Applied Microbiology and Biotechnology

# Production of multiple bacteriocins, including the novel bacteriocin gassericin M, by *Lactobacillus gasseri* LM19, a strain isolated from human milk

Supplementary Information

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**Table S1** Relative gene expression levels of different bacteriocin genes from *L. gasseri* LM19 grown in MRS supplemented with different carbon sources.

| | | No supplemental carbon source | Glucose | Lactose | Galactose | Inulin | Starch | Pectin |
|---|---|---|---|---|---|---|---|---|
| *Helveticin J-like* | 24 h | 2.21 | 0.81 | 0.37 | 0.94 | 2.10 | 6.09 | 3.20 |
| | | 2.98 | 0.94 | 0.89 | 0.87 | 2.13 | 8.23 | 2.33 |
| | | 3.14 | 1.24 | 1.79 | 1.42 | 2.34 | 4.58 | 3.46 |
| | 48 h | 1.53 | 1.11 | 2.12 | 0.92 | 3.16 | 2.61 | 4.68 |
| | | 2.01 | 1.20 | 1.91 | 0.53 | 1.80 | 2.33 | 1.70 |
| | | 1.78 | 0.67 | 2.51 | 1.07 | 0.79 | 2.45 | 3.55 |
| *gamA* | 24 h | 3.18 | 0.75 | 1.01 | 1.64 | 0.11 | 1.37 | 0.21 |
| | | ND | 0.57 | 1.06 | 2.26 | 0.08 | 0.71 | 0.38 |
| | | 1.55 | 1.67 | 0.54 | 1.16 | 0.09 | 1.54 | 0.32 |
| | 48 h | 0.87 | 1.03 | 0.63 | 1.05 | 0.31 | 0.13 | 0.39 |
| | | 1.11 | 1.15 | 0.45 | 1.49 | 0.65 | 0.78 | 0.47 |
| | | 0.47 | 0.81 | 0.59 | 0.88 | 0.39 | ND | 0.45 |
| *gamX* | 24 h | ND | 0.80 | 0.44 | 0.43 | 0.21 | 0.70 | 0.39 |
| | | 3.62 | 0.78 | 0.90 | 2.11 | 0.18 | 0.62 | 0.34 |
| | | 1.86 | 1.40 | 0.52 | 1.34 | 0.13 | 2.21 | 0.33 |
| | 48 h | 1.12 | 1.04 | 0.78 | 1.13 | 0.83 | 1.26 | 0.52 |
| | | 1.05 | 1.33 | 0.58 | 0.93 | 1.15 | 0.80 | 0.45 |
| | | 1.13 | 0.62 | 0.70 | 0.42 | 0.81 | ND | 0.51 |
| *bact_1* | 24 h | 0.00 | 0.40 | 1.09 | 1.80 | 0.58 | 0.01 | 0.20 |
| | | 0.00 | 0.97 | 0.81 | 1.69 | 0.80 | 0.03 | 0.29 |
| | | 0.95 | 1.62 | 0.99 | 0.99 | 0.93 | 0.07 | 0.82 |
| | 48 h | 0.03 | 1.09 | 1.15 | 1.97 | 0.82 | 0.00 | 0.80 |
| | | 0.02 | 0.75 | 1.47 | 2.04 | 0.80 | 0.00 | 0.82 |
| | | 0.02 | 1.15 | 1.09 | 1.01 | 0.98 | 0.00 | 0.69 |
| *bact_2* | 24 h | 0.01 | 0.57 | 0.71 | 0.65 | 0.42 | 0.06 | 0.13 |
| | | ND | 0.38 | 0.68 | 1.24 | 0.31 | 0.01 | 0.20 |
| | | 0.29 | 2.04 | 1.34 | 1.20 | 0.69 | 0.04 | 0.68 |
| | 48 h | 0.04 | 1.00 | 1.43 | 2.15 | 0.55 | ND | 0.94 |
| | | 0.03 | 0.80 | 2.12 | 1.31 | 0.63 | 0.01 | 1.00 |
| | | 0.03 | 1.19 | 1.78 | 0.77 | 0.59 | 0.00 | 0.05 |

