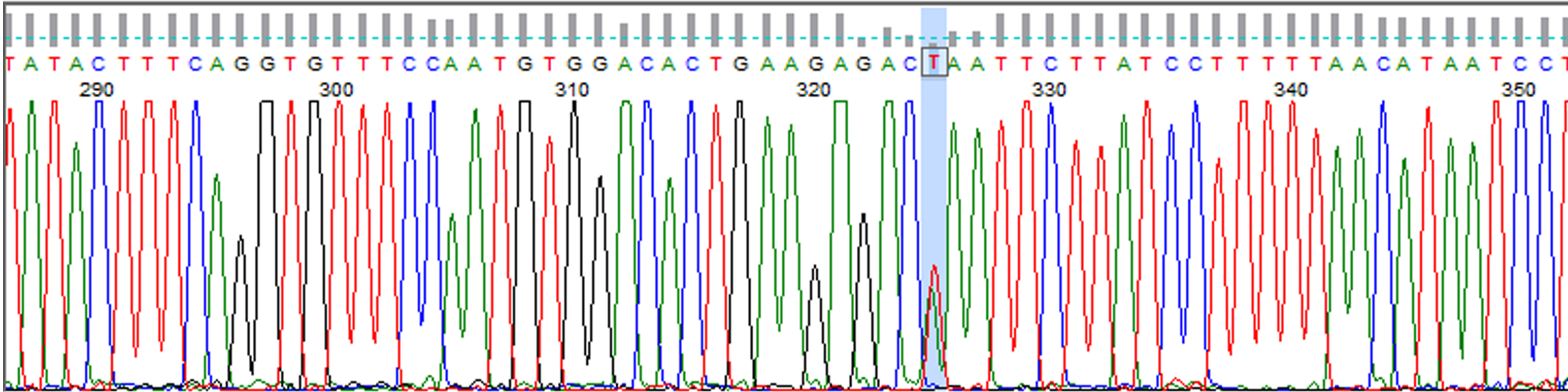


Figure: *TLR-7* rs 179008 allele A/T

Conclusion

- This genetic study did not find any relationship between two SNPs at the *TLR7* gene loci and Behçet uveitis in a Turkish population
- No effect of these genotypes on the other clinical features of BD including oral ulcer, genital ulcer, skin involvement, pathergy results, joint involvement, neurological involvement and thromboembolism were detected as well.

Acknowledgement

This study was supported by a grant (PYO.TIP.1902-B.15.001) from Ondokuz Mayıs University, Coordination of Scientific Research Projects.