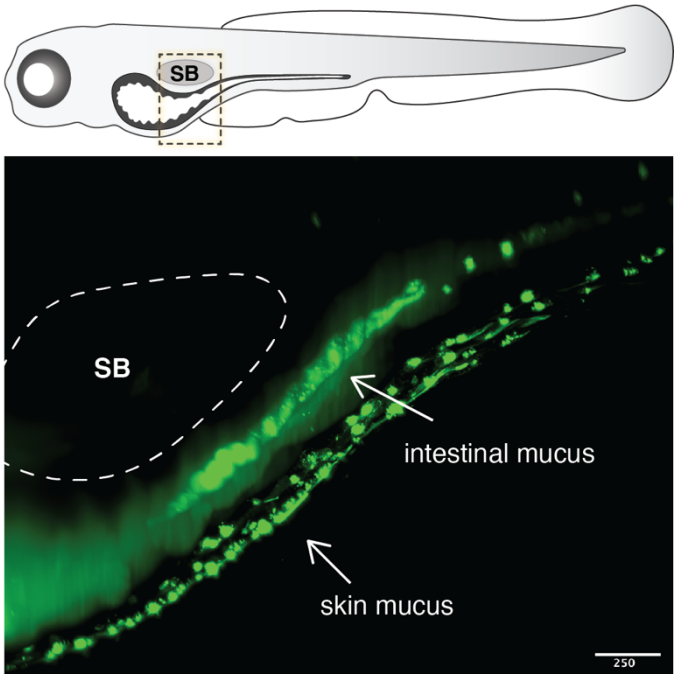


**Figure S1. Mucus distribution in live larval zebrafish, Related to Figure 1.** Maximum intensity projection of WGA-FITC staining of gut and skin mucus in live larval zebrafish aged 6 dpf acquired using LSFM. Individual z-stacks are shown in Movie S1.

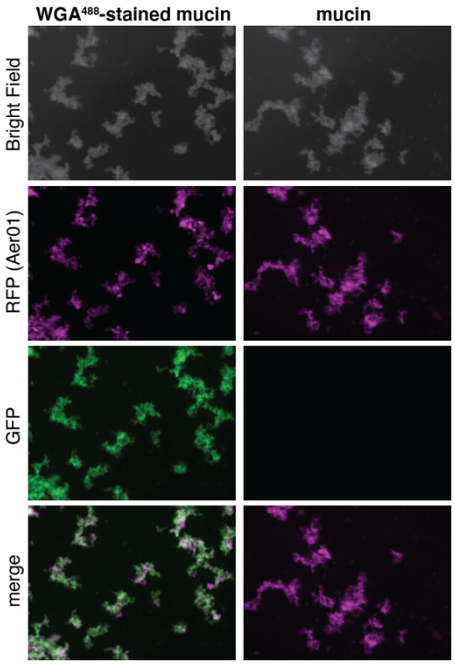


**Figure S2. Aer01 associates with WGA-stained mucin in culture, Related to Figure 2.** dTomato-tagged Aer01 were exposed to 0.4% mucin that was stained with WGA-FITC (left) or untreated (right) in the aggregation assay. The merged image shows Aer01 (red) associated with WGA-stained mucin (green). WGA-stained mucin does not aggregate unless Aer01 is present (not shown).

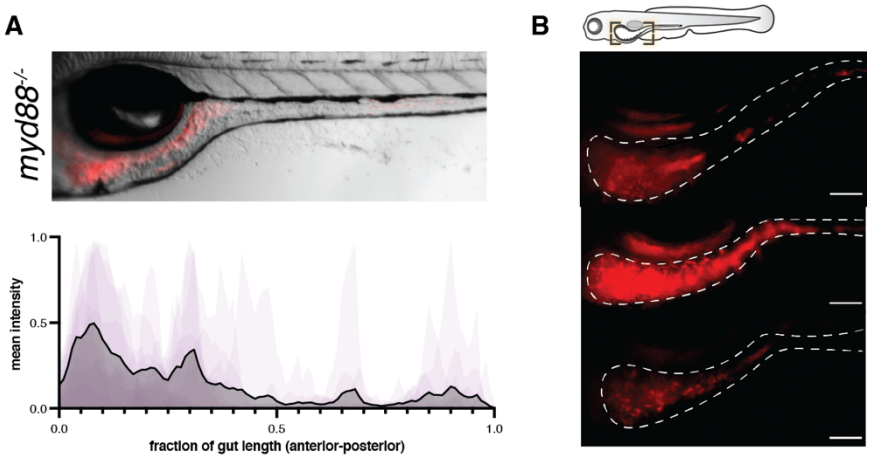


**Figure S3. Aer01 distribution in two models of mucus depletion, Related to Figure 2.** (A) Distribution of dTom-tagged Aer01 mono-associated with *myd88*-/- larval zebrafish using the experimental design highlighted in Fig 2B; n=7. (B) Distribution of dTom-tagged Aer01 mono-associated in wild type fish treated with WGA-FITC.

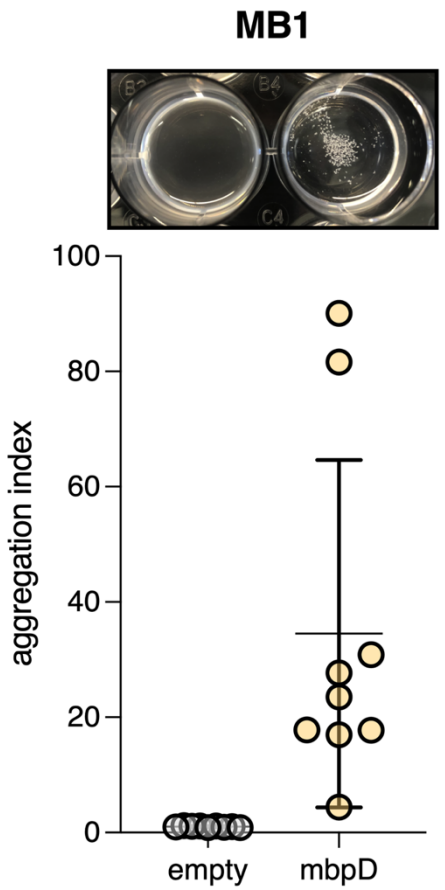


**Figure S4. MB1 GlcNAc-mediated aggregation is rescued by *mbpD* expression, Related to Figure 3.** Aggregation assay in GlcNAc with MB1 expressing empty vector or the wild-type *mbpD* allele. Expression of *mbpD* rescues GlcNAc-mediated aggregation of MB1 which contains a LOF mutation in *mbpD*.

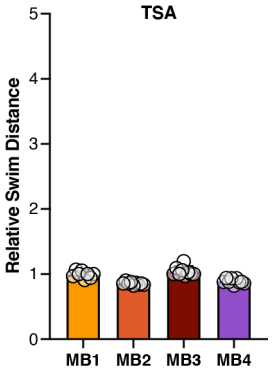


**Figure S5. Swim plate analysis on TSA, Related to Figure 3.** WT and MB1-4 were inoculated onto TSA swim plates and incubated for 12 hr at 30˚C. Plates were imaged and the swim distance calculated in FIJI. MB swim distances were normalized to the plate-specific WT control.