

Supplementary material

***Pseudomonas veronii* strain 7-41 degrading medium-chain *n*-alkanes and polycyclic aromatic hydrocarbons**

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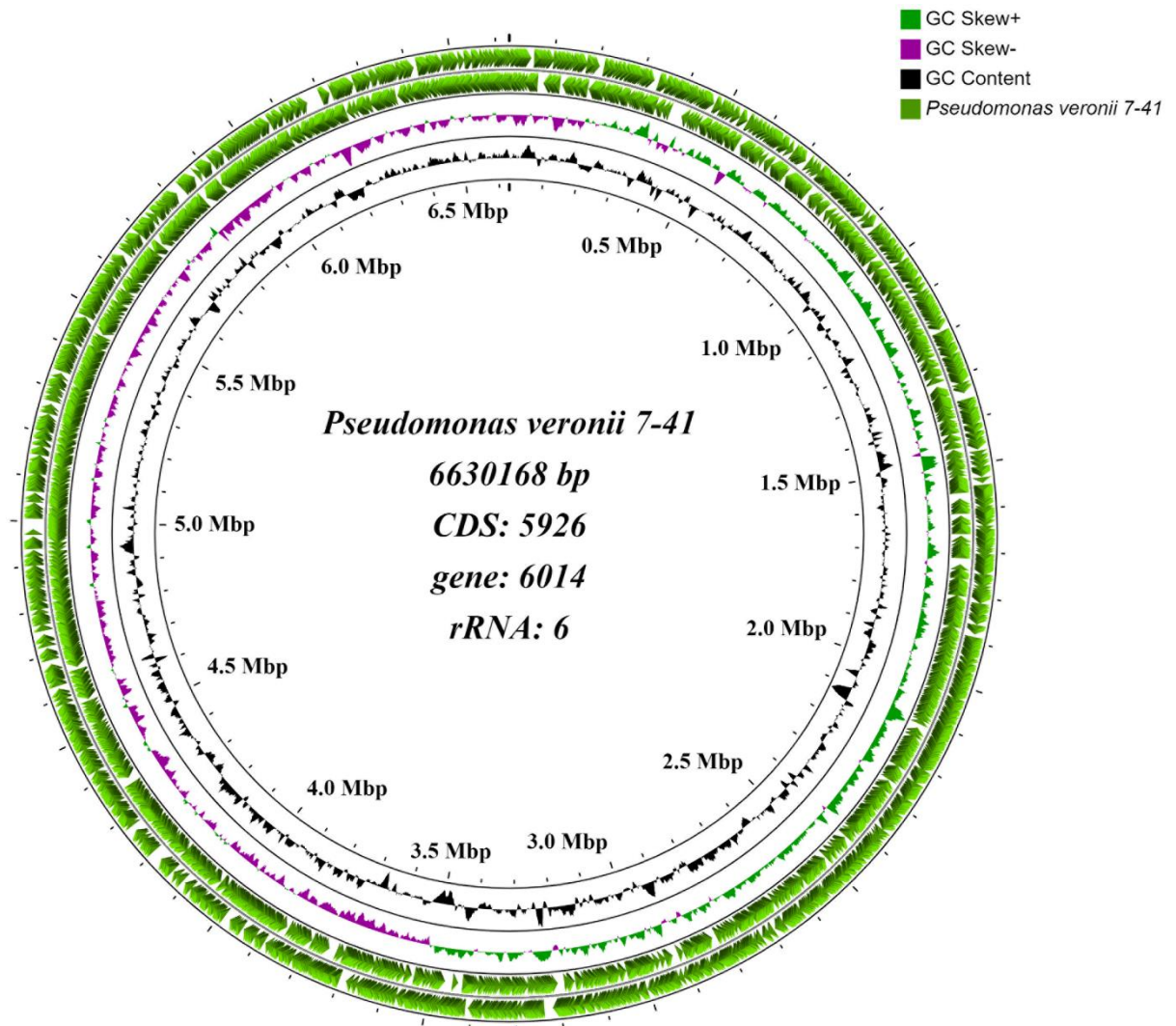


Fig. 1S. Circular map of the *Pseudomonas veronii* 7-41 chromosome. From outside to the center: all CDS and RNA genes on forward strand, all CDS and RNA genes on reverse strand, GC content, and GC skew.

