



Supplementary Materials

Insight into Different Stages of Steroid Degradation in Thermophilic *Saccharopolyspora hirsuta* VKM Ac-666^T Strain

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Supplementary Table S1. Changes in the level of sterol catabolism genes in the *S. hirsuta* genome during transcriptomic profiling in response to cholesterol.

No.	Scaffold acc.	Locus tag	Protein acc.	Name/Function	fold Change	padj
Mce4 transport system						
1.	VWPH01000020.1	<i>F1721_32550</i>	KAA5825886.1	<i>mce4F</i>	0.82	1.00E+00
2.	VWPH01000020.1	<i>F1721_32555</i>	KAA5825887.1	<i>mce4E</i>	1.22	1.00E+00
3.	VWPH01000020.1	<i>F1721_32560</i>	KAA5825888.1	<i>mce4D</i>	0.97	1.00E+00
4.	VWPH01000020.1	<i>F1721_32565</i>	KAA5825937.1	<i>mce4C</i>	0.87	1.00E+00
5.	VWPH01000020.1	<i>F1721_32570</i>	KAA5825889.1	<i>mce4B</i>	1.00	1.00E+00
6.	VWPH01000020.1	<i>F1721_32575</i>	KAA5825890.1	<i>mce4A</i>	1.00	1.00E+00
7.	VWPH01000020.1	<i>F1721_32580</i>	KAA5825891.1	<i>yrbEb</i>	0.91	1.00E+00
8.	VWPH01000020.1	<i>F1721_32585</i>	KAA5825892.1	<i>yrbEa</i>	1.38	1.00E+00
Sterol side chain degradation						
9.	VWPH01000020.1	<i>F1721_32590</i>	KAA5825893.1	<i>fabG3</i>	1.56	1.00E+00
10.	VWPH01000020.1	<i>F1721_32595</i>	KAA5825894.1	aldehyde dehydrogenase	1.30	1.00E+00
11.	VWPH01000020.1	<i>F1721_32600</i>	KAA5825895.1	<i>hsd4A</i>	1.7	1.00E+00

12.	VWPH01000020.1	F1721_32605	KAA5825896.1	<i>fadE26</i>	0.92	1.00E+00
13.	VWPH01000020.1	F1721_32610	KAA5825897.1	<i>fadE27</i>	0.59	1.00E+00
14.	VWPH01000020.1	F1721_32615	KAA5825898.1	<i>fadD17</i>	1.08	1.00E+00
15.	VWPH01000020.1	F1721_32620	KAA5825899.1	alpha/beta hydrolase	0.89	1.00E+00
16.	VWPH01000020.1	F1721_32625	KAA5825900.1	MerR family transcriptional regulator	0.89	1.00E+00
17.	VWPH01000020.1	F1721_32630	KAA5825901.1	nitronate monooxygenase	1.27	1.00E+00
18.	VWPH01000020.1	F1721_32635	KAA5825902.1	<i>fadD19</i>	1.75	1.00E+00
19.	VWPH01000020.1	F1721_32640	KAA5825903.1	<i>echA19</i>	2.16	1.00E+00
20.	VWPH01000020.1	F1721_32645	KAA5825904.1	acyl-CoA synthetase	1.15	1.00E+00
21.	VWPH01000020.1	F1721_32650	KAA5825905.1	LLM class F420-dependent oxidoreductase	0.80	1.00E+00
22.	VWPH01000020.1	F1721_32655	KAA5825906.1	DNA-binding protein	1.93	7.88E-01
23.	VWPH01000020.1	F1721_32660	KAA5825907.1	<i>ltp4</i>	1.41	1.00E+00
24.	VWPH01000020.1	F1721_32665	KAA5825908.1	<i>ltp3</i>	1.38	1.00E+00
25.	VWPH01000020.1	F1721_32670	KAA5825909.1	F420-dependent LLM class oxidoreductase	1.18	1.00E+00
26.	VWPH01000020.1	F1721_32675	KAA5825910.1	<i>ksdI</i>	1.82	1.00E+00

