

Table S1

Table S1. Comparison of the amino acid residues at 10 sites in JEV E protein.

Strain (genotype, accession no.)	Amino acid position in E protein									
	107	138	176	177	244	264	279	315	439	447
SA 14-14-2 (GIII, AF315119)	F	K	V	A	G	H	M	V	R	D
SA 14 (GIII, U04522)	L	E	I	T	E	Q	K	A	K	G
Mie/41/2002 (GI, AB241119)	L	E	I	T	E	Q	K	A	K	G
Mie/51/2006 (GI, AB698905)	L	E	I	T	E	Q	K	A	K	G
Hiroshima/46/1998 (GI, AB174873)	L	E	I	T	E	Q	K	A	K	G
Tokyo602/2005 (GI, AB698908)	L	E	I	T	E	Q	K	A	K	G
JaNAr0102.2002.Mo (GI, AY377577)	L	E	I	T	E	Q	K	A	K	G
XJ69 (GI, EU880214)	L	E	I	T	E	Q	K	A	K	G
GZ56/2006 (GI, HM366552)	L	E	I	T	E	Q	K	A	K	G
CH2010.3 (GI, JF499821)	L	E	I	T	E	Q	K	A	K	G
K91P55 (GI, U34928)	L	E	I	T	E	Q	K	A	K	G
K94P05 (GI, U34929)	L	E	I	T	Q	Q	K	A	K	G
2372Thai79 (GI, U70401)	L	K	I	T	E	Q	K	A	K	G
B2239Thai84 (GI, U70391)	L	E	I	T	E	Q	K	A	K	G
VN105.Mo (GI, AY376468)	L	E	I	T	E	Q	K	A	K	G
FU (GII, AF217620)	L	E	I	T	E	Q	K	A	K	G
Beijing-1 (GIII, AB920348)	L	E	I	T	E	Q	K	A	K	G
Nakayama (GIII, AB920347)	L	E	I	T	E	Q	K	A	K	G
JaTH160 (GIII, AB269326)	L	E	I	T	E	Q	K	A	K	G
JaTAn1/90 (GIII, AB551991)	L	E	I	T	E	Q	K	A	K	G
GZ042 (GIII, JN381857)	L	E	I	T	E	Q	K	A	K	G
JKT6468 (GIV, AY184212)	L	E	I	T	E	Q	K	A	K	G
Muar (GV, HM596272)	L	E	I	T	E	Q	K	A	K	G
XZ0934 (GV, JF915894)	L	E	I	T	E	Q	K	A	K	G
10-1827 (GV, JN587258)	L	E	I	T	E	Q	K	A	K	G
K15P38 (GV, MF526903)	L	E	I	T	E	Q	K	A	K	G

Table S2

Table S2. Comparison of the amino acid residues at 10 sites in E protein of JEV, West Nile virus, Usutu virus, Murray valley encephalitis virus, and St. Louis encephalitis virus.

Strains (Accession no.)	Amino acid position in E protein*									
	107	138	176	177	244	264	279	315	439	447
SA-14-14-2 (AF315119)	F	K	V	A	G	H	M	V	R	D
SA-14 (U04522)	L	E	I	T	E	Q	K	A	K	G
West Nile virus (DQ211652)	L	E	Y	T	E	Q	K	A	K	G
Usutu virus (NC_006551)	L	E	I	T	E	Q	K	A	K	G
Murray valley encephalitis virus (NC_000943)	L	E	I	T	E	Q	K	A	K	G
St. Louis encephalitis virus (NC_007580)	L	E	F	T	E	T	T	T	K	G

*Amino acid position number in JEV E protein.