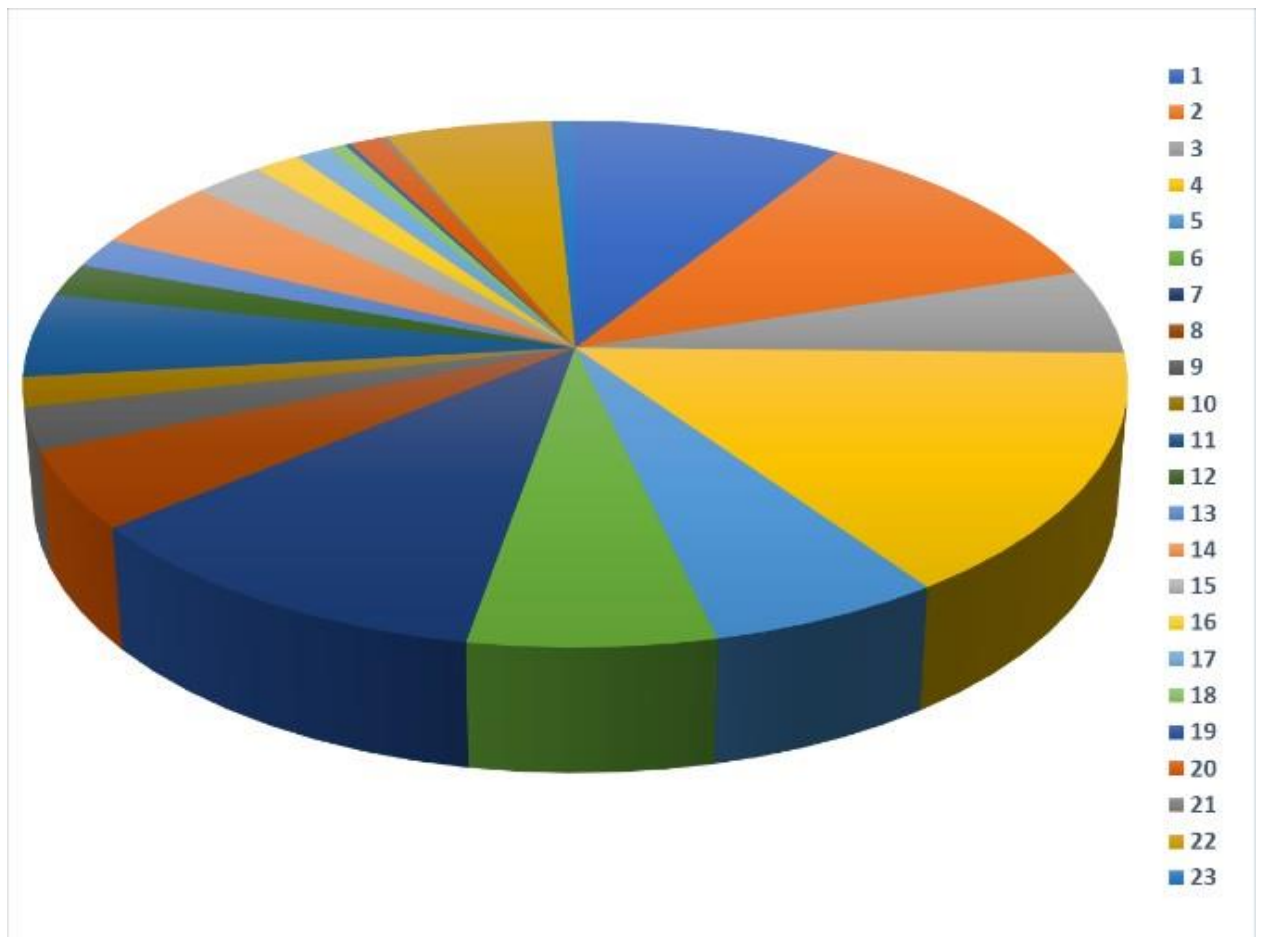


Fig. 2S. Genes associated with general COG functional categories (KEGG function classification): 1. Carbohydrate metabolism; 2. Protein families: signaling and cellular processes; 3. Genetic information processing; 4.Environmental information processing; 5.Unclassified: metabolism; 6.Amino acid metabolism; 7.Protein families: genetic information processing; 8.Metabolism of cofactors and vitamins; 9.Nucleotide metabolism; 10.Unclassified: genetic information processing; 11.Cellular processes; 12. Lipid metabolism; 13. Protein families: metabolism; 14. Energy metabolism; 15. Unclassified: signaling and cellular processes; 16. Glycan biosynthesis and metabolism; 