27.	VWPH01000020.1	F1721_32680	KAA5825911.1	<i>cyp125</i>	4.35	1.22E-06
28.	VWPH01000020.1	F1721_32685	KAA5825912.1	<i>fadA5</i>	1.02	1.00E+00
29.	VWPH01000020.1	F1721_32690	KAA5825913.1	DUF4180 domain-containing protein	0.83	1.00E+00
Ring A/B oxidation						
30.	VWPH01000020.1	F1721_32695	KAA5825938.1	helix-turn-helix domain-containing protein	1.02	1.00E+00
31.	VWPH01000020.1	F1721_32700	KAA5825914.1	<i>hsaB</i>	0.98	1.00E+00
32.	VWPH01000020.1	F1721_32705	KAA5825915.1	<i>hsaC</i>	1.22	1.00E+00
33.	VWPH01000020.1	F1721_32710	KAA5825916.1	<i>hsaD</i>	1.15	1.00E+00
34.	VWPH01000020.1	F1721_32715	KAA5825917.1	<i>hsaA</i>	1.23	1.00E+00
35.	VWPH01000020.1	F1721_32720	KAA5825918.1	<i>hsaF</i>	1.07	1.00E+00
36.	VWPH01000020.1	F1721_32725	KAA5825919.1	<i>hsaG</i>	1.30	1.00E+00
37.	VWPH01000020.1	F1721_32730	KAA5825920.1	<i>hsaE</i>	0.85	1.00E+00
38.	VWPH01000020.1	F1721_32735	KAA5825921.1	<i>kstD4</i>	1.27	1.00E+00
39.	VWPH01000020.1	F1721_32740	KAA5825922.1	<i>kstD3</i>	1.35	1.00E+00
40.	VWPH01000020.1	F1721_32745	KAA5825923.1	<i>kshA</i>	1.62	1.00E+00

54.	VWPH01000024.1	F1721_33670	KAA5825025.1	<i>kstR</i>	1.57	5.72E-01
Ring C/D degradation						
55.	VWPH01000024.1	F1721_33675	KAA5825026.1	MBL fold metallo-hydrolase	0.99	1.00E+00
56.	VWPH01000024.1	F1721_33680	KAA5825027.1	SDR family oxidoreductase	1.08	1.00E+00
57.	VWPH01000024.1	F1721_33685	KAA5825028.1	<i>echA20</i>	0.96	1.00E+00
58.	VWPH01000024.1	F1721_33690	KAA5825029.1	<i>ipdA</i>	1.20	1.00E+00
59.	VWPH01000024.1	F1721_33695	KAA5825030.1	<i>ipdB</i>	1.42	1.00E+00
60.	VWPH01000024.1	F1721_33700	KAA5825038.1	<i>ipdC</i>	0.96	1.00E+00
61.	VWPH01000024.1	F1721_33705	KAA5825039.1	<i>kstR2</i>	1.09	1.00E+00
62.	VWPH01000024.1	F1721_33710	KAA5825031.1	<i>ipdF</i>	0.80	1.00E+00
63.	VWPH01000024.1	F1721_33715	KAA5825032.1	<i>fadE30</i>	0.97	1.00E+00
64.	VWPH01000024.1	F1721_33720	KAA5825033.1	<i>echA13</i> , enoyl-CoA hydratase	1.24	1.00E+00
65.	VWPH01000024.1	F1721_33725	KAA5825040.1	<i>fadE31</i>	0.99	1.00E+00
66.	VWPH01000024.1	F1721_33730	KAA5825034.1	<i>fadE32</i>	0.74	1.00E+00
67.	VWPH01000024.1	F1721_33735	KAA5825035.1	<i>fadE33</i>	0.91	1.00E+00

