

1 Supporting information

2 Figure S1. The frequency occurrence of amino acids in TM and seven stable epitope sequences

3 Sequence of TM was from Genebank (QHW05413.1). The epitopes were located in 19-29, 39-48,

4 99-109, 110-123, 153-162, 170-188 and 211-221 of TM.

5 Figure S2. Conservation of TM sequences across different species

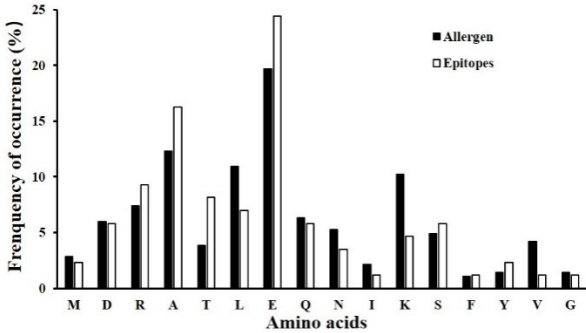
6 A. Conservation of non-allergenic TM sequences.

7 B. Conservation of allergenic TM sequences.

8 The red lines represent the location of TM stable epitopes.

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10 **Figure S1**



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13 Figure S2

A

Bos_taurus	MDAIRKRMHRIHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Gallus_gallus	MDAIRKRMHRIHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Homo_sapiens_2	MDAIRKRMHRIHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Homo_sapiens_4	MDAIRKRMHRIHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Oryctolagus_cuniculus	MDAIRKRMHRIHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Scyllia_paramamosain	MDAIRKRMHRIHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Consensus	sdaiKKkq kl k na dra e k a r e k e d e l a l a e va lnrriqi ee l r eri ta kl sa aa	
Bos_taurus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Gallus_gallus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Homo_sapiens_2	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Homo_sapiens_4	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Oryctolagus_cuniculus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Scyllia_paramamosain	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Consensus	deser kv e r dee m e qlkea se adky evarkl e dleaeerae e lee l lk l k qe ye ik l klk ae rae	
Bos_taurus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Gallus_gallus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Homo_sapiens_2	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Homo_sapiens_4	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Oryctolagus_cuniculus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Scyllia_paramamosain	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Consensus	faersv kl k d le k ld	

B

Blattella_germanica	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Charybdis_feriatatus	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Dermatophagoides_pteronysinus	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Oreochromis_mossambicus	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Fenaesus_aztecus	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Salmo_salar	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Scyllia_paramamosain	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Todarodes_pacificus	MAIRKMGAMGHRHFNNAERECFADKFAHHSFQIEELVSLQKIKATDQIRYSGDHAQCEFLAEKKAIAEAVALNRRICQEBBIRACERITAIQRIQDEEFAA	120
Consensus	m aik km k k a d a e e qk e d e l l k e lnrriqi ee l r eri a kl a a	
Blattella_germanica	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Charybdis_feriatatus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Dermatophagoides_pteronysinus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Oreochromis_mossambicus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Fenaesus_aztecus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Salmo_salar	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Scyllia_paramamosain	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Todarodes_pacificus	DESERKRVNLSFACDEEVEIQDQLKEAHHIADRRRYGEVARRKVIHSDLEAEERAEISGWCALLESHTVTNIRGDEAGRRGQRRRGGIATNISKLPAGEBRAE	240
Consensus	deser k e dee ql ea se ad k e arkl e dler e r e e k cleesl v nn ksl e e i lk ae ra	
Blattella_germanica	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Charybdis_feriatatus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Dermatophagoides_pteronysinus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Oreochromis_mossambicus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Fenaesus_aztecus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Salmo_salar	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Scyllia_paramamosain	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Todarodes_pacificus	FAERSVRLHSNLEDELYAQLKYKAISEIDBALNDMTS	283
Consensus	aer v kl k ledel k	

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16 **Table S1 Specific IgE levels and symptoms of the crab sensitive individuals.**

Number	Sex ^a	Symptom	Specific IgE (f23, kU _A /L)
1	M	urticaria	≥100.0
2	F	allergic dermatitis	97.3
3	F	dermatitis	78.6
4	M	anaphylactic rhinitis	32.1
5	F	eczema	23.6
6	F	pruritus	14.3
7	M	acute bronchitis	9.3
8	M	urticaria	7.4
9	F	allergic dermatitis	34.7
10	M	pruritus and nuasea	9.2
11	F	- ^b	0.3
12	M	- ^b	0.2

17 **Note:** ^a-M, male; F, female. ^b- means food allergy-free.