

	1	10	20	30	40	50	60
francensis	MLRKSRIK	INKLLSEAKY	ILEHVWDS	F	LQWPLVFLIA	AAAIMVIS	VPLPLYQWVYGVFF
ATTC10988	MLHKSRIK	KNTLSEAKY	ILEHLWDS	T	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
CU1	MLHKSRIK	KNTLSEAKY	ILEHLWDS	T	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
CU1rif2	MLHKSRIK	KNTLSEAKY	ILEHLWDS	T	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
uvs51	MLHKSRIK	KNTLSEAKY	ILEHLWDS	T	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
B23394	MLHKSRIK	KNTLSEAKY	ILEHLWDS	A	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
Z6	MLHKSRIK	KNTLSEAKY	ILEHLWDS	A	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
B4492	MLHKSRIK	KNTLSEAKY	ILEHLWDS	A	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
PROIMIA1	MLHKSRIK	KNTLSEAKY	ILEHLWDS	T	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
NCIMB1163	MLHKSRIK	KNTLSEAKY	ILEHLWDS	A	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
CP1	MLHKSRIK	KNTLSEAKY	ILEHLWDS	A	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
B1960	MLHKSRIK	KNTLSEAKY	ILEHLWDS	A	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
ATCC31822	MLHKSRIK	KNTLSEAKY	ILEHLWDS	A	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
CP4	.....	.....	.....	.....	.....	MVVA	VPLPLYQWVYGVFF
B12526	MLHKSRIK	KNTLSEAKY	ILEHLWDS	T	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF
CP3	MLHKSRIK	KNTLSEAKY	ILEHLWDS	T	LQWPLLCLITVAAL	MVVA	VPLPLYQWVYGVFF

	70	80	90	100	110	120
francensis	MGLTLLID	RNP	SHYASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	FGSILFMAEALYA
ATTC10988	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
CU1	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
CU1rif2	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
uvs51	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
B23394	MGLTLLID	CS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
Z6	MGLTLLID	CS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
B4492	MGLTLLID	CS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
PROIMIA1	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
NCIMB1163	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
CP1	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
B1960	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
ATCC31822	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
CP4	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
B12526	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA
CP3	MGLTLLID	RS	PSHFASIVICLSS	ILTSTRYIFWRITQ	TLRFDHIMDA	VFGGVLFMAEALYA

	130	140	150	160	170	180
francensis	WAILILGLF	QILWPMORP	VVPLSGK	DEDLPTVDVFIP	TYNESMEIV	RNTVFAAAGMDYPK
ATTC10988	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
CU1	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
CU1rif2	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
uvs51	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
B23394	WAILILGLF	QILWPMORP	VVPLSGG	DEDLPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
Z6	WAILILGLF	QILWPMORP	VVPLSGG	DEDLPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
B4492	WAILILGLF	QILWPMORP	VVPLSGE	DEDLPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
PROIMIA1	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
NCIMB1163	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
CP1	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
B1960	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
ATCC31822	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
CP4	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
B12526	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK
CP3	WAILILGLF	QILWPMORP	VVPLSGE	DEELPTVDVFIP	TYNESMEIV	QNTVFAAAGMDYPK

	190	200	210	220	230	240
francensis	DRFKVYLLDDG	NREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
ATTC10988	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
CU1	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
CU1rif2	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
uvs51	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
B23394	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
Z6	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
B4492	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
PROIMIA1	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
NCIMB1163	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
CP1	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
B1960	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
ATCC31822	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
CP4	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
B12526	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH
CP3	DRFNVYLLDDG	HREEFRIFAEE	AGCHYLTRND	NLNKAGNLNAAL	KKTKG	GELVCIFDGDH

	250	260	270	280	290	300																							
francensis	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
ATTC10988	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
CUI	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
CUIrif2	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
uvs51	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
B23394	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
Z6	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
B4492	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
PROIMIA1	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
NCIMB11163	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
CP1	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
B1960	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
ATCC31822	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
CP4	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
B12526	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR
CP3	VP	TRAF	LQ	LV	GW	LQ	KE	PN	LAL	VQ	TP	HH	FF	YS	PD	PI	QR	NV	PG	GS	EL	PG	DN	EL	FY	GT	VQ	RG	NR