Figure S1

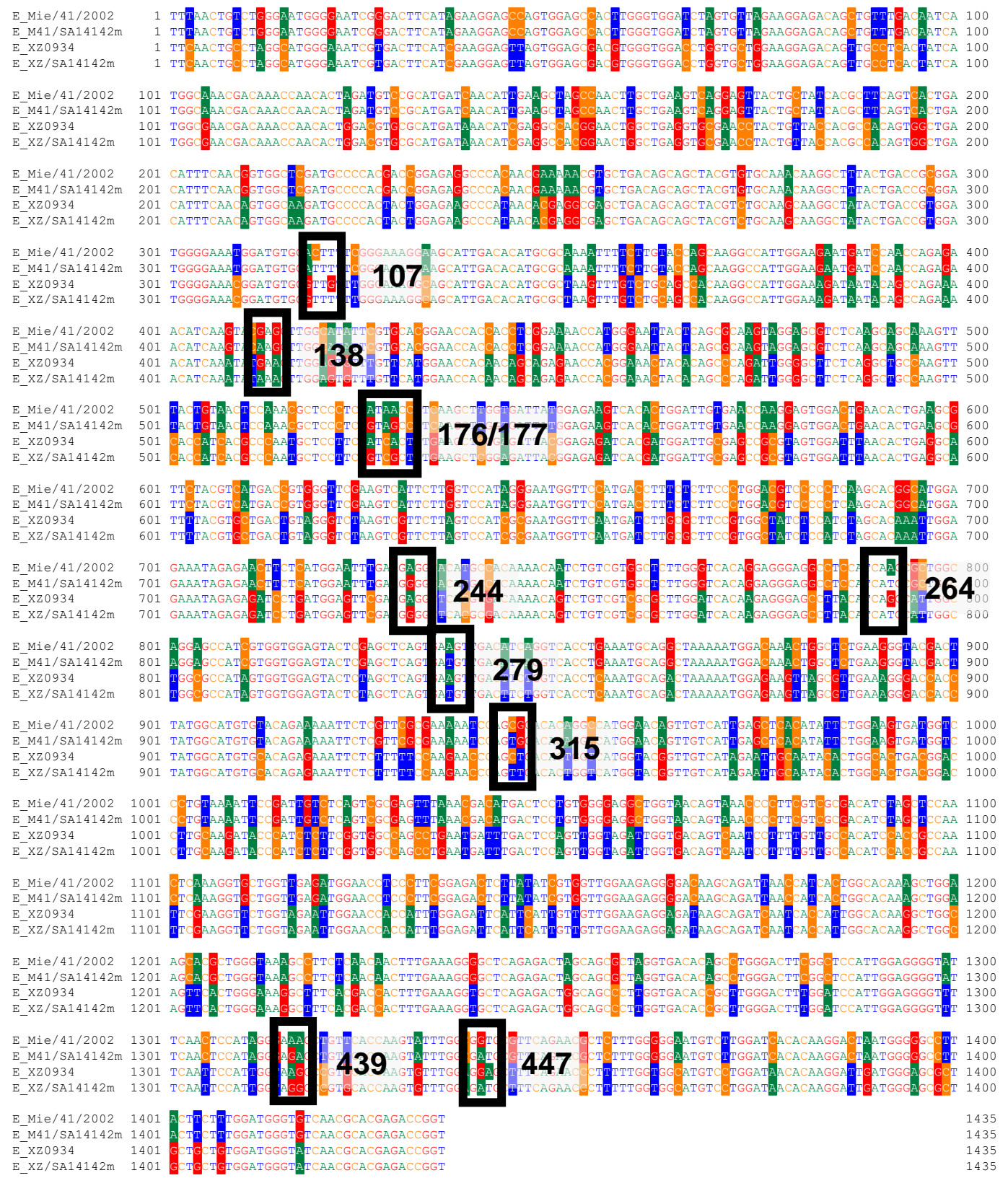


Figure S1. Alignment of the nucleotide sequences of E region of recombinant JEV strains. Boxes indicate the mutation sites introduced.

