

## Supplementary Information:

### **Biological functions of *Lactocaseibacillus rhamnosus* JB-1 membrane vesicles: lipoteichoic acid, immune activity, and gut epithelial endocytosis**

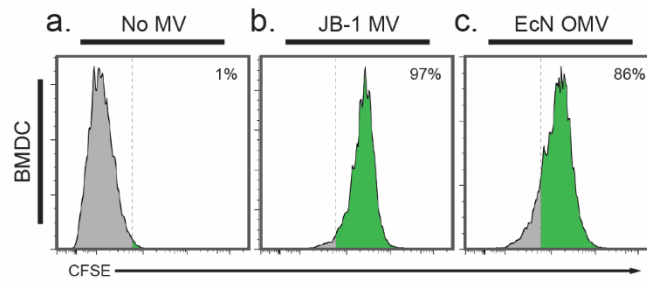
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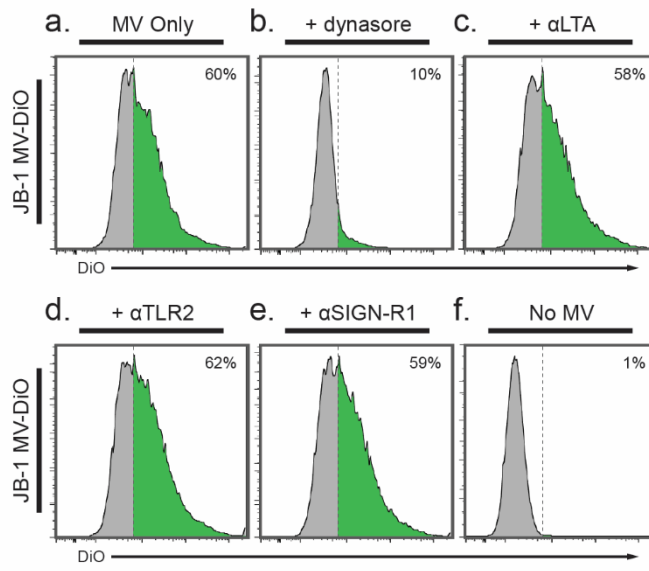
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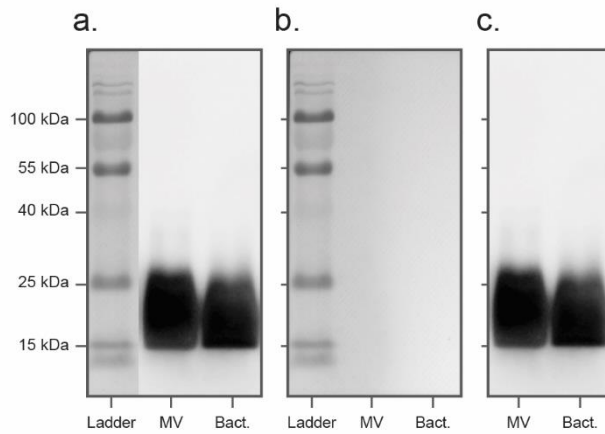
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**Supplementary Figure S1. *L. rhamnosus* JB-1 MV are internalized within 1 hour by bone marrow-derived dendritic cells.** (a) Either PBS vehicle or approx.  $3 \times 10^{10}$  (b) CFSE-labelled JB-1 MV or (c) EcN OMV were incubated at 37°C for 1 h with BMDCs and cell-associated fluorescence was measured by flow cytometry.



**Supplementary Figure S2. *L. rhamnosus* JB-1 MV are endocytosed independent of LTA, TLR2, and SIGN-R1.** (a-e) Approx.  $3 \times 10^{10}$  DiO-labelled JB-1 MV were incubated with MODE-K cells for 2 h after preincubation with (a) nothing added, (b) dynasore, (c) anti-LTA antibody, (d) anti-mouse TLR2 antibody, or (e) anti-SIGN-R1 antibody. (f) Cells were incubated only with PBS vehicle.



**Supplementary Figure S3. *L. rhamnosus* JB-1 MV contain lipoteichoic acid.** (a-c) Full-length western blot used to measure LTA associated with JB-1 MV (MV) or in lysates of whole JB-1 bacteria (Bact.). Images show (a) colorimetric ladder merged with chemiluminescent LTA signal, (b) colorimetric blot alone, or (c) chemiluminescent signal from sample-containing wells.