

Table S4. Comparative genomic summary of *Frankia* type II polyketide gene cluster biosynthetic proteins and their homologues in pentangular and tetracenomycin training set clusters.

product	species	KS α	KS β	ACPex, ACPp	AroCycN2	Cyc2	Cyc1	ABMh	ABMi	KR
frankiamicin	<i>Frankia</i> sp. EAN1pec	FranEAN1_2393	FranEAN1_2394	FranEAN1_2390	FranEAN1_2391	FranEAN1_2392	FranEAN1_2389	FranEAN1_2396	FranEAN1_2397	FranEAN1_2395
frankiamicin	<i>Frankia</i> sp. Cci3	Francci3_2851	Francci3_2850	Francci3_2854	Francci3_2853	Francci3_2852	Francci3_2855	Francci3_2848	Francci3_2847	Francci3_2849
frankiamicin	<i>Frankia</i> alni ACN14a	FRAAL4387	FRAAL4386	FRAAL4390	FRAAL4389	FRAAL4388	FRAAL4392	FRAAL4384	FRAAL4383	FRAAL4385
frankiamicin	<i>Frankia</i> sp. Eul1c	FraEul1c_4753	FraEul1c_4752	FraEul1c_4756	FraEul1c_4755	FraEul1c_4754	FraEul1c_4757	FraEul1c_4750	FraEul1c_4749	FraEul1c_4751
frankiamicin	<i>Frankia</i> sp. EUN1f	FrEUN1f DRAFT_0261	FrEUN1f DRAFT_0262	FrEUN1f DRAFT_0258	FrEUN1f DRAFT_0259	FrEUN1f DRAFT_0260	FrEUN1f DRAFT_0257	FrEUN1f DRAFT_0264	FrEUN1f DRAFT_0265	FrEUN1f DRAFT_0263
pradimicin	<i>Actinomadura</i> hibisca	pdmA	pdmB	pdmC	pdmD	pdmL	pdmK	pdmH	pdmI	pdmG
rubromycin	<i>Streptomyces</i> collinus	rubA	rubB	rubC	rubF (N-terminal)	rubD	rubE	rubH	rubT	rubG
griseorhodin	<i>Streptomyces</i> sp. JP95	grhA	grhB	grhC	grhT (N-terminal)	grhS	grhQ	grhU	grhV	grhO10, grhT (C-terminal)
fredericamycin	<i>Streptomyces</i> griseus	fdmF	fdmG	fdmH	fdmI	fdmE	fdmD	fdmP, fdmJ	fdmQ	fdmO
benastatin	<i>Streptomyces</i> sp. A2991200	benA	benB	benC	benH (N-terminal)	benD	benE	benH	benJ	benL
lysolipin	<i>Streptomyces</i> tendae	llpF	llpE	llpD	llpCI	llpCII	llpCIII	llpOIII	llpOII	llpZI, llpZII
A-74528	<i>Streptomyces</i> sp. SANK 61196	sanF	sanG	sanH	sanI	sanE	sanD	sanP, sanJ	sanQ	sanO
TLN-05220, TLN-05223	<i>Micromonospora echinospora</i> subsp. <i>challisensis</i>	TLN-ORF18	TLN-ORF19	TLN-ORF20	TLN-ORF21	TLN-ORF17	TLN-ORF16	TLN-ORF23	TLN-ORF24	TLN-ORF22, TLN-ORF14
FD-594	<i>Streptomyces</i> sp. TA-0256	pnxA	pnxB	pnxC, pnxV	pnxD	pnxL	pnxK	pnxH	pnxI	pnxG, pnxW
xantholipin	<i>Streptomyces</i> flavogriseus	xanF	xanE	xanD	xanC1	xanC2	xanC3	xanO7	xanO6	xanZ3, xanZ4
arixanthomycins	Uncultured bacterium	arx16	arx17	arx18	arx19	arx15	arx14	arx22	arx23	arx21, arx27
fasamycin (AZ154)	Uncultured bacterium	ORF23	ORF22	ORF21	ORF20, ORF30	ORF24	ORF19	ORF15*	ORF16*	---
lactonamycin	<i>Streptomyces</i> rishiriensis	lct31	lct32	lct24, lct26	lct27	lct30	lct29	lct33, lct42*	---	---
lactonamycin Z	<i>Streptomyces</i> sanglieri	lcz31	lcz32	lcz24, lcz26	lcz27	lcz30	lcz29	lcz33*	---	---
tetracenomycin	<i>Streptomyces</i> glaucescens	tcmK	tcmL	tcmM	tcmN (N-terminal)	tcmJ	tcmI	tcmH*	---	---
elloramycin	<i>Streptomyces</i> olivaceus	elmK	elmL	elmM	elmNi	elmJ	elmI	elmH*	---	---