Values are relative to the expression of each gene in glucose supplemented cultures after 24h incubation; ND, not detected

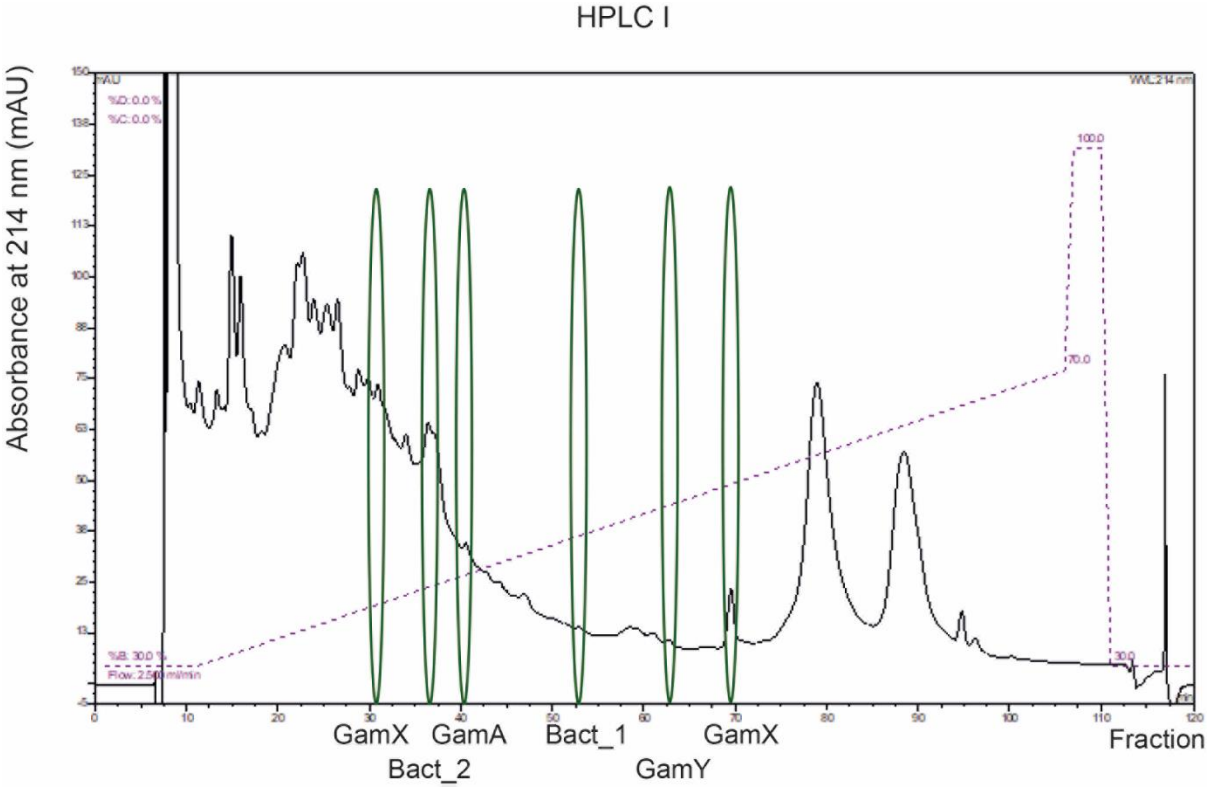


**Fig S1** HPLC chromatogram showing fractionation I of *L. gasseri* LM19 cell extracts; MALDI TOF MS chromatograms of these fractions are shown in Figure S3. These fractions were purified further (see Fig. S2).

