

Supplement 6

Sodium Action Potentials in Placozoa: Insights into Behavioral Integration and Evolution of Nerveless Animals

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Supplementary Data: Domain organization and selectivity filter of Ca_v channels in Placozoa: *Trichoplax adhaerens* (H haplotype), *Trichoplax* sp. (H2 haplotype), *Hoilungia* sp. (H4 haplotypes), *Hoilungia hongkongensis* (H13 haplotype).

Gene ID	DI	DII	DIII	DIV	Selective filter
H1_Ca _v 1	CITMEGW ^{Green} TN	IL ^{Yellow} TGEDWNE	IT ^{Light blue} TFEGWPS	CAT ^{Purple} GENWQSI	EEEE
H2_Ca _v 1	CITMEGW ^{Green} TN	IL ^{Yellow} TGEDWNE	IT ^{Light blue} TFEGWPS	CAT ^{Purple} GENWQSI	
H13_Ca _v 1	CITMEGW ^{Green} TN	IL ^{Yellow} TGEDWNE	IT ^{Light blue} TFEGWPS	CAT ^{Purple} GENWQSI	
H1_Ca _v 2	CIS ^{Purple} LEGW ^{Green} TN	VLS ^{Yellow} GEDWNE	MSTA ^{Light blue} EG---	CST ^{Purple} GENWPEV	EEEE
H2_Ca _v 2	CIS ^{Purple} LEGW ^{Green} TN	VLS ^{Yellow} GEDWNE	IT ^{Light blue} TFEGWPS	CST ^{Purple} GENWPEV	
H13_Ca _v 2	CIS ^{Purple} LEGW ^{Green} TN	IL ^{Yellow} SGEDWNE	MSTA ^{Light blue} EGWPR	CST ^{Purple} GENWPEV	
H1_Ca _v 3	VIT ^{Light blue} LEAWVD	ILT ^{Yellow} QEDWNV	ISS ^{Light blue} KDGWMD	IAT ^{Light blue} GDNWQGI	EEDD
H2_Ca _v 3	VIT ^{Light blue} LEAWVD	ILT ^{Yellow} QEDWNV	ISS ^{Light blue} KDGWMD	IAT ^{Light blue} GDNWQGI	
H13_Ca _v 3	VIT ^{Light blue} LEAWVD	ILT ^{Yellow} QEDWNV	ISS ^{Light blue} KDGWMD	IAT ^{Light blue} GDNWQGI	

Yellow – polar, acidic amino acids

Light blue – polar, basic amino acids

Grey – non-polar, hydrophobic amino acids

Green – polar, uncharged amino acids

Purple - cysteine