Figure S2

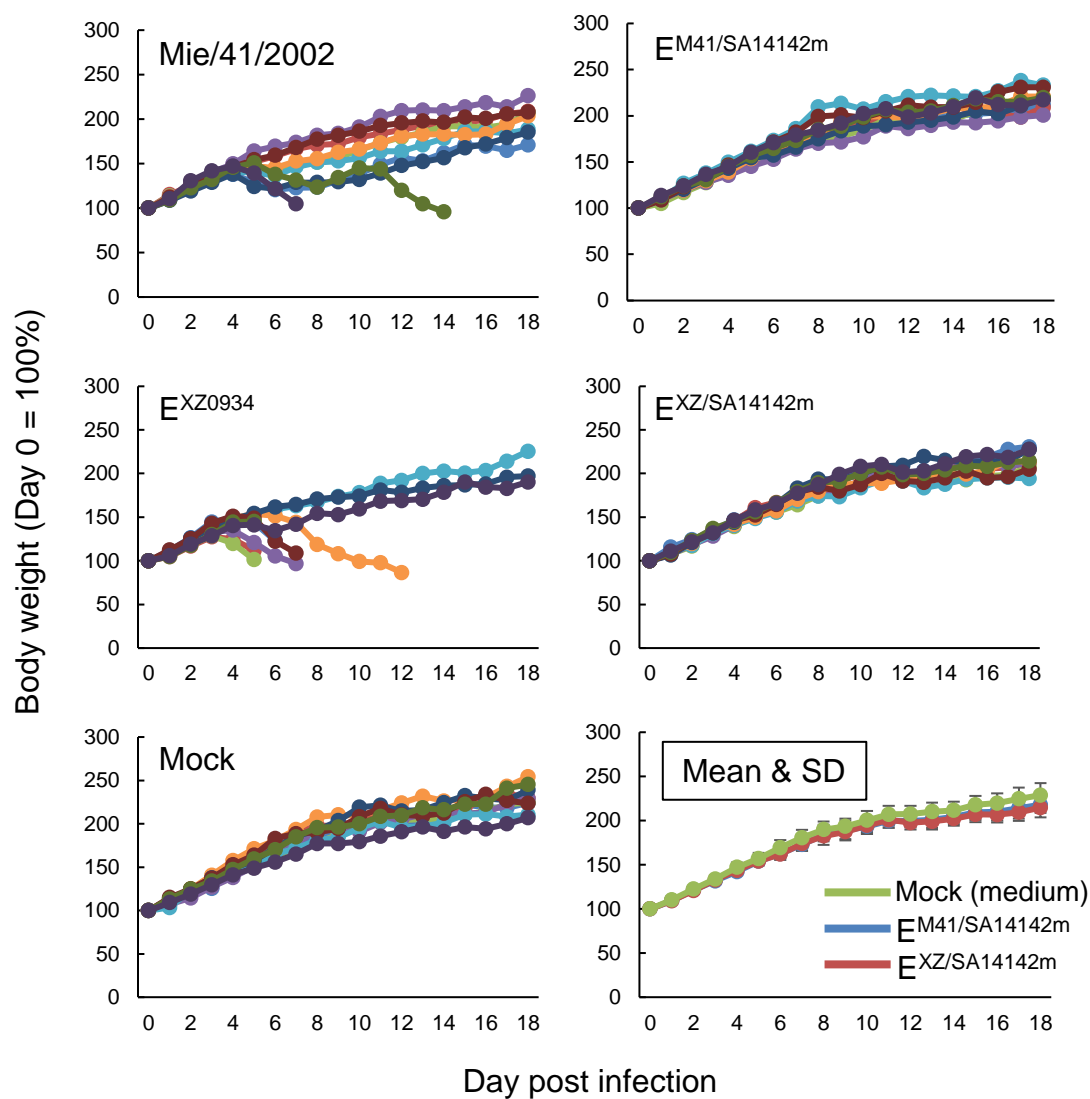


Figure S2. Body weight of mice inoculated with recombinant JEV strains as shown in Figure 3A.

