

## Supporting Information

### Adaptations of *Escherichia coli* K 12 to Synchrotron Sourced THz

#### Radiation

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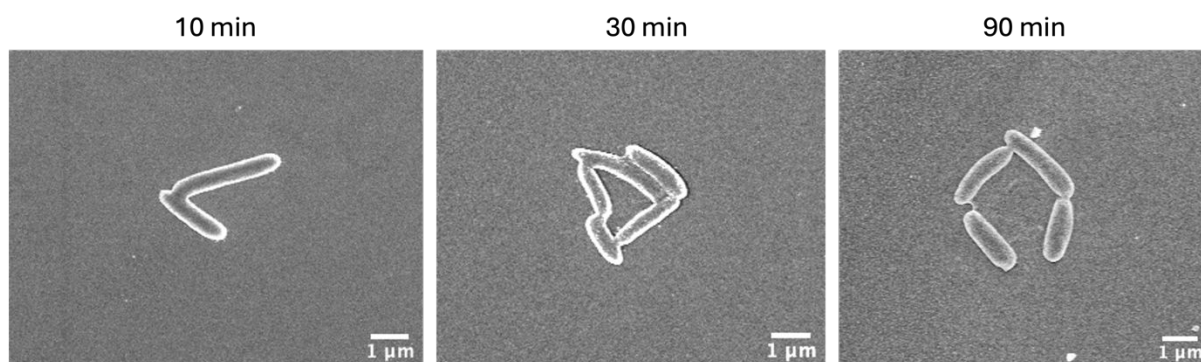
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**Table S1.** Proteins significantly expressed by *E. coli* cells exposed to SS THz radiation for 10, 30 and 90 minutes.

Time	IDs	Gene IDs	Molecular function	Biological process
10 min	P75694	yahO	No information	response to radiation
30 min	P76226	ynjF	phosphotransferase activity, for other substituted phosphate groups	phospholipid biosynthetic process
	P0A998	ftnA	ferric iron binding; ferrous iron binding; ferroxidase activity; identical protein binding; iron ion sequestering activity	cellular response to iron ion; DNA damage response; intracellular iron ion homeostasis; intracellular sequestering of iron ion; iron ion transport; response to oxidative stress
	P37047	cdaR	DNA-binding transcription factor activity	positive regulation of DNA-templated transcription
	P69776	lpp	identical protein binding; lipid binding; peptidoglycan binding	lipid modification; periplasmic space organization
	P69741	hybO	3 iron, 4 sulfur cluster binding; 4 iron, 4 sulfur cluster binding; electron transfer activity; ferredoxin hydrogenase activity; hydrogenase (acceptor) activity; iron-sulfur cluster binding; metal ion binding	anaerobic respiration
	P33916	yejF	ATP binding; ATP hydrolysis activity; ATPase-coupled transmembrane transporter activity; transmembrane transporter activity	microcin transport; oligopeptide transmembrane transport; peptide transport
	P06989	hisI	No information	amino acid biosynthetic process; histidine biosynthetic process
	P64545	yfgG	No information	stress response to metal ion; stress response to nickel ion
	P00903	pabA	4-amino-4-deoxychorismate synthase activity; protein heterodimerization activity	folic acid biosynthetic process; glutamine metabolic process; para-aminobenzoic acid biosynthetic process; tetrahydrofolate biosynthetic process; tryptophan biosynthetic process
	P26648	ftsP	copper ion binding; oxidoreductase activity	cell division; FtsZ-dependent cytokinesis; response to ionizing radiation; response to oxidative stress; response to stress
	P00805	ansB	asparaginase activity; identical protein binding	asparagine catabolic process; protein homotetramerization
	P0ABF8	pgsA	CDP-diacylglycerol-glycerol-3-phosphate 3-phosphatidyltransferase activity	glycerophospholipid biosynthetic process; phosphatidylglycerol biosynthetic process
	P0A6M2	dsbB	electron transfer activity; oxidoreductase activity, acting on a sulfur group of donors, quinone or similar compound as acceptor; protein-disulfide reductase activity; ubiquinone binding	protein folding; response to heat
	P23894	hypX	metalloendopeptidase activity; zinc ion binding	proteolysis; response to temperature stimulus
P41407	azoR	azobenzene reductase activity; electron transfer activity; FMN binding; n oxidoreductase activity, acting on NAD(P)H, NAD(P) as	response to oxidative stress	

			acceptor; oxidoreductase activity, acting on NAD(P)H, quinone or similar compound as acceptor; protein homodimerization activity	
	P38683	torT	DNA-binding transcription factor activity; transcription cis-regulatory region binding	anaerobic respiration; regulation of DNA-templated transcription
90 min	P0A8C1	cbpM	enzyme inhibitor activity	No information
	P0AFH8	cutA	copper ion binding; metal ion binding	response to copper ion
	P0AFF4	nupG	cytidine transmembrane transporter activity; nucleoside:proton symporter activity; pyrimidine nucleoside transmembrane transporter activity; uridine transmembrane transporter activity	adenosine transport; nucleoside transmembrane transport; organic substance transport; purine nucleoside transmembrane transport; pyrimidine nucleoside transport; uridine transmembrane transport
	P69488	osmY	No information	chaperone-mediated protein folding; hyperosmotic response; response to osmotic stress
	P63264	ybjQ	No information	No information



**Figure S1.** Morphology of *E. coli* cells that were not exposed to SS THz radiation. The scale bar in the SEM image represents 1  $\mu\text{m}$ .