



*Supplementary Materials*

# **Skin Bacteria Mediate Glycerol Fermentation to Produce Electricity and Resist to UV-B**

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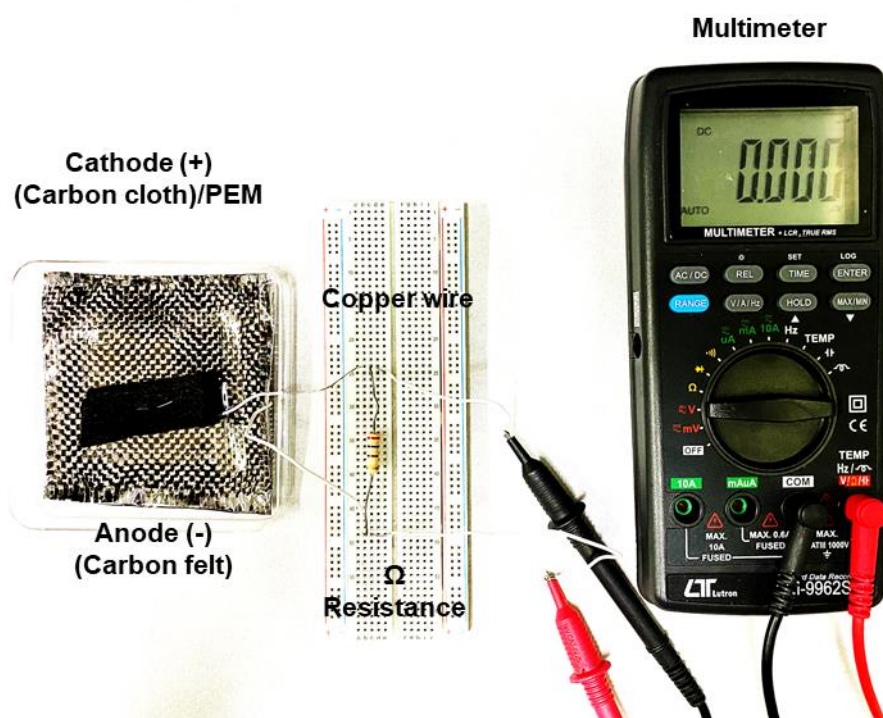
Supplementary Table S1. 16S rRNA gene sequences of bacteria in fecal samples

Colony Name	Nucleotide Sequence	Species	% Identity
F1	GGGCGTGGCGCTGCTATACTGCAGTCGAACGCTTCTTCTCCCGAGTGC TTGCACTCAATTGAAAAGAGGAGTGGCGGACGGGTGAGTAACACGTGGG TAACCTACCCATCAGAGGGGGATAACAATTGGAAACAGGTGCTAATACC GCATAACAGTTTATGCCGCATGGCATAAGAGTGAAAGGCGCTTTCGGGTG TCGCTGATGGATGGACCCGCGGTGCATTAGCTAGTTGGTGAGGTAACGGC TCACCAAGGCCACAATGCATAACCGACCTGAGAGGGTGATCGGCCACAC TGGGACTGAGACACGGCCAGACTCCTACGGGAGGCAGCAGTAGGGAAT CTTCGGCAATGGACGAAAGTCTGACCGAGCAACGCCGCGTGAGTGAAGA AGGTTTTCGGATCGTAAAACCTCTGTTGTTAGAGAAGAACAAGGACGTTAG TAACTGAACGTCCCCTGACGGTATCTAACCAGAAAGCCACGGCTAAACTA CGTGCCAGCACCCGCGGGTAATAA	<i>E. faecalis</i>	98.82
F2	GTGCATGCGGGTGTATACATGCAGTCGAACGCTTCTTCTCCCGAGTGC TTGCACTCAATTGAAAAGAGGAGTGGCGGACGGGTGAGTAACACGTGGG TAACCTACCCATCAGAGGGGGATAACAATTGGAAACAGGTGCTAATACC GCATAACAGTTTATGCCGCATGGCATAAGAGTGAAAGGCGCTTTCGGGTG TCGCTGATGGATGGACCCGCGGTGCATTAGCTAGTTGGTGAGGTAACGGC TCACCAAGGCCACGATGCATAGCCGACCTGAGAGGGTGATCGGCCACAC TGGGACTGAGACACGGCCAGACTCCTACGGGAGGCAGCAGTAGGGAAT CTTCGGCAATGGACGAAAGTCTGACCGAGCAACGCCGCGTGAGTGAAGA AGGTTTTCGGATCGTAAAACCTCTGTTGTTAGAGAAGAACAAGGACGTTAG TAACTGAACGTCCCCTGACGGTATCTAACCAGAAAGCCACGGCTAACTAC GTGCCAGCAGCGGGCGGGTTATTA	<i>E. faecalis</i>	100.00
F3	GTGCAGTGC GCGGCTATACTGCAGTCGAACGCTTCTTCTCCCGAGTGC TGCTCTCTATTGAAAAGAGGAGTGGTGGATGGGTGAGTAACACGTGGGTA ACCTACCCATCAGAGGGGGATAACAATTGGAAACAGGTGCTAATACCGC ATAACAGTTTATGCCGCATGGCATAAAAAGTGAAAGGCGCTTTCGGGTGTC GCTGATGGATGGACCCGCGGTGCATTAGCTATTTGGTGAGGTAACGGCTC ACCAAGGCCACAATGCATAACCGACCTGATAGGGTGATCGGCCACGCTG GGACTGAAACACGGCCAGACTCCTACAGGAGGCAGCAGTAGGGAATCT TCGGATGTGGACGAAAGTCTGACCGAGCAACGCCGCGTGAGTGAAGAAG GTTTTCGGATCGTAAAACCTCTGTTGTTAGAGAAGAACAATGACGTTTGTAA CTGAACGTCCCCTGACGGTATCTAACCTCAAAGCCACGGCCAACACTACGTG CCAGCAGCCCCGTAATAAC	<i>E. faecalis</i>	95.34