17. Metabolism of other amino acids; 18.Metabolism of terpenoids and polyketides; 19.Organismal systems; 20. Biodegradation of xenobiotics; 21. Biosynthesis of other secondary metabolites; 22. Human diseases; 23. Unclassified.

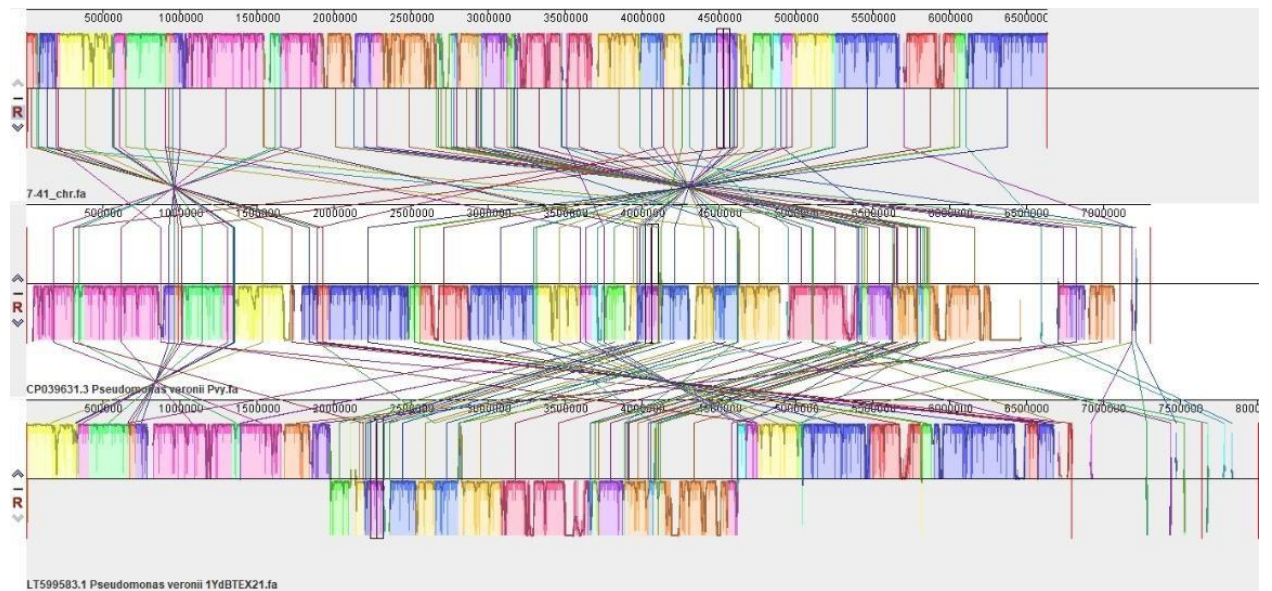


Fig.3S. Mauve visualization of locally collinear blocks identified between chromosomes of *Pseudomonas veronii* 7-41, *Pseudomonas veronii* Pvy and *Pseudomonas veronii* 1YdBTEX21. Vertical bars demarcate interchromosomal boundaries (the homology regions of the three chromosomes)

Table 1S. Similarity of predicted gene products from the *nah*- and *alk*- gene clusters of plasmid pCP7-41 (*P. veronii* 7-41) to selected homologs.

