Table 1. Immune-related genes and thyroid-specific genes associated with ATD

Genes	Type of evidence	Mechanism
Immunological synapses genes		
HLA class II (HLA-DR)	Candidate gene analysis	Facilitated antigen presentation
		DRb-Arg74
CTLA4	Candidate gene analysis	Reduced suppression of T-cell activation by antigen
	Whole genome linkage screening with microsatellites or SNPs	
CD40	Whole genome linkage screening with microsatellites or SNPs	APCS B-cell activation
		CD40 on thyrocytes
Protein tyrosine phosphatase-22 gene (PTPN22)	Candidate gene analysis	Negative regulator of T cell activation?
Regulatory T-cells genes		
FOXP3	Whole genome linkage screening with microsatellites or SNPs	Reduced differentiation of T cells into natural Treg cells
CD 25	Genome-wide association studies	Reduced α chain IL2 R on Treg cells
Thyroid-specific genes		
Tg	Whole genome linkage screening with microsatellites or SNPs	Amino-acids variants resulting in altered degradation of Tg in endosomes
		Unique Tg peptides binding to specific HLA-DR pockets
		(A734S, V1027M, W1999R)
TSH-R	Candidate gene analysis	Altered TSHR splicing
	Whole genome linkage screening with microsatellites or SNPs	
	Genome-wide association studies	