

Supplemental Table S2. Characterization of the absolute relative reaction and metabolite turnover flux range change upon the change to LPM from LB.

Change	Number of Reactions	Percent of Reactions	Number of Metabolites	Percent of metabolites
≤ 1	1240	78%	1130	81%
> 1	347	22%	267	19%

Supplemental Table S3. Pathway enrichment analysis of reactions with exclusive flux ranges when changing from LB to LPM.

KEGG ID	Pathway Name	<i>p</i> -value
1100	metabolic pathways	1.4E-8
620	pyruvate metabolism	0.00013
10	glycolysis / gluconeogenesis	0.00054
680	methane metabolism	0.0035
473	D-alanine metabolism	0.0038
790	folate biosynthesis	0.015
471	D-glutamine and D-glutamate metabolism	0.015
910	nitrogen metabolism	0.033

Supplemental Table S4. Pathway enrichment analysis of metabolites with exclusive turnover flux ranges when changing from LB to LPM.

KEGG ID	Pathway Name	<i>p</i> -value
01100	metabolic pathways	9.5E-14
00061	fatty acid biosynthesis	8.4E-11
00550	peptidoglycan biosynthesis	4.1E-7
00790	folate biosynthesis	3.8E-5
00680	methane metabolism	4.2E-5
01120	microbial metabolism in diverse environments	0.0011
00270	cysteine and methionine metabolism	0.0016
00010	glycolysis / gluconeogenesis	0.018
00910	nitrogen metabolism	0.033

Supplemental Table S5. Metabolites with putative modulatory influence on macrophage activation that were detected intracellularly in *Salmonella* in this study.

Detected Metabolite	Role	Evidence	GC-MS Ratio (LPM 4h Mean : LB Mean)	Relative Flux Range Change (LB to LPM 4h)
Glucose	Immunoactivating	Exp ^{1,2} Sim ³	6.96	-0.52
L-Histidine	Immunoactivating	Sim ³	7.99	-7.38
L-Lysine	Immunoactivating	Sim ³	6.65	-1.00
L-Valine	Immunoactivating	Exp ⁴ Sim ³	9.79	†
L-Isoleucine	Immunoactivating	Exp ⁴ Sim ³	3.01	-0.30
L-Serine	Immunoactivating	Sim ³	3.68	†
Glycine	Immunoactivating	Sim ³	2.19	-4.40
L-Leucine	Immunoactivating	Exp ⁴ Sim ³	2.35	†
Pyruvate	Neutral	Sim ³	0.71	†
L-cysteine*	Weakly Immunosuppressive	Exp ⁵ , Sim ³	5.78	0.09
Oleic acid	Immunosuppressive	Sim ³	0.45	0.02
L-tyrosine	Immunosuppressive	Sim ³	2.32	-4.52
Myristic acid	Immunosuppressive	Sim ³	0.69	0.04
L-Methionine	Immunosuppressive	Sim ³	2.79	-1.06
Stearic acid	Immunosuppressive	Sim ³	1.44	0.02
Phosphate	Immunosuppressive	Sim ³	0.99	†
L-Threonine	Immunosuppressive	Sim ³ **	2.03	†

* Previous evaluations with the macrophage were performed with L-cystine. Simulation suggested a weak suppression of M2 activation and NADH production but enhancement of NO and ATP production.

** Threonine appeared to support an immunosuppressive phenotype but results were not conclusive. See the discussion by Bordbar et al. for details.

† Not calculated (implicated by model loops)

References

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