

<u>Protein</u>	<u>Mutual Information</u>	<u>Protein Function</u>
FlgB	0.82	Flagellar biosynthesis, cell-proximal portion of basal-body rod
FlgK	0.80	Flagellar biosynthesis, hook-filament junction protein 1
FlgL	0.78	Flagellar biosynthesis; hook-filament junction protein
FliF	0.75	Flagellar biosynthesis; basal-body MS(membrane and supramembrane)-ring and collar protein
FlgE	0.75	Flagellar biosynthesis, hook protein
FliN	0.75	Flagellar biosynthesis, component of motor switch and energizing, enabling rotation and determining its direction
FlgF	0.75	Flagellar biosynthesis, cell-proximal portion of basal-body rod
FliG	0.75	Flagellar biosynthesis, component of motor switching and energizing, enabling rotation and determining its direction
FlgG	0.75	Flagellar biosynthesis, cell-distal portion of basal-body rod
FlgC	0.75	Flagellar biosynthesis, cell-proximal portion of basal-body rod
MotA	0.69	Proton conductor component of motor; no effect on switching
FliQ	0.69	Flagellar biosynthesis
FliS	0.68	Flagellar biosynthesis; repressor of class 3a and 3b operons (RflA activity)
FliR	0.68	Flagellar biosynthesis
FliC	0.67	Flagellar biosynthesis; flagellin, filament structural protein
Rnk	0.67	Regulator of nucleoside diphosphate kinase
FliM	0.64	Flagellar biosynthesis, component of motor switch and energizing, enabling rotation and determining its direction
YedA	0.63	Putative transmembrane subunit
FliD	0.62	Flagellar biosynthesis; filament capping protein; enables filament assembly
CsrA	0.60	Carbon storage regulator; controls glycogen synthesis, gluconeogenesis, cell size and surface properties

Supplementary Table 1 Proteins predicted to function with the E. coli K12 flagellar biosynthesis protein FlgD. The results are shown from a comparison between the phylogenetic profile of FlgD with the phylogenetic profiles of all other proteins in E. coli. All proteins in E. coli were ordered by decreasing mutual information values; the 20 highest scoring proteins are shown, nearly all of which are found to belong to the same pathway, that of flagellar biosynthesis.