

1 Supporting information for:

2 **A defective undecaprenyl pyrophosphate synthase induces growth and**
3 **morphological defects that are suppressed by mutations in the isoprenoid**
4 **pathway of *Escherichia coli***

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16 **Supplemental Table 1. *E. coli* strains**

Strain	Relevant features	Source or reference
C41-pWJM3	C41/pWJM3	This work
C41-pWJM4	C41/pWJM4	This work
CS109	<i>ispH269 uppS31 acnA522 intQ261 rpoS33 ygeN195 rph-1 zff::IS1 (IS-idi) zdc::IS2 zec::IS5 F-</i> (W1485 background)	(6), Lab collection
CS-pDEV	CS109/pDEV	(2)
CS-pDKR1	CS109/pDKR1	(2)
CS-pDSW204	CS109/pDSW204	This work
CS-pMAJ9	CS109/pMAJ9	(3)
CS-pUppS	CS109/pUppS	This work
MG1655	F- lambda- <i>ilvG rfb-50 rph-1 zec::IS5</i>	Lab collection
SKCS104	CS109 <i>ygfT Δintgen::ftr:kan:ftr uacT</i>	This work
SKCS106	CS109 No-IS1 <i>ΔuacT::kan</i>	This work
SKCS122	CS109 <i>uppS⁺ ΔbtuF::kan</i>	This work
SKCS156	SKCS156 <i>uppS⁺ ΔbtuF::ftr</i>	This work
SKCS156-pDEV	SKCS156/pDEV	This work
SKCS156-pDKR1	SKCS156/pDKR1	This work
SKCS183	CS109 <i>ispH⁺ ΔthrC::kan</i>	This work
SKCS195	CS109 <i>uppS⁺ ispH⁺</i>	This work
SKMG124	MG1655 <i>Δidi::kan</i>	This work
SKMG126	MG1655 <i>ygfT Δintgen::ftr:kan:ftr uacT zff::IS1 (IS-idi)</i>	This work
SKMG142	MG1655 <i>uppS31 ΔbtuF::kan</i>	This work
SKMG143	MG1655 <i>ispH269 ΔthrC::kan</i>	This work
SKMG173	MG1655 <i>uppS31 ΔbtuF::ftr</i>	This work
SKMG198	MG1655 <i>uppS31 ispH269</i>	This work
SKMG198-pBBR1MC-3	SKMG198/pBBR1MC-3	This work
SKMG198-pMEVB	SKMG198/pMEVB	This work
WJM8	CS109 <i>Δidi::kan</i>	This work
WJM11	SKMG173 <i>Δidi::kan</i>	This work
WJM12	SKMG198 <i>Δidi::kan</i>	This work
WJM16	SKCS156 <i>idi⁺</i>	This work
WJM17	SKCS156 <i>Δidi::kan</i>	This work
WJM19	SKCS183 <i>ispH⁺ ΔthrC::ftr</i>	This work
WJM21	SKMG143 <i>ispH269 ΔthrC::ftr</i>	This work
WJM25	WJM21 <i>Δidi::kan</i>	This work
WJM27	SKCS195 <i>idi⁺</i>	This work
WJM29	SKCS195 <i>IS-idi</i>	This work
WJM30	WJM21 <i>IS-idi</i>	This work
WJM31	WJM19 <i>idi⁺</i>	This work
WJM32	SKMG173 <i>IS-idi</i>	This work
WJM33	SKMG198 <i>IS-idi</i>	This work
WJM34	CS109 <i>idi⁺</i>	This work

18 **Supplemental Table 2. Plasmids**

Plasmid	Relevant features	Source or Reference
pBBR1MC-3	TetR	(5)
pCP20	FLP ⁺ λ ci857 ⁺ λ P _R Rep(Ts) AmpR CamR	(1)
pDEV	<i>lacI^q</i> P _{lac} , KanR	(7)
pDKR1	pDEV- <i>rprA::sfGFP</i>	(7)
pDSW204	pBR322 <i>lacI^q</i> P _{lac} , AmpR	(8)
pET24B	pBR322 P _{lac} , KanR	(Novagen)
pMAJ9	pDSW204- <i>uppS</i>	(3)
pMEVB	pBBR1MCS-3- <i>ERG12 ERG8</i> <i>MVD1</i>	(4)
pUppS31	pDSW204- <i>uppS31</i>	This work
pWJM3	pET24b- <i>uppS</i>	This work
pWJM4	pET24b- <i>uppS31</i>	This work

