699 **SUPPORTING INFORMATION**

700 Additional supporting information for this file includes ten Supplemental Figures and one
701 supplemental table.

702 **Supplemental Figure 1.** MCF reproducibly pulls down native ARF1.

703 HEK293T cells were transfected with dt-cMCF^{CA} in triplicate. For each replicate, MCF was
704 immunoprecipitated from lysate using anti-HA beads and analyzed by Western blot. dt-cMCF^{CA}
705 was detected by anti-HA and endogenous ARF1 detected by anti-ARF1 antibodies.

706

707 **Supplemental Figure 2.** MCF does not cleave or directly modify ARF1 or ARF3.

708 A-G. Bottom-up mass spectrometry was performed on ARF1 and ARF3 samples recovered from
709 recombinant proteins incubated with (A and B), or anti-Myc IPs (C-G) from HEK293T cells
710 transfected with and without MCF or MCF^{CA}. Modifications that were detected are denoted. Any
711 modifications found on either ARF1 or ARF3 were not reproducible across replicates.
712 Furthermore, there were no modifications detected that were found in ARF + MCF samples that
713 were not found in ARF samples alone and thus not attributable to MCF.

Supplemental Figure 3. Edman degradation is blocked in MCF recovered from cells.
A. Reads from Edman degradation analysis completed on dt-flMCF immunoprecipitated from HEK293T cell lysate using anti-HA antibody. No signal and very little background was detected. B. Gel of sample used for analysis.

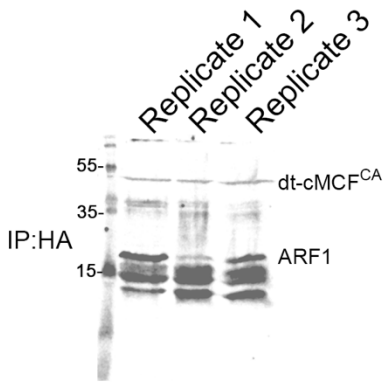
Supplemental Figure 4. Mass Spectrometry analysis shows MCF is acetylated inside cells.
Representative mass spectrometry spectra for each modification detected per population in the replicates of the two-dimensional analysis of dt-flMCF expressed in HEK293T cells recovered by anti-HA IP shown in Supplemental Fig. 5. Asterisk above peptide sequence denotes residue acetylated in that particular spectra.

Supplemental Figure 5. MCF is N-terminally acetylated inside host cells.
Replicates of two-dimensional gel analysis of dt-flMCF expressed in HEK293T cells, recovered by anti-HA immunoprecipitation. Amino acids acetylated in each circled population indicated in corresponding color on sequence. Representative mass spectrometry data for the acetylations shown in Supplemental Fig. 4.

Supplemental Figure 6. Golgi staining is more diffuse in cells expressing MCF.
A. Area in μm^2 of Golgi staining by IF measured for individual Cos7 cells ectopically expressing the specified vector. B.The Golgi of Cos7 cells intoxicated with *V. vulnificus* strains was scored on a scale of 1-3 for extent of dispersal. Images representative of the amount of dispersion each score signifies are shown.

Supplemental Figure 7. MCF does not alter normal endoplasmic reticulum structure.

739 Cos7 cells were transfected with empty vector or MCF-EGFP (green) for 18 hours, fixed, and
740 stained for DAPI (blue), and endoplasmic reticulum marker (calreticulin) (red).
741
742 **Supplemental Figure 8.** MCF induces fragmentation of host mitochondria
743 Replicates for cells intoxicated, as in Fig 6, with *V. vulnificus* strains and stained with Mitotracker.
744 Images show mitochondria of additional cells across a different experiment at 60 minutes.
745
746 **Supplemental Figure 9.** Transmission electron microscopy shows Golgi vesiculation induced
747 by MCF.
748 A, B. Electron microscopy tomograms taken of HeLa cells ectopically expressing MCF for 10 (A)
749 or 15 hours (B). A-D. On right, higher magnification of boxed region on left showing Golgi (G),
750 herniated Golgi (red arrows), vesicles (V). and autolysomes (A).
751 **Supplemental Figure 10.** Western blot of subcellular fractions from HEK 293T cells ectopically
752 expressing dt-flMCF. Each fraction probed with standards for membrane (CD-44), mitochondria
753 (Hsp-60), and nucleus (HistoneH3), and MCF (anti-HA).
754
755 **Supplemental Table 1.** Sequences of gBlocks used for plasmid construction



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