

# SUPPLEMENT MATERIAL

Table S1. Susceptibility antibiotics using MIC test for 27 isolates of *C. acnes*.

Samples identification	TX	VAN	PEN	RIF	LZD	DAP	CLI	MTZ	CIP	AC
4.3	<0.016	0.125	0.04	<0.002	0.03	0.047	1	>256	0.5	<0.016
6.1	<0.016	0.38	<0.016	0.008	0.18	0.19	0.047	>256	1	<0.016
6.3	-	-	-	-	-	-	-	-	-	-
7.1	<0.016	0.5	<0.016	<0.002	0.5	0.19	<0.016	>256	0.5	<0.016
8.2	0.023	0.5	<0.016	<0.002	0.5	0.23	0.032	>256	1	<0.016
8.3	0.032	0.25	<0.016	0.006	0.12	0.19	<0.016	>256	1.5	<0.016
17.2	<0.016	0.19	<0.016	<0.002	0.09	0.125	<0.016	>256	1	<0.016
17.3	<0.016	0.75	<0.016	<0.002	0.09	0.19	<0.016	>256	1	<0.016
18.2	<0.016	0.94	<0.016	0.25	0.12	0.38	<0.016	>256	0.5	<0.016
22.3	<0.016	0.25	<0.016	>32	0.12	0.5	<0.016	>256	0.75	<0.016
26.2	<0.016	0.25	<0.016	<0.002	0.12	0.125	<0.016	>256	1	<0.016
29.1	<0.016	0.5	<0.016	0.006	0.09	0.19	<0.016	>256	0.5	<0.016
29.2	<0.016	0.25	<0.016	<0.002	0.12	0.19	<0.016	>256	0.75	<0.016
29.3	<0.016	0.19	<0.016	<0.002	0.375	0.19	0.032	>256	0.5	<0.016
30.3	<0.016	0.125	<0.016	<0.002	0.06	0.064	0.25	>256	>32	<0.016
33.2	<0.016	0.19	0.003	<0.002	0.25	0.094	1	>256	0.5	<0.016
34.2	0.23	0.38	<0.016	0.008	0.12	0.19	<0.016	>256	0.75	0.064
34.3	0.094	0.5	0.23	<0.002	0.25	0.19	0.094	>256	1	0.094
37.1	<0.016	0.25	<0.016	0.008	0.18	0.19	0.5	>256	0.75	<0.016
42.1	0.094	1	<0.016	0.003	0.5	0.25	0.47	>256	0.5	<0.016
42.2	0.125	0.5	0.64	0.008	0.25	0.25	0.47	>256	0.75	<0.016
48.3	<0.016	0.38	<0.016	<0.002	0.03	0.25	<0.016	>256	0.5	<0.016
49.2	0.125	0.38	0.023	0.008	0.25	0.25	0.064	>256	1.5	0.032
55.1	0.064	0.50	<0.016	0.008	0.5	0.19	0.094	>256	0.5	<0.016
57.1	<0.016	0.25	0.003	0.004	0.5	0.19	<0.016	>256	0.25	<0.016
64.1	<0.016	0.64	<0.016	<0.002	0.03	0.064	<0.016	>256	1.5	<0.016
74.1	<0.016	0.125	<0.016	<0.002	0.03	0.19	0.019	>256	1	<0.016
76.1	-	-	-	-	-	-	-	-	-	-
81.2	<0.016	0.047	<0.016	<0.002	0.03	0.19	<0.016	>256	0.5	<0.016
83.3	-	-	-	-	-	-	-	-	-	-
BRCAST										
S	-	≤2	≤0.25	-	-	-	≤4	≤4	-	≤4 <sup>4</sup>
I	-	-	0.5	-	-	-	-	-	-	8

R	-	>2	>0.5	-	-	-	>4	>4	-	>8 <sup>4</sup>
<b>CLSI</b>										
S	≤16	-	≤0.5	-	-	-	≤2	≤8	-	≤4/2
I	32	-	1	-	-	-	4	16	-	8/4
R	≥64	-	≥2	-	-	-	>8	>32	-	≥16/8