Figure S3

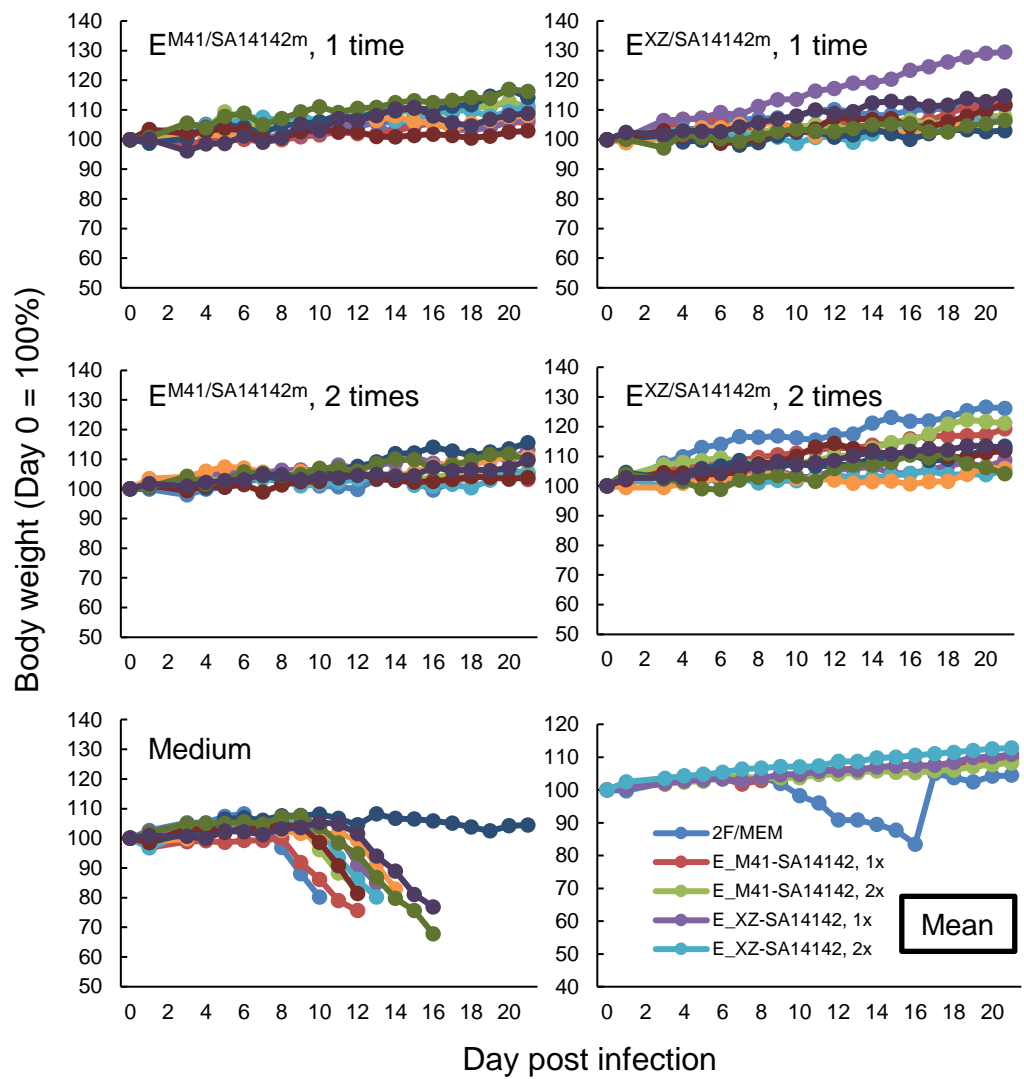


Figure S3. Body weight of mice inoculated with recombinant JEV strains as shown in Figure 6C.