	310	320	330	340	350	360																																													
francensis	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
ATTC10988	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
CUI	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
CUIrif2	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
uvs51	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
B23394	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
Z6	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
B4492	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
PROIMIA1	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
NCIMB11163	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
CP1	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
B1960	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
ATCC31822	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
CP4	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
B12526	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A
CP3	DL	WD	AT	FF	CG	SC	AIL	RR	E	A	L	E	E	N	D	G	F	S	G	E	T	V	T	E	D	A	H	T	A	L	K	L	O	R	R	G	W	D	T	A	Y	I	N	I	R	L	S	A	G	L	A

	370	380	390	400	410	420																																																
francensis	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
ATTC10988	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
CUI	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
CUIrif2	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
uvs51	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
B23394	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
Z6	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
B4492	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
PROIMIA1	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
NCIMB11163	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
CP1	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
B1960	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
ATCC31822	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
CP4	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
B12526	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A	L	P	R	V	I	F	L	I	S
CP3	TD	TL	LA	HI	KO	RA	R	W	A	R	G	M	T	O	I	L	R	V	D	N	P	L	W	G	R	G	L	T	I	A	O	R	L	C	Y	M	N	A	L	L	H	Y	O	F	A									

490 500 510 520 530 540  
francensis PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
ATTC10988 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIQSARPHLITAGFLFLGLVVGIVKLIYSSYF  
CU1 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIQSARPHLITAGFLFLGLVVGIVKLIYSSYF  
CU1rif2 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIQSARPHLITAGFLFLGLVVGIVKLIYSSYF  
uvs51 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
B23394 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
Z6 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
B4492 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
PROIMIA1 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
NCIMB11163 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
CP1 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
B1960 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
ATCC31822 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
CP4 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
B12526 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF  
CP3 PTLITIFLNPKKGSFNVTDKGERMEDDYFDIRSVRPHLITAGFLFLGLVVGIVKLIYSSYF

550 560 570 580 590 600  
francensis HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
ATTC10988 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
CU1 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
CU1rif2 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
uvs51 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
B23394 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
Z6 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
B4492 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
PROIMIA1 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
NCIMB11163 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
CP1 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
B1960 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
ATCC31822 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
CP4 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
B12526 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT  
CP3 HIQPSVLVLNVTWASFNFIILLASIAVAHESROIRNTVRFPPRIPEITAYFEDGHVIDSVT

610 620 630 640 650 660  
francensis DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
ATTC10988 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
CU1 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
CU1rif2 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
uvs51 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
B23394 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
Z6 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
B4492 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
PROIMIA1 DNISLGGGLAFSLPKNYELADRDITSEISIF .....  
NCIMB11163 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
CP1 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
B1960 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
ATCC31822 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
CP4 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
B12526 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE  
CP3 DNISLGGGLAFSLPKNYELADRDITSEISMKVDNRSFALPTKIVSKSGSLVRLQFEAASMPE

670 680 690 700 710 720  
francensis QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
ATTC10988 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
CU1 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
CU1rif2 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
uvs51 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
B23394 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
Z6 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
B4492 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
PROIMIA1 .....  
NCIMB11163 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
CP1 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
B1960 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
ATCC31822 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
CP4 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
B12526 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK  
CP3 QKKLVAALMGQADAWLHYGPEEKPVSTIASMKHILKIFGLLRYRPQKRINKKAAIKNEK

francensis	<u>GAVQK</u>
ATTC10988	<u>GAVKK</u>
CU1	<u>GAVKK</u>
CU1rif2	<u>GAVKK</u>
uvs51	<u>GAVKK</u>
B23394	<u>GAVKK</u>
Z6	<u>GAVKK</u>
B4492	<u>GAVKK</u>
PROIMIA1	.....
NCIMB11163	<u>GAVKK</u>
CP1	<u>GAVKK</u>
B1960	<u>GAVKK</u>
ATCC31822	<u>GAVKK</u>
CP4	<u>GAVKK</u>
B12526	<u>GAVKK</u>
CP3	<u>GAVKK</u>