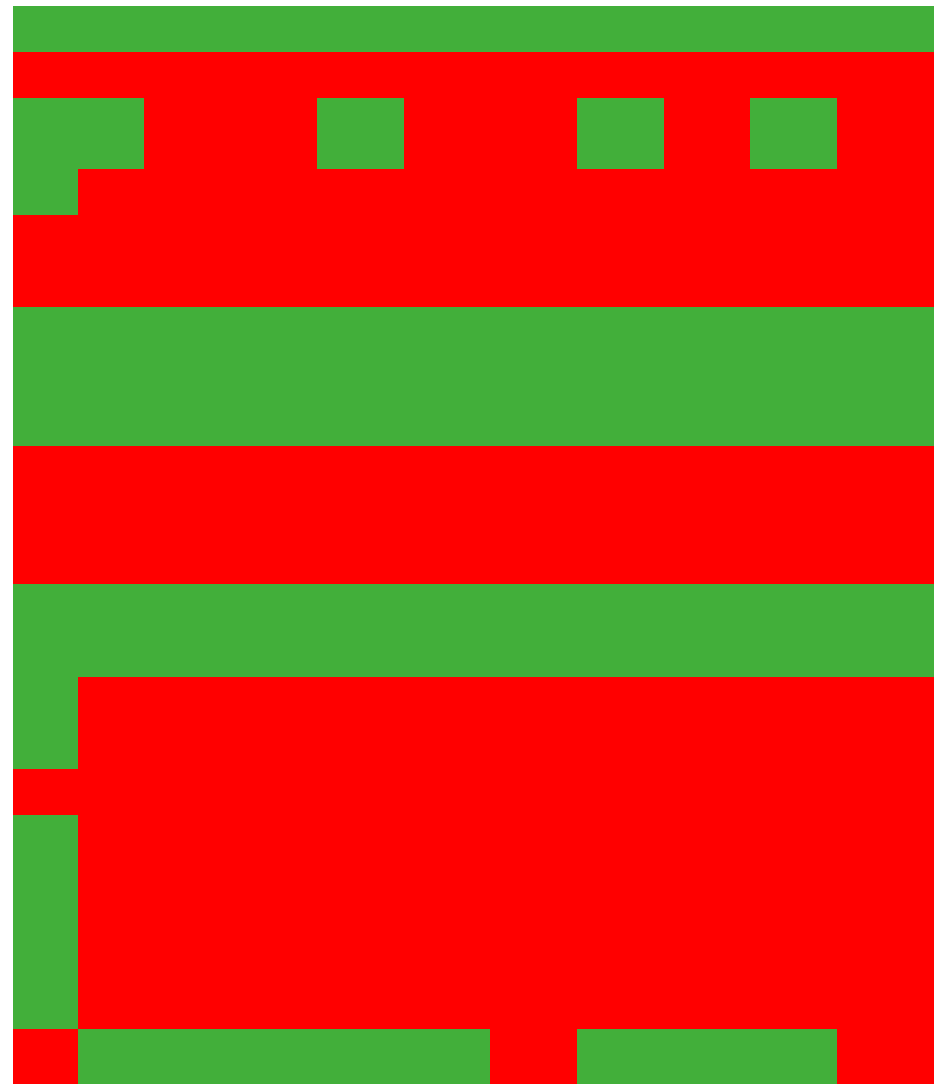
MIC= minimal inhibitory concentration, TX = Ceftriaxone, VAN = Vancomycin, PEN = Penicillin, RIF = Rifampicin, LZD = Linezolid, DAP = Daptomycin, CLI = Clindamycin, MTZ = Metronidazole, CIP = Ciprofloxacin, AC = Clavulanic acid/Amoxicillin.

Table S2. List of core and accessory genes with its specific role found in the *C. acnes* genomes.