p7-41	Position (bp) ^a	GC%	Proposed function	No. of amino acids, pCP7-41/relative ^b	% Amino Acid identity	Source microorganism	GeneBank accession number ^c
naphthalene catabolic genes							
<i>nahD</i>	36911..37513c	46.6	2-hydroxychromene-2-carboxylate isomerase	200/203	78	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 4.1
				200/199	78	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_01111740 7.1
				200/200	100	<i>Pseudomonas veronii</i> VI4T1	OPK04001.1
						<i>Pseudomonas stutzeri</i>	AAD02141.1
<i>nahE</i>	37718..38722c	52	1, 2-dihydroxybenzylpyruvate aldolase	334/334	92	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 3.1
				334/331	89	<i>Pseudomonas putida</i> plasmid NAH7	OPK04000.1
				334/334	100	<i>Pseudomonas veronii</i> VI4T1	
						<i>Pseudomonas frederiksbergensis</i>	WP_23586497 9.1
<i>nahQ</i>	38768..39403c	48.3	Outer membrane beta-barrel protein	211/180	83	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_01272777 0.1
				211/211	80	<i>Pseudomonas putida</i> plasmid pDTG1	WP_22840939 0.1
				211/215	80	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 2.1
				211/210	77	<i>Pseudomonas veronii</i> VI4T1	OPK03999.1
				211/211	99	<i>Pseudomonas putida</i> plasmid pDTG1	WP_01111740 4.1
						<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_14112376 5.1
<i>nahC</i>	39476..40384c	50.5	1,2-dihydroxynaphthalene dioxygenase	302/302	92	<i>Pseudomonas veronii</i> VI4T1	OPK03998.1
				302/302	92	<i>Pseudomonas putida</i> plasmid pDTG1	OPK03997.1
				302/302	100	<i>Pseudomonas veronii</i> VI4T1	
<i>nahF</i>	40412..41863c	53.6	Salicylaldehyde dehydrogenase	483/483	100	<i>Pseudomonas veronii</i> VI4T1	

				483/483	91	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 0.1
				483/483	92	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_15567897 7.1
				483/483	93	<i>Pseudomonas</i> sp. MPDS	WP_17340725 9.1
<i>nahB</i>	41910..42689c	49.4	Naphthalene cis-dihydrodiol dehydrogenase	259/259	100	<i>Pseudomonas veronii</i> VI4T1	OPK03996.1
				259/259	93	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_14112376 4.1
				259/259	91	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147537 9.1
				259/275	91	<i>Pseudomonas putida</i>	AFM52767.1
<i>nahAd</i>	42759..43340c	50.2	Naphthalene 1,2-dioxygenase small subunit	193/193	100	<i>Pseudomonas veronii</i> VI4T1	OPK03995.1
				193/193	85	<i>Pseudomonas stutzeri</i>	WP_02030724 9.1
				193/193	83	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147537 8.1
				193/193	83	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_14112376 3.1
<i>nahAc</i>	43356..44705c	49.5	Naphthalene 1,2-dioxygenase large subunit	449/449	100	<i>Pseudomonas veronii</i> VI4T1	OPK03994.1
				449/449	94	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147537 7.1
				449/449	93	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_15567897 6.1
<i>nahAb</i>	44758..45084c	47.7	Naphthalene 1,2-dioxygenase ferredoxin	108/108	100	<i>Pseudomonas veronii</i> VI4T1	OPK03993.1
				108/107	89	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147537 6.1
				108/104	89	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00939990 1.1

