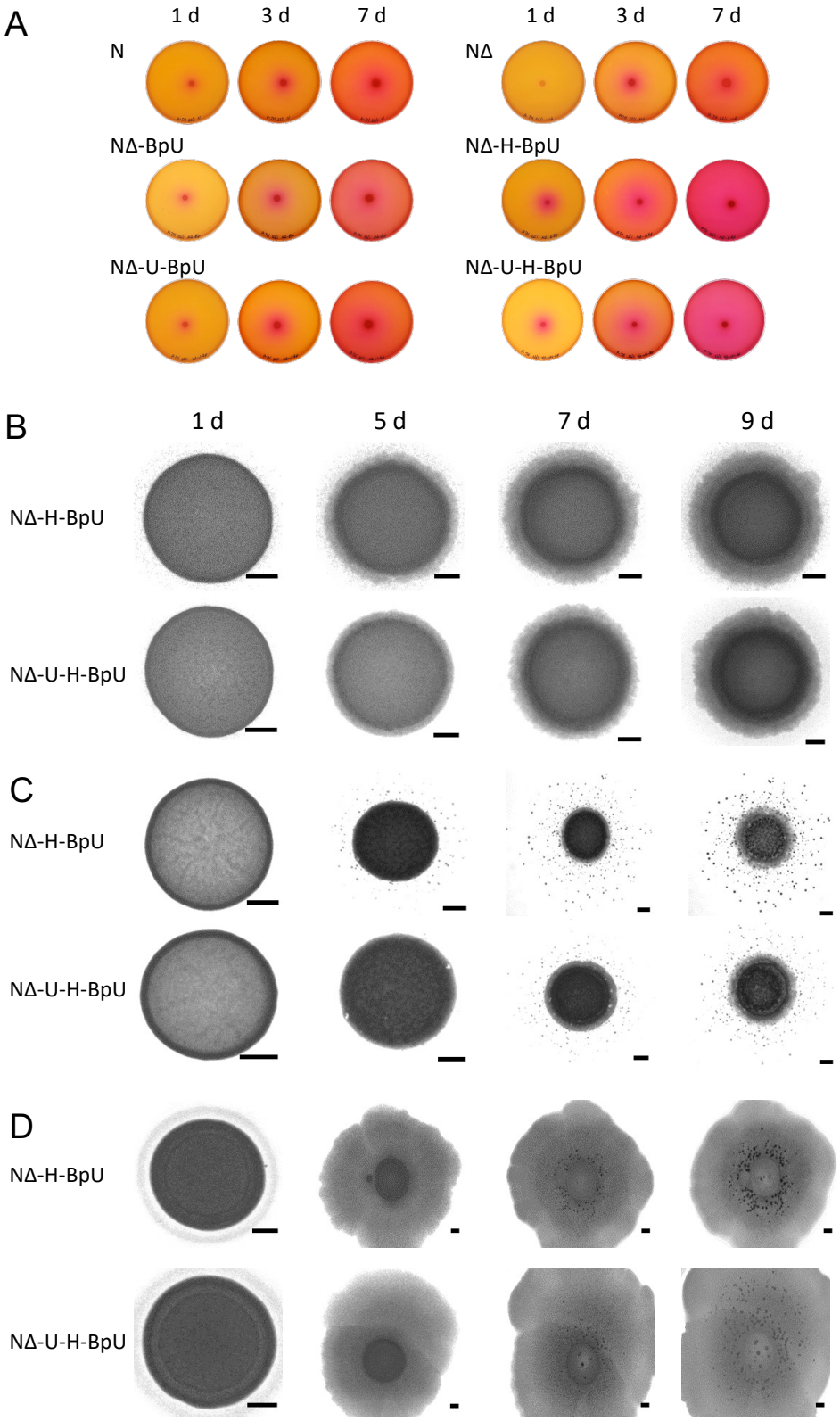

Additional file 3. Engineered urease and biomineralization activity in *B. subtilis* NCIB3610. (A) urease activity assay on LBC medium containing urea, xylose and phenol red. Cells were spotted onto the centre of the plate and photographed over seven days of incubation at 30°C as indicated above. Urease activity was observed as pink colouration of the agar. **(B-D)** Biomineralisation assays on LBC medium (B), B4 medium (C) or LBGMC biofilm-promoting medium (D), all supplemented with urea and xylose. Cells were spotted onto the centre of the agar, incubated at 30°C for up to 9 days and imaged with a stereomicroscope at the time points indicated above in panel B. The image area shown varies between days to allow visualisation of mineral crystals outside the colony area in panel C or to accommodate the increased area of growth in panel D. Scale bars represent 1 mm in size. Representative results of two independent repeats are shown. In all panels, the strain nomenclature is as follows: wild-type *B. subtilis* NCIB3610 (N); its isogentic *ureABC* deletion strain (NΔ); derived strains containing expression constructs for *B. paralicheniformis ureABCEFGD* (BpU), *ureH* (H), UT (U) or combinations thereof.