BACTERIAL PHYSIOLOGY

Salmonella get attached

Salmonella enterica subsp. *enterica* serovar Typhimurium is an intracellular pathogen that replicates within membrane-bound *Salmonella*-containing vacuoles (SCVs) in infected host cells. Various bacterial effector molecules are translocated across the SCV membrane to

modulate the function of host cells and support bacterial growth. Two of these effectors, SseF and SseG, interact and have key functions in localizing SCVs to the Golgi network of epithelial cells; however, the precise mechanism has remained elusive. To study the function of SseF and SseG further, Yu *et al.* used a yeast two-hybrid screen and showed that SseG and part of SseF interact with the Golgi-resident protein acyl-coenzyme A binding domain-containing 3 (ACBD3; also known as GCP60). Furthermore, knockdown of ACBD3 resulted in decreased Golgi network association of wild-type *S. Typhimurium*, which supports the notion that ACBD3 is involved in the process. Importantly, although point mutants of either SseF or SseG lost their ability to interact with ACBD3 individually in yeast, they interacted with ACBD3 in infected cells and complemented an *S. Typhimurium*

sseF-null or *sseG*-null mutant, respectively, for Golgi network localization. However, when both point mutants were combined in a single *Salmonella* strain they failed to interact with ACBD3 and the bacteria dissociated from the Golgi network. This suggests a model in which an interaction between SseF and SseG enables both proteins to bind to ACBD3. In addition, depletion of SseF, SseG or ACBD3 led to an intracellular growth defect, which implies that complex formation of ACBD3 with SseF and SseG promotes the replication of *S. Typhimurium*. This study reveals the formation of a tethering complex between a pathogen-containing vacuole and a host cell organelle.

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ORIGINAL ARTICLE Yu, X. J., Liu, M. & Holden, D. W. *Salmonella* effectors SseF and SseG interact with mammalian protein ACBD3 (GCP60) to anchor *Salmonella*-containing vacuoles at the Golgi network. *mBio* 7, e00474-16 (2016)

Simon Bradbrook/NPG