

**Table S4**

<b>Pathway Map</b>	<b>Phylogeny</b>	<b>Running Time (hr)</b>	<b>Acceptance Percentage</b>
Glycolysis / Gluconeogenesis (MAP00010)	((pfs,pfo),pfl)	$6.33 \pm 0.55$	$14.11 \pm 0.04$
	(pst,(psb,psp))	$4.96 \pm 0.18$	$33.28 \pm 1.25$
	17 <i>Pseudomonas</i> strains	$44.41 \pm 8.16$	$1.02 \pm 0.06$
Pentose phosphate pathway (MAP00030)	((pfs,pfo),pfl)	$12.37 \pm 0.69$	$5.36 \pm 0.04$
	(pst,(psb,psp))	$10.16 \pm 0.31$	$19.74 \pm 0.34$
	17 <i>Pseudomonas</i> strains	$90.02 \pm 8.25$	$1.01 \pm 0.04$
Lysine degradation (MAP00310)	((pfs,pfo),pfl)	$6.45 \pm 0.99$	$27.26 \pm 0.21$
	(pst,(psb,psp))	$6.19 \pm 0.88$	$23.65 \pm 0.21$
	17 <i>Pseudomonas</i> strains	$38.47 \pm 7.87$	$2.10 \pm 0.72$
Histidine metabolism (MAP00340)	((pfs,pfo),pfl)	$5.52 \pm 0.52$	$22.23 \pm 0.31$
	(pst,(psb,psp))	$5.65 \pm 0.36$	$22.91 \pm 0.30$
	17 <i>Pseudomonas</i> strains	$29.54 \pm 7.21$	$1.08 \pm 0.09$
Phenylalanine metabolism (MAP00360)	((pfs,pfo),pfl)	$9.39 \pm 0.84$	$15.47 \pm 0.21$
	(pst,(psb,psp))	$9.20 \pm 0.85$	$14.16 \pm 0.09$
	17 <i>Pseudomonas</i> strains	$52.49 \pm 5.04$	$1.59 \pm 0.07$
Pyruvate metabolism (MAP00620)	((pfs,pfo),pfl)	$23.76 \pm 1.92$	$8.66 \pm 0.06$
	(pst,(psb,psp))	$24.20 \pm 2.05$	$15.13 \pm 0.24$
	17 <i>Pseudomonas</i> strains	$98.01 \pm 9.10$	$1.29 \pm 0.03$