<i>nahAa</i>	45212..46198c	54.2	Naphthalene 1,2-dioxygenase reductase	328/328	100	<i>Pseudomonas veronii</i> VI4T1	OPK03992.1
				328/328	84	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147537 5.1
				328/328	89	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_15567897 5.1
<i>nahR</i>	51275..52177c	56.6	LysR-type transcriptional regulator	300/300	100	<i>Pseudomonas veronii</i> VI4T1	OPK05586.1
				300/374	82	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 5.1
				300/300	95	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00329208 7.1
<i>nahG</i>	52326..53630	58.5	Salicylate 1-monooxygenase	434/434	100	<i>Pseudomonas veronii</i> VI4T1	OPK05587.1
				434/434	86	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 6.1
				434/437	86	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_04322146 7.1
<i>nahT</i>	54066..54386	53.6	Chloroplast ferredoxin-like protein	106/106	100	<i>Pseudomonas veronii</i> VI4T1	OPK05588.1
				106/108	78	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 7.1
				106/112	88	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00329209 1.1
<i>nahH</i>	54401..55324	52.5	Catechol 2,3-dioxygenase	307/307	100	<i>Pseudomonas veronii</i> VI4T1	OPK05589.1
				307/307	87	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 8.1
				307/307	89	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00939717 8.1
<i>nahI</i>	55359..56819	63.7	2-Hydroxymuconic semialdehyde dehydrogenase	486/486	100	<i>Pseudomonas veronii</i> VI4T1	OPK05590.1
				486/486	94	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147538 9.1
				486/486	91		WP_00939717 9.1

						<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	
<i>nahN</i>	56827..57696	65.3	2-hydroxymuconic semialdehyde hydrolase	289/293	99	<i>Pseudomonas veronii</i> VI4T1	OPK05599.1
				289/293	79	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147539 0.1
				289/287	83	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00939718 0.1
<i>nahL</i>	57706..58491	64.6	2-oxypent-4-enoate hydratase	261/261	99	<i>Pseudomonas veronii</i> VI4T1	OPK05591.1
				261/261	97	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147539 1.1
				261/261	87	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00939718 1.1
<i>nahO</i>	58512..59435	64.7	Acetaldehyde dehydrogenase	307/307	100	<i>Pseudomonas veronii</i> VI4T1	OPK05592.1
				307/307	97	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147539 2.1
				307/307	94	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00939718 2.1
<i>nahM</i>	59449..60489	63.1	4-hydroxy-2-oxovalerate aldolase	346/346	100	<i>Pseudomonas veronii</i> VI4T1	OPK05593.1
				346/346	96	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147539 3.1
				346/346	94	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00345028 3.1
<i>nahK</i>	60486..61280	62.6	4-oxalocrotonate decarboxylase	264/264	100	<i>Pseudomonas veronii</i> VI4T1	OPK05594.1
				264/264	97	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147539 4.1
				264/264	91	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00329210 1.1
<i>nahJ</i>	61335..61526	57.8	4-oxalocrotonate tautomerase	63/63	100	<i>Pseudomonas veronii</i> VI4T1	OPK05595.1
				63/63	85	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147539 5.1

				63/63	79	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00329210 2.1
<i>nahX</i>	61564..62004	62.6	heme-binding protein	146/146	100	<i>Pseudomonas veronii</i> VI4T1	OPK05596.1
				146/140	70	<i>Pseudomonas putida</i> plasmid NAH7	WP_01147539 6.1
				146/146	83	<i>Pseudomonas veronii</i> strain Pvy plasmid unnamed	WP_00329210 4.1
n-alkane catabolic genes							
<i>alkL</i>	67882..68574c	41	Outer membrane beta-barrel protein	230/230	100	<i>Pseudomonas veronii</i> VI4T1	OPK05683.1
				230/230	100	<i>Pseudomonas putida</i> P1	CAB69081.1
				230/230	80	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54056.1
<i>alkK</i>	68680..70320c	45.5	long-chain-fatty-acid-CoA ligase	546/546	100	<i>Pseudomonas veronii</i> VI4T1	OPK05682.1
				546/546	99	<i>Pseudomonas putida</i> P1	CAB69080.1
				546/546	80	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54055.1
<i>alkJ</i>	70405..72063c	43.7	Alcohol dehydrogenase	552/552	100	<i>Pseudomonas veronii</i> VI4T1	OPK05681.1
				552/552	100	<i>Pseudomonas putida</i> P1	CAB51051.1
				552/558	85	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54054.1
<i>alkH</i>	72102..73553c	44.1	Aldehyde dehydrogenase	483/483	100	<i>Pseudomonas veronii</i> VI4T1	OPK05680.1
				483/483	100	<i>Pseudomonas putida</i> P1	CAB51050.1
				483/483	80	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54053.1
<i>alkG</i>	73595..73786c	47.9	Rubredoxin-2	175/175	98	<i>Pseudomonas veronii</i> VI4T1	OPK05679.1
				175/175	98		CAB51049.1