Figure S4

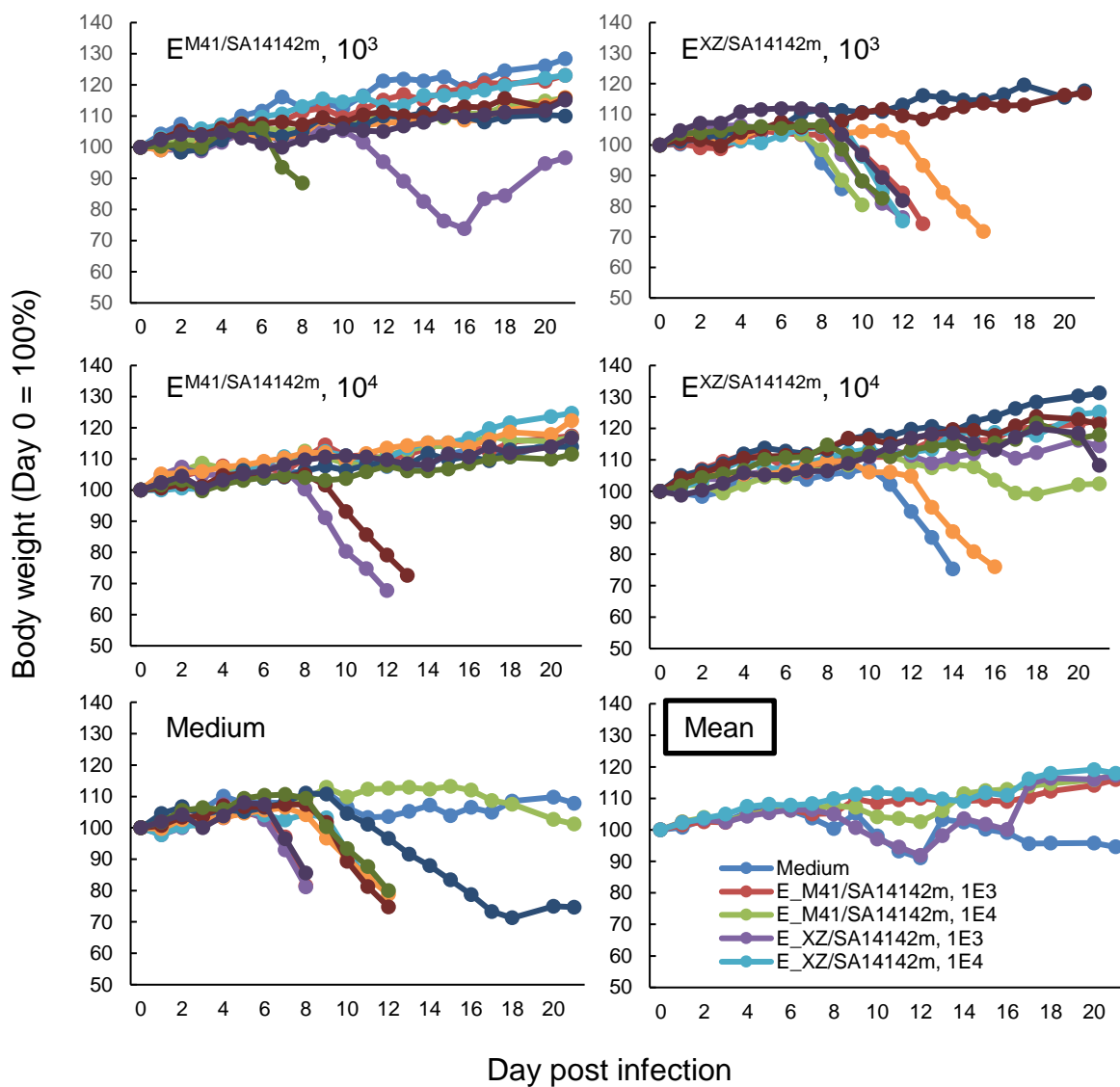


Figure S4. Body weight of mice inoculated with recombinant JEV strains as shown in Figure 7B.