[illegible]

<b>inhA, fabI</b>	Enoyl-[acyl-carrier-protein] reductase [NADH] (EC 1.3.1.9)	Antibiotic target in susceptible species
<b>rpoB</b>	DNA-directed RNA polymerase beta subunit (EC 2.7.7.6)	Antibiotic target in susceptible species
<b>Alr</b>	Alanine racemase (EC 5.1.1.1)	Antibiotic target in susceptible species
<b>folP</b>	Dihydropteroate synthase (EC 2.5.1.15)	Antibiotic target in susceptible species
<b>rho</b>	Transcription termination factor Rho	Antibiotic target in susceptible species
<b>EF-Tu</b>	Translation elongation factor Tu	Antibiotic target in susceptible species
<b>S10p</b>	SSU ribosomal protein S10p (S20e)	Antibiotic target in susceptible species
<b>rpsL</b>	SSU ribosomal protein S12p (S23e)	Aminoglycoside resistance gene
<b>recA</b>	Adenosine-5'-Diphosphate Monothiophosphate;2'- Deoxyadenosine 5'-Triphosphate	Drug target
<b>gidB</b>	16S rRNA (guanine(527)-N(7))- methyltransferase (EC 2.1.1.170)	Gene conferring resistance via absence
<b>GdpD</b>	Glycerophosphoryl diester phosphodiesterase (EC 3.1.4.46)	Protein altering cell wall charge conferring antibiotic resistance
<b>PgsA</b>	CDP-diacylglycerol--glycerol-3- phosphate 3- phosphatidyltransferase (EC 2.7.8.5)	Protein altering cell wall charge conferring antibiotic resistance
<b>TadB</b>	Flp pilus	Flp pilus assembly protein
<b>ATPase CpaF</b>	Flp pilus	Flp pilus assembly protein
<b>CAMP</b>	cAMP-binding proteins	cAMP-binding proteins
<b>LuxS</b>	Autoinducer-2 production protein	Virulence factor

<b>deoR</b>	Health-associated strains.	Virulence factor
<b>ytpA</b>	Lysophospholipase	Virulence factor
<b>clpS</b>	ATP-dependent Clp protease adaptor protein ClpS	Targets specific proteins for destruction in prokaryotes and eukaryotes
<b>dppB</b>	ABC transporter	Bacterial growth
<b>gntK</b>	Shikimate kinase	Precursor of aromatic amino acids and secondary metabolites
<b>HtaA</b>	Iron acquisition protein	Putative virulence factor genes
<b>DnaK</b>	Heat shock proteins	Putative virulence factor genes
<b>DnaJ</b>	Heat shock proteins	Putative virulence factor genes
<b>GroEL</b>	Heat shock proteins	Putative virulence factor genes
<b>hyl</b>	Hyaluronate lyase	Putative virulence factor genes
<b>DsAs</b>	Dermatan-sulfate adhesins	Putative virulence factor genes
<b>PNAG</b>	poly- $\beta$ (1-6)- <i>N</i> -acetylglucosamine	Biofilm formation
<b>EF-Tu</b>	Elongation factor	Biofilm formation
<b>EF-G</b>	Elongation factor	Biofilm formation
<b>rcsB</b>		Biofilm formation
<b>acsA</b>		Biofilm formation
<b>YfmO</b>	Efflux protein	Resistance to MLSB antibiotics
<b>cse3</b>	CRISPR-associated endoribonuclease Cse4	CRISPR-Cas systems
<b>casC</b>	CRISPR system Cascade subunit CasC	CRISPR-Cas systems
<b>cas3</b>	CRISPR-associated nuclease/helicase Cas3	CRISPR-Cas systems
<b>fucA</b>	L-fucose phosphate aldolase	Pathogenesis



Gene	Protein	Function	Phylogenetic Group
<b>MprA</b>	Response regulator MprA	contributes to maintaining a balance among several systems involved in stress resistance and is required for establishment and maintenance of persistent infection in the host	Proteobacteria
<b>LiaR</b>	Transcriptional regulatory protein LiaR	cell envelope stress response	Proteobacteria
<b>luxS_2</b>	S-ribosylhomocysteine lyase	methionine metabolism and quorum sensing	Proteobacteria
<b>mprA_1</b>	Response regulator MprA	maintenance of persistent infection	Proteobacteria
<b>qacA</b>	Antiseptic resistance protein	Resistance	Proteobacteria

Note: Green color refers to the identification of the gene, while red refers to the absence of the gene.

