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The cell division gene ftsZ2 of Sinorhizobium meliloti is expressed at high levels in host plant Medicago truncatula nodules in the absence of sinI

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Abstract: In this study, we investigated the role of quorum sensing (QS) in expression of the Sinorhizobium meliloti cell division gene ftsZ2 in free-living cells and within nodules of its host plant, Medicago truncatula. Using a ftsZ2 promoter reporter fusion, we were able to track the expression of this gene in wild-type S. meliloti cells and QS mutant backgrounds in planta. Our findings revealed that expression of ftsZ2 in free-living cells was changed or reduced in sinI mutant cells compared with wild-type cells while expression in planta was substantially higher in the absence of sinI. The results further clarify the involvement of quorum sensing in the control of bacterial cell division during the symbiosis in planta.