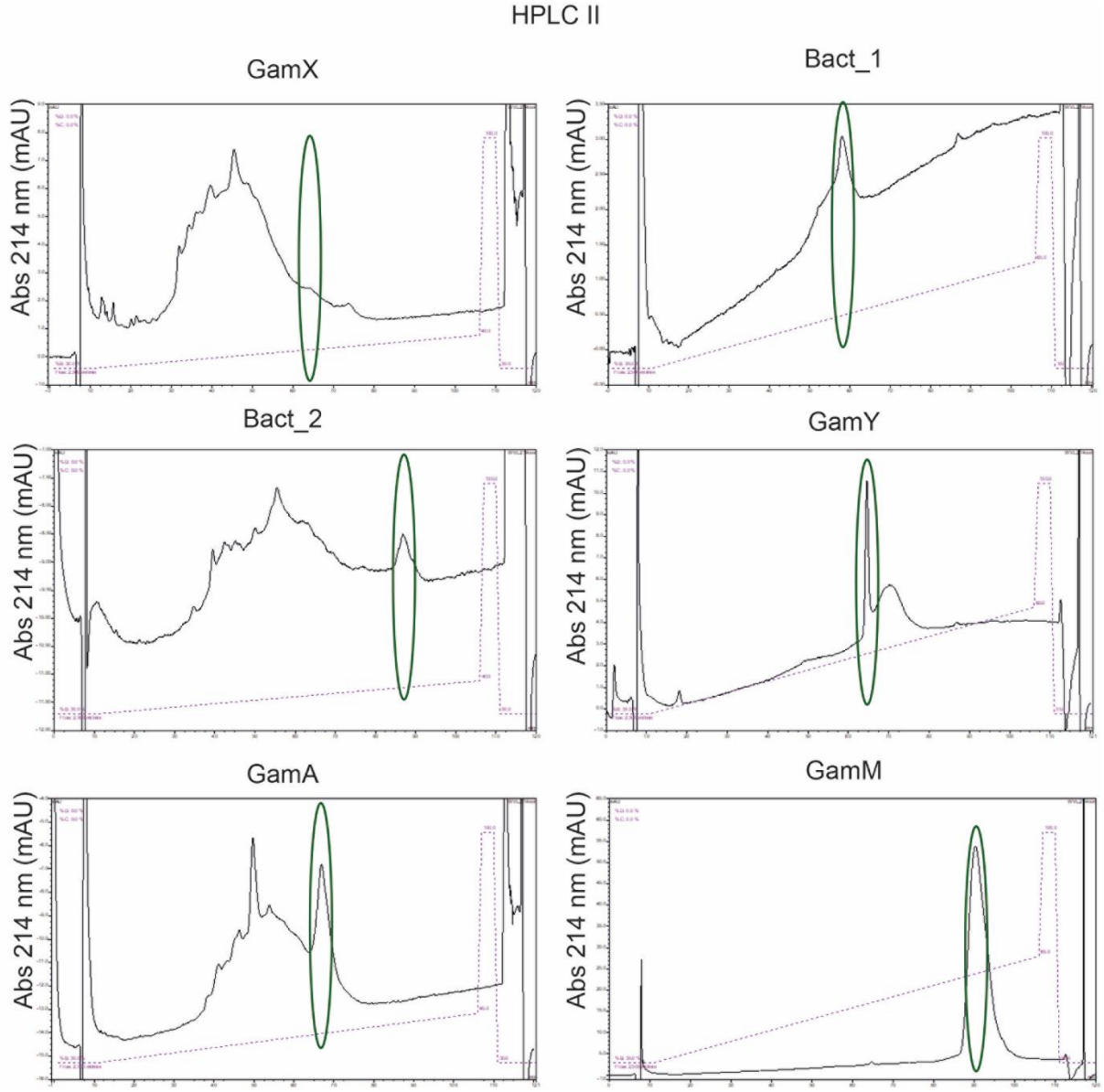


**Fig S2** HPLC chromatograms from HPLC fractionation II of *L. gasseri* LM19 cell extracts fractions; absorbance peaks associated with putative bacteriocins (see titles) are encircled; MS chromatograms of these fractions are shown in Figure S3.

