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Author Contributions R.W.B. and M.G.S. conceived and designed the study. R.W.B., A.L., A.L.-G., A.F. and S.P.N. prepared genetic constructs in *E. coli*. R.W.B., A.L., A.L.-G., S.P.N. and A.F. conducted *in vitro* ultrasound experiments. A.L.-G. and R.W.B. performed *in vivo* ultrasound experiments. A.L., A.F. and A.L.-G. conducted metabolic burden experiments in Nissle 1917 cells. R.W.B. and S.R.K. prepared genetic constructs in *S. typhimurium*. R.W.B. and A.L. obtained TEM images. R.W.B., A.L.-G. and M.G.S. analysed ultrasound data. R.W.B. and M.G.S. wrote the manuscript with input from all authors. M.G.S. supervised the research.

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