Cholate degradation pathway						
68.	VWPH01000001.1	F1721_00675	KAA5838019.1	<i>hsaE3</i>	0.82	1.00E+00
69.	VWPH01000001.1	F1721_00680	KAA5838020.1	<i>hsaG3</i>	0.95	1.00E+00
70.	VWPH01000001.1	F1721_00685	KAA5838021.1	<i>hsaF3</i>	0.85	1.00E+00
71.	VWPH01000001.1	F1721_00690	KAA5838022.1	<i>casA</i>	0.85	1.00E+00
72.	VWPH01000001.1	F1721_00695	KAA5838023.1	<i>hsaD3</i>	1.57	9.85E-01
73.	VWPH01000001.1	F1721_00700	KAA5838439.1	<i>kstR3</i>	0.90	1.00E+00
74.	VWPH01000001.1	F1721_00705	KAA5838024.1	SDR family NAD(P)-dependent oxidoreductase	1.4	1.00E+00
75.	VWPH01000001.1	F1721_00710	KAA5838025.1	<i>kstD2</i>	0.71	1.00E+00
76.	VWPH01000001.1	F1721_00715	KAA5838026.1	<i>kstD1</i>	0.74	1.00E+00
77.	VWPH01000001.1	F1721_00720	KAA5838027.1	SDR family oxidoreductase	0.83	1.00E+00
78.	VWPH01000001.1	F1721_00725	KAA5838028.1	<i>kshA</i>	0.60	1.00E+00
79.	VWPH01000001.1	F1721_00730	KAA5838029.1	hypothetical protein	0.66	1.00E+00
80.	VWPH01000001.1	F1721_00735	KAA5838030.1	<i>kshB</i>	0.58	1.00E+00
81.	VWPH01000001.1	F1721_00740	KAA5838031.1	<i>ksdI</i>	1.17	1.00E+00

82.	VWPH01000001.1	F1721_00745	KAA5838032.1	<i>hsaB3</i>	0.74	1.00E+00
83.	VWPH01000001.1	F1721_00750	KAA5838440.1	SDR family oxidoreductase	0.94	1.00E+00
84.	VWPH01000001.1	F1721_00755	KAA5838033.1	<i>hsaA3</i>	0.91	1.00E+00
85.	VWPH01000001.1	F1721_00760	KAA5838034.1	<i>hsaC3</i>	0.82	1.00E+00
86.	VWPH01000015.1	F1721_28740	KAA5828429.1	class I SAM-dependent methyltransferase	1.03	1.00E+00
87.	VWPH01000015.1	F1721_28745	KAA5828430.1	<i>casA</i>	0.91	1.00E+00
88.	VWPH01000015.1	F1721_28750	KAA5828431.1	<i>casC/chsE3</i>	1.28	1.00E+00
89.	VWPH01000015.1	F1721_28755	KAA5828432.1	<i>casE</i>	1.10	1.00E+00
90.	VWPH01000015.1	F1721_28760	KAA5828433.1	<i>3α-hsd</i>	1.15	1.00E+00
91.	VWPH01000015.1	F1721_28765	KAA5828434.1	<i>casH</i>	1.32	1.00E+00
92.	VWPH01000015.1	F1721_28770	KAA5828435.1	<i>casI</i>	2.24	1.00E+00
93.	VWPH01000001.1	F1721_02365	KAA5838304.1	<i>casE</i>	0.75	1.00E+00
94.	VWPH01000001.1	F1721_02405	KAA5838310.1	<i>casG</i>	0.76	1.00E+00
HIP-CoA synthetase						
95.	VWPH01000019.1	F1721_32060	KAA5826116.1	<i>fadD3</i>	0.76	1.00E+00

Thiolase						
96.	VWPH01000031.1	F1721_34155	KAA5824600.1	<i>fadA6</i>	0.94	1.00E+00
Cholesterol oxidases						
97.	VWPH01000006.1	F1721_14655	KAA5833518.1	<i>choD</i>	0.73	1.00E+00
98.	VWPH01000004.1	F1721_09795	KAA5835081.1	<i>choE</i>	0.89	1.00E+00
Transcriptional regulator						
99.	VWPH01000015.1	F1721_28735	KAA5828487.1	<i>kstR3</i>	0.98	1.00E+00