				175/173	47	<i>Pseudomonas putida</i> P1	CAB54052.1
						<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	
<i>alkF</i>	74163..74567c	43.5	Rubredoxin-1	134/134	100	<i>Pseudomonas veronii</i> VI4T1	OPK05678.1
				134/134	100	<i>Pseudomonas putida</i> P1	CAB51048.1
				134/132	47	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54051.1
<i>alkB</i>	74850..76058c	48.2	Alkane 1-monooxygenase	402/402	100	<i>Pseudomonas veronii</i> VI4T1	OPK05677.1
				402/402	100	<i>Pseudomonas putida</i> P1	CAB51047.1
				402/401	92	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54050.1
<i>alkS</i>	79028..81502	45.5	alk gene regulator	824/883	99	<i>Pseudomonas veronii</i> VI4T1	OPK05675.1
				824/883	83	<i>Pseudomonas putida</i> P1	CAB69079.1
				824/882	99	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54064.1
<i>alkT</i>	81551..82708	47.8	Rubredoxin-NAD(+) reductase	385/385	100	<i>Pseudomonas veronii</i> VI4T1	OPK05674.1
				385/385	100	<i>Pseudomonas putida</i> P1	CAB69078.1
				385/385	92	<i>Pseudomonas putida</i> strain GPo1 (OCT plasmid)	CAB54063.1

^a Letters indicate coding strand: c, complementary strand; d, direct strand.

^b Number of amino acids in p7-41 CDS/number in the closest relative.

^c GenBank accession number of the closest relative protein.

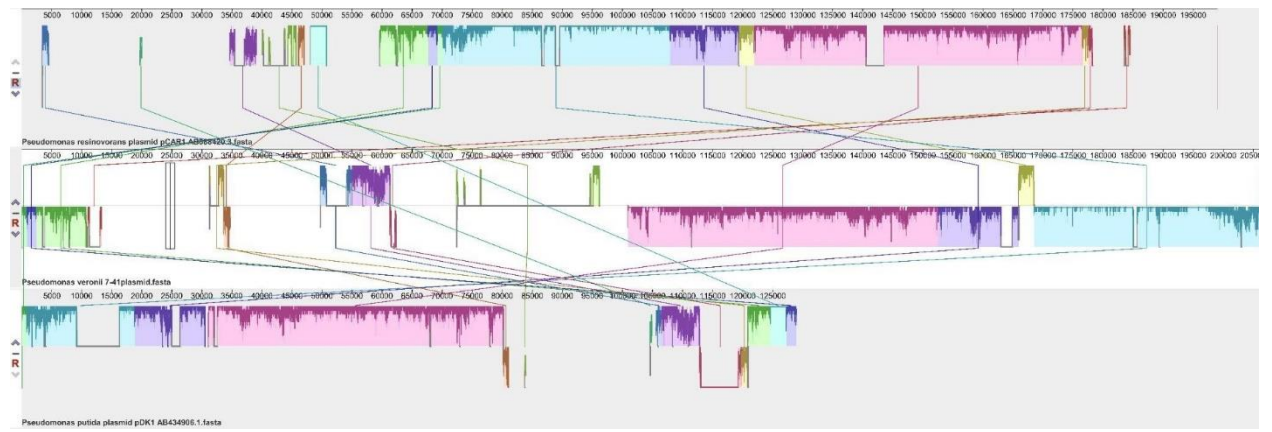


Fig.4S. Mauve visualization of locally collinear blocks identified between plasmids of *P. veronii* 7-41, *P. putida* HS1 and *P. resinovorans* strain CA10. Vertical bars indicate interplasmid boundaries.