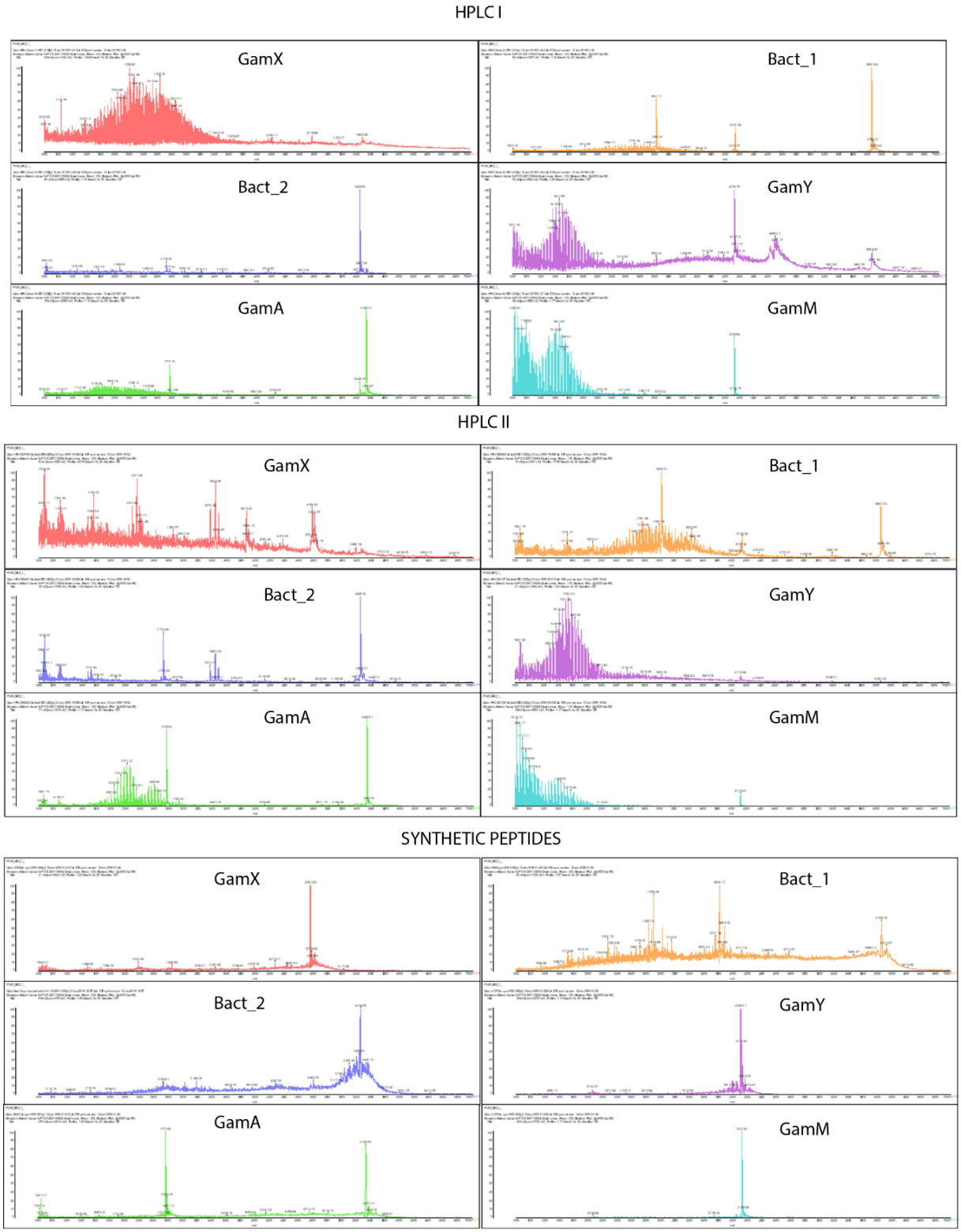


**Fig S3** MALDI TOF MS chromatograms of cell extract fractions showing antimicrobial activity from HPLC fractionation I  HPLC fractionation II, and synthetic peptides.