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20 **Supplemental Table 3. Primers**

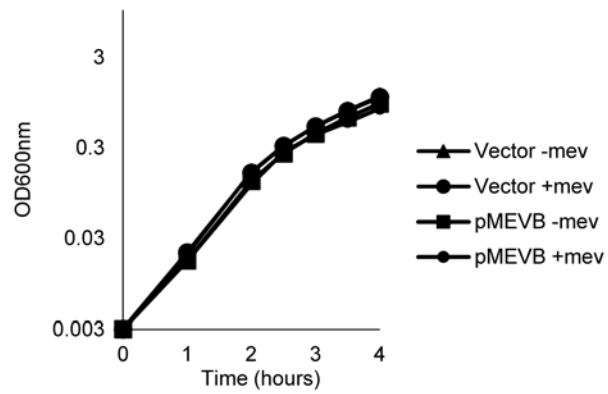
Primer	Sequence (5'-to-3')
idi check F	TTTTTACCTGTCGGCATCCG
idi check R	TTACGTTATGCTCACAACCCCG
Intergenic kan-idi H1P1	CTTTCATTATTTCAACATTGCCGATCAAAAGAGCGCTATCATTCCGGGGATCCGTCGACC
Intergenic kan-idi H2P2	TCTGGCATGTCGCACTCTCGCATTTAATCGTTTTTATCTGTGTAGGCTGGAGCTGCTTCG
Intergenic kan-idi-F	TTCGCGATGCAATAAACGGG
Intergenic kan-idi-R	GGAGTTAGAGACAGGAATTGCGGA
uppS chk F	CGCCATCTGATCGTAAGTAGTTGG
uppS chk R	GCGATGACGACGGGTATTAACA
<i>ispH</i> chk F	CGGGCAGACCGTTCATTTTGAT
<i>ispH</i> chk R	AAAATGCCGGTAACAAGACCGG
<i>thrC</i> H1P1	CCGGCTGGATACGGCGGGCGCACGAGTACTGGAAAATAAATCCGGGGATCCGTCGACC
<i>thrC</i> H2P2	TTGAGATAATGAATAGATTTTACTGATGATTCATCATCAATGTAGGCTGGAGCTGCTTCG
<i>thrC</i> chk F	TCATATTTGCCGGCTGGATACG
<i>thrC</i> chk R	TGCATAAAAGCAAACCCGGC
<i>btuF</i> H1P1	GATGGTTGAGTCACTGGTGAGAACTTGCACATGGCTAATGTAGGCTGGAGCTGCTTCG
<i>btuF</i> H2P2	ATTTTAGGAATTTGGTCCGGTCCGCCTGTAATGACAATCGATTCCGGGGATCCGTCGACC
<i>btuF</i> chk F	GCTAAACAGTCCAGCCTGATGGTT
<i>btuF</i> chk R	AGGCGCTAATCTACCTGTGAAAGC
P21	CAGGAATTCTGTCTGCTACTCAACCACTTAG
P22	CTGAAGCTTTCAGGCTGTTTCATCACCGGG
uppS5'pET24b	CAGCATATGTTGTCTGCTACTCAACCACTTAG
uppS3'RCpET24b	CTGCTCGAGGGCTGTTTCATCACCGGGCTC

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Supplemental References

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Supplemental Figure 1. Mevalonate does not alter growth at 42°C. SKMG198 with designated plasmids were grown overnight at 30°C and diluted to OD600nm 0.003 into LB at 42°C with (+) or without (-) 2.5 mM mevalonate. Vector = pBBR1MC-3; pMEVB = pMEVB.