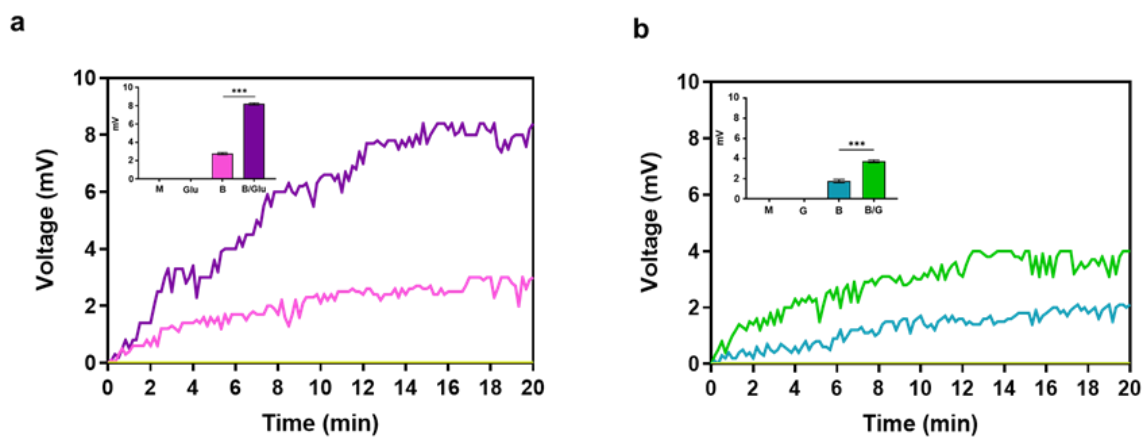
<b>F4</b>	<p>GTGGCGTGC GGCTGCTATA CATGCAAGTCGAACGCTTTTTCTTTCACCGGA  GCTTGCTCCACCGAAAGAAAAGGAGTGGCGAACGGGTGAGTAACACGTG  GGTAACCTGCCCATCAGAAGGGGATAACACTTGAAACAGGTGCTAATA  CCGTATAACAATCGAAACCGCATGGTTTTCGGTTTGAAAGGCGCTTTTGCCT  CACTGATGGATGGACCCGCGGTGCATTAGCTAGTTGGTGAGGTAACGGCT  CACCAAGGCAACGATGCATAGCCGACCTGAGAGGGTGATCGGCCACATT  GGGACTGAGACACGGCCCAAACCTCCTACGGGAGGCAGCAGTAGGGAATC  TTCGGCAATGGACGCAAGTCTGACCGAGCAACGCCGCGTGAGTGAAGAA  GGTTTTCGGATCGTAAAACCTCTGTTGTTAGAGAAGAACAAGGATGAGAGT  AAAATGTTTCATCCCTTGACGGTATCTAACCAGAAAGCCACGGCTAACTAC  GTGCCAGCAGGGGCGGGTAATAAA</p>	<i>E. faecium</i>	<b>99.41</b>
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Colony Name	Nucleotide Sequence	Species	% Identity
S1	GGGGAATGGCGGGTGCTATACATGCAGTCGAGCGAACAGACG AGGAGCTTGCTCCTCTGACGTTAGCGGCGGACGGGTGAGTAAC ACGTGGATAACCTACCTATAAGACTGGGATAACTTCGGGAAAC CGGAGCTAATACCGGATAATATATTGAACCGCATGGTTCAATA GTGAAAGACGGTTTTGCTGTCACTTATAGATGGATCCGCGCCG CATTAGCTAGTTGGTAAGGTAACGGCTTACCAAGGCAACGATG CGTAGCCGACCTGAGAGGGTGATCGGCCACACTGGAAGTGAAG ACACGGTCCAGACTCCTACGGGAGGCAGCAGTAGGGAATCTTC CGCAATGGGCGAAAGCCTGACGGAGCAACGCCGCGTGAGTGA TGAAGGTCTTCGGATCGTAAAACCTCTGTTATTAGGGAAGAACA AATGTGTAAGTAACTATGCACGTCTTGACGGTACCTAATCAGA AAGCCACGGCTAACTACGTGCCAGCAGCCGCGGTA	<i>S. epidermidis</i>	100.00
S2	CGGCCTGCGCTGCTATACATGCAAGTCGAGCGAACAGACGAG GAGCTTGCTCCTCTGACGTTAGCGGCGGACGGGTGAGTAACAC GTGGATAACCTACCTATAAGACTGGGATAACTTCGGGAAACCG GAGCTAATACCGGATAATATATTGAACCGCATGGTTCAATAGT GAAAGACGGTTTTGCTGTCACTTATAGATGGATCCGCGCCGCA TTAGCTAGTTGGTAAGGTAACGGCTTACCAAGGCAACGATGCG TAGCCGACCTGAGAGGGTGATCGGCCACACTGGAAGTGAAGAC ACGGTCCAGACTCCTACGGGAGGCAGCAGTAGGGAATCTTCCG CAATGGGCGAAAGCCTGACGGAGCAACGCCGCGTGAGTGATG AAGGTCTTCGGATCGTAAAACCTCTGTTATTAGGGAAGAACAAA TGTGTAAGTAACTATGCACGTCTTGACGGTACCTAATCAGAAA GCCACGGCTAACTACGTGCCAGCAGCGGCGGTA	<i>S. epidermidis</i>	99.60
S3	CTGCAGTGCGGGTGCTATACATGCAGTCGAGCGAACAGACGA GAAGCTTGCTCCTTCGACGTTAGCGGCGGACGGGTGAGTAACA CGTGGGTAACCTACCTATAAGACTGGGATAACTTCGGGAAACC GGGGCTAATACCGGATAATATTTGAAACCGCATGGTTTCGATAT TGAAAGATGGCTTTGCTATCACTTATAGATGGACCTGCCCCGTA TTAACTAGTTGGTAAGGTAACGGCTTACCAAGGCAACCATAACC TAACCCAACTGAAAGGGTGATCGGCCACACTGGAAGTGAAGAC ACGGTCCAGACTCCTACGGGAGGCAGCAGTAGGGAATCTTCCG CAATGGGCGAAAGCCTGACGGAAACAACGCCGCGTGAGTGATG AAGGTCTTCGGATCGTAAAACCTCTGTTATTAAGGAAGAACAAA CGTGTAAGTAACTGTGCACGTCTTGACGGTACCTAATCAGAAA GCCACGGCTAACTACGTGCCAACAGCCCCGGTAA	<i>S. hominis</i>	95.34

