

Supporting Information

Derivatives of 5-nitro-furan-2-carboxylic acid carbamoylmethyl ester inhibit RNase H activity associated with HIV-1 reverse transcriptase

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Text

We studied the purified reverse transcriptases of HIV-1 clade C Indie-C1^{S1} and CRF01_AE 93JP-NH1^{S2}. Alignment of reverse transcriptase amino acid sequences of the clade B B.FR.x.pNL43, clade C Indie-C1, and 93JP-NH1 is provided in Figure S1 (Fig. S1). The unique amino acids of 93JP-NH1 RT, namely Ser447 His499 Arg512 Val517 Glu524 Lys550, may be responsible for its higher susceptibilities toward compounds 1 and 2 (Fig. 3B and Table 1).

Figure legends

Figure S1. Alignment of reverse transcriptase amino acid sequences of the clade B B.FR.x.pNL43, clade C Indie-C1, and 93JP-NH1, a representative of CRF01_AE. Sequences were aligned using CLUSTAL W software.

References

- (S1) Mochizuki, N.; Otsuka, N.; Matsuo, K.; Shiino, T.; Kojima, A.; Kurata, T.; Sakai, K.; Yamamoto, N.; Isomura, S.; Dhole, T.N.; Takebe, Y.; Matsuda, M.; Tatsumi, M. An infectious DNA clone of HIV type 1 subtype C. *AIDS Res Hum Retroviruses* **1999**;15(14):1321-4.
- (S2) Sato.; H.; Tomita.; Y.; Ebisawa.; K.; Hachiya.; A.; Shibamura.; K.; Shiino.; T.; Yang.; R.; Tatsumi.; M.; Gushi.; K.; Umeyama.; H.; Oka.; S.; Takebe.; Y.; Nagai.; Y. Augmentation of human immunodeficiency virus type 1 subtype E (CRF01_AE) multiple-drug resistance by insertion of a foreign 11-amino-acid fragment into the reverse transcriptase. *J Virol* **2001**;75:5604-13.

Figure S1.

B.FR.x.pNL43	PISPIETVPV	KLKPGMDGPK	VKQWPLTEEK	IKALVEICTE	MEKEGKISKI	GPENPYNTPV	FAIKKKDSTK	WRKLVDFREL	[80]
C.Indie-C1	.....	.....	.....TA..D.	.....	.....I	I.	.....	.....	[ 80]
AE.93JP_NH1	D.I..	T.....	T...K.	..E.....	.....	.....	.....R	.....	[ 80]
B.FR.x.pNL43	NKRTQDFWEV	QLGIPHPAGL	KQKKSVTVLD	VGDAYFSVPL	DKDFRKYTAF	TIPSINNETP	GIRYQYNVLP	QGWKGSPAIF	[160]
C.Indie-C1	.....	.....	.K.....	YE.....	.....	.....	.....	.....	[160]
AE.93JP_NH1	.....	.....	.K.....	ES.....	.....	.....	.....	.....	[160]
B.FR.x.pNL43	QCSMTKILEP	FRKQNPDIIV	YQYMDDLTVG	SDLEIGQHRT	KIEELRQHLL	RWGFTTPDKK	HQKEPPFLWM	GYELHPDKWT	[240]
C.Indie-C1	.S..IR....	...A..EI..	.....	.....I	E...	K.....	.....	.....	[240]
AE.93JP_NH1	.S.....	..IK..EM..	.....	.....R...I	A...	S.....	.....	.....R..	[240]
B.FR.x.pNL43	VQPIVLPEKD	SWTVNDIQKL	VGKLNWASQI	YAGIKVRQLC	KLLRGTKALT	EVVPLTEEAE	LELAENREIL	KEPVHGVYYD	[320]
C.Indie-C1	Q.....	.....	.....P.....	A....	DI.....	.....	.....	.....	[320]
AE.93JP_NH1	E.....	.....	.....K....	A....	DI.....	.....	.....T.....	.....	[320]
B.FR.x.pNL43	PSKDLIAEIQ	KQGQGQWTYQ	IYQEPFKNLK	TGYARMKGA	HTNDVKQLTE	AVQKIATESI	VIWGKTPKFK	LPIQKETWEA	[400]
C.Indie-C1	.....	....D.....	.....	.....KRRT.	.....	.....M...	R	T	[400]
AE.93JP_NH1	V..V.	D.....	.....	.....KRS.	R....	V.....	R	R...T	[400]
➡ RNase H domain									
B.FR.x.pNL43	WWTEYQATW	IPWEFVNTP	PLVKLWYQLE	KEPIIGAETF	YVDGAANRET	KLKGAGYVTD	RGRQKVVPIT	DTTNQKTELQ	[480]
C.Indie-C1	T.....	.....	.....D..A.V...	.....	.....	.....I.S.	E.....	.....	[480]
AE.93JP_NH1	..M.....	.....	.....D..V.....	S...	.....	.....S.	E.....	H	[480]
B.FR.x.pNL43	AIHLALQDSG	LEVNIIVDSQ	YALGIIQAQP	DKSESELVSQ	IIEQLIKKEK	VYLAWVPAHK	GIGGNEQVDT	LVSAGIRKVL	[560]
C.Indie-C1	..Y.....	S.....	.....	.....N.	R	...S.....	S.....	.....	[560]
AE.93JP_NH1	.....	S.....	.....	..R...V.N.	...E.....	...S.....	K	...S.....	[560]