Figure S5

JE.E (V) .Muar .pep	1	FNCLGMGN	RD	FI	EG	VS	GATW	VD	LV	LE	GD	SC	LT	IM	AN	DK	PT	LD	VR	MI	NI	EA	50																													
JE.E (V) .XZ0934 .pep	1	FNCLGMGN	RD	FI	EG	VS	GATW	VD	LV	LE	GD	SC	LT	IM	AN	DK	PT	LD	VR	MI	NI	EA	50																													
JE.E (V) .Muar .pep	51	TQ	LA	EV	RT	TY	CY	HAT	VAD	IS	TVA	R	C	P	T	TG	EA	H	N	T	R	R	AD	SS	YV	CK	Q	G	Y	T	DR	G	100																			
JE.E (V) .XZ0934 .pep	51	TE	LA	EV	RT	TY	CY	HAT	VAD	IS	TVA	R	C	P	T	TG	EA	H	N	T	R	R	AD	SS	YV	CK	Q	G	Y	T	DR	G	100																			
JE.E (V) .Muar .pep	101	WG	NC	CG	LF	FG	KS	ID	TC	AK	FV	CS	SH	KA	IG	KI	IQ	PEN	IK	YE	VG	VF	VH	GT	TT	AE	150																									
JE.E (V) .XZ0934 .pep	101	WG	NC	CG	LF	FG	KS	ID	TC	AK	FV	CS	SH	KA	IG	KI	IQ	PEN	IK	YE	VG	VF	VH	GT	TT	AE	150																									
JE.E (V) .Muar .pep	151	NH	GN	YS	SA	QI	GA	SQ	AA	KFT	I	T	P	N	A	P	S	I	T	L	K	L	G	D	Y	GE	VT	M	D	C	E	P	R	S	G	F	N	T	E	A	200											
JE.E (V) .XZ0934 .pep	151	NH	GN	YT	TA	QI	GA	SQ	AA	KFT	I	T	P	N	A	P	S	I	T	L	K	L	G	D	Y	GE	IT	M	D	C	E	P	R	S	G	F	N	T	E	A	200											
JE.E (V) .Muar .pep	201	FY	VL	TV	GT	KS	FL	VH	RE	WF	N	D	L	A	L	P	W	L	S	P	S	T	N	W	R	N	RE	IL	LE	F	E	E	A	H	A	T	K	Q	250													
JE.E (V) .XZ0934 .pep	201	FY	VL	TV	GS	KS	FL	VH	RE	WF	N	D	L	A	L	P	W	L	S	P	S	T	N	W	R	N	RE	IL	ME	F	E	E	A	H	A	T	K	Q	250													
JE.E (V) .Muar .pep	251	SV	VA	L	G	SQ	E	G	A	L	HQ	A	L	A	G	A	I	V	EY	SS	S	V	K	L	T	S	G	H	L	K	R	L	K	M	D	K	L	A	L	K	G	T	300									
JE.E (V) .XZ0934 .pep	251	SV	VA	L	G	SQ	E	G	A	L	HQ	A	L	A	G	A	I	V	EY	SS	S	V	K	L	T	S	G	H	L	K	R	L	K	M	E	K	L	A	L	K	G	T	300									
JE.E (V) .Muar .pep	301	Y	G	M	C	T	E	K	F	S	F	S	K	N	P	A	D	T	G	H	G	T	V	V	I	E	L	Q	Y	T	G	T	D	G	P	C	K	I	P	I	S	S	V	A	S	L	N	D	L	T	P	350
JE.E (V) .XZ0934 .pep	301	Y	G	M	C	T	E	K	F	S	F	S	K	N	P	A	D	T	G	H	G	T	V	V	I	E	L	Q	Y	T	G	T	D	G	P	C	K	I	P	I	S	S	V	A	S	L	N	D	L	T	P	350
JE.E (V) .Muar .pep	351	V	G	R	L	V	T	V	N	P	F	V	A	T	S	T	A	N	S	K	V	L	V	E	L	P	P	F	G	D	S	F	I	V	V	G	R	G	D	K	Q	I	N	H	H	W	H	K	A	G	400	
JE.E (V) .XZ0934 .pep	351	V	G	R	L	V	T	V	N	P	F	V	A	T	S	T	A	N	S	K	V	L	V	E	L	P	P	F	G	D	S	F	I	V	V	G	R	G	D	K	Q	I	N	H	H	W	H	K	A	G	400	
JE.E (V) .Muar .pep	401	S	S	L	G	K	A	F	T	T	T	L	K	G	A	Q	R	L	A	A	L	G	D	T	A	W	D	F	G	S	I	G	G	V	F	N	S	I	G	K	A	V	H	Q	V	F	G	G	A	F	R	450
JE.E (V) .XZ0934 .pep	401	S	S	L	G	K	A	F	T	T	T	L	K	G	A	Q	R	L	A	A	L	G	D	T	A	W	D	F	G	S	I	G	G	V	F	N	S	I	G	K	A	V	H	Q	V	F	G	G	A	F	R	450
JE.E (V) .Muar .pep	451	T	L	F	G	G	M	S	W	I	T	Q	G	L	M	G	A	L	L	L	M	M	G	I	N	A	R	D	R	S	I	A	L	A	F	L	A	T	G	G	V	L	L	F	L	A	T	N	V	H	A	500
JE.E (V) .XZ0934 .pep	451	T	L	F	G	G	M	S	W	I	T	Q	G	L	M	G	A	L	L	L	M	M	G	I	N	A	R	D	R	S	I	A	L	A	F	L	A	T	G	G	V	L	L	F	L	A	T	N	V	H	A	500

Figure S5. Comparison of amino acid sequences of E protein of GV JEV Muar and XZ0934 strains.