S4	CCCTGTCGCTGTCGCGCAGACGCTCGATCTCCGTAACCAGCGT CTCTTTCTCTTTCAGCAGCGCGCCAGCTTCTCGGCGTCGCCTG ACTCCAGCAGCCGCGGTAATTTGCGGTTTCAGGGCGTCCAGCTG ATCGCTCATACTGTTAATCTCGGCTTTTTCTTGCTCTTTCATGGC GAAAACCTCGTTGTGGAAAACAGGCAAAGGATACACGAAAAGC GGCACAGATTCGCGCGCGTCGATGGAGCGGGGCGCCTGAATCT CAGGCGCCGGGACGTTTGAACGCCTGTTTCAGGCTGATGCGCG AGATGAGTTCAGTCAGAGAGAGCACCATGGTCGAGCGCACCA TCTGCAGATAGCGCTGTTGCTGCATGGCACGCAGCTCGGCGTC ATCGGGATGAAAGTCCGGTTTTCGGCAGCCACGCAACCACACA GTGCAGCTCGCCGAACGGGCCGAGTATCTCATCGTCAGTAAAA CGGTAATCGCCCTGATCGTGATTCAGCTCTTCGCGCAGCGCCA ACAGCAGCTCGCAATCTTCATACTCATGGCGGTTGATAACGCC CAGACCGTAGATAAGCTTGAGGCGCACCGGCAGCTCGCCGAG CGGACCATCGCCCAGCAGCCGGCGGTAAT	<i>P. vagans</i>	78.52
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**Figure S1.** A photographic image of a lab-fabricated *in vitro* chamber for the detection of bacterial electricity. The components for fabrication of an *in vitro* chamber included an anode (carbon felt), a cathode (carbon cloth) which was wrapped with PEM. The carbon cloth/PEM was placed on a 10 diameter petri dish. Bacteria in media containing 2% glucose or glycerol were added on the surface of anode for electricity detection. Copper wire was used to connect anode and cathode to a 1,000  $\Omega$  resistor. The voltage change was read by a multimeter.



**Figure S2.** Electricity generation by *E. faecalis* and *S. hominis* in the presence of glucose or glycerol, respectively. (a) Media (M) or media containing glucose (Glu), *E. faecalis* (B), *E. faecalis* plus 2% glucose (B/Glu). (b) Media (M) or media containing glycerol (G), *S. hominis* (B), *S. hominis* plus 2% glycerol (B/G). Voltage changes (mV) in 20 min were measured. The inset panel represented the peak voltage of each group. Data are the mean  $\pm$  SD, in triplicate of three separate experiments. ns = non-significant. \*\*\* $P < 0.001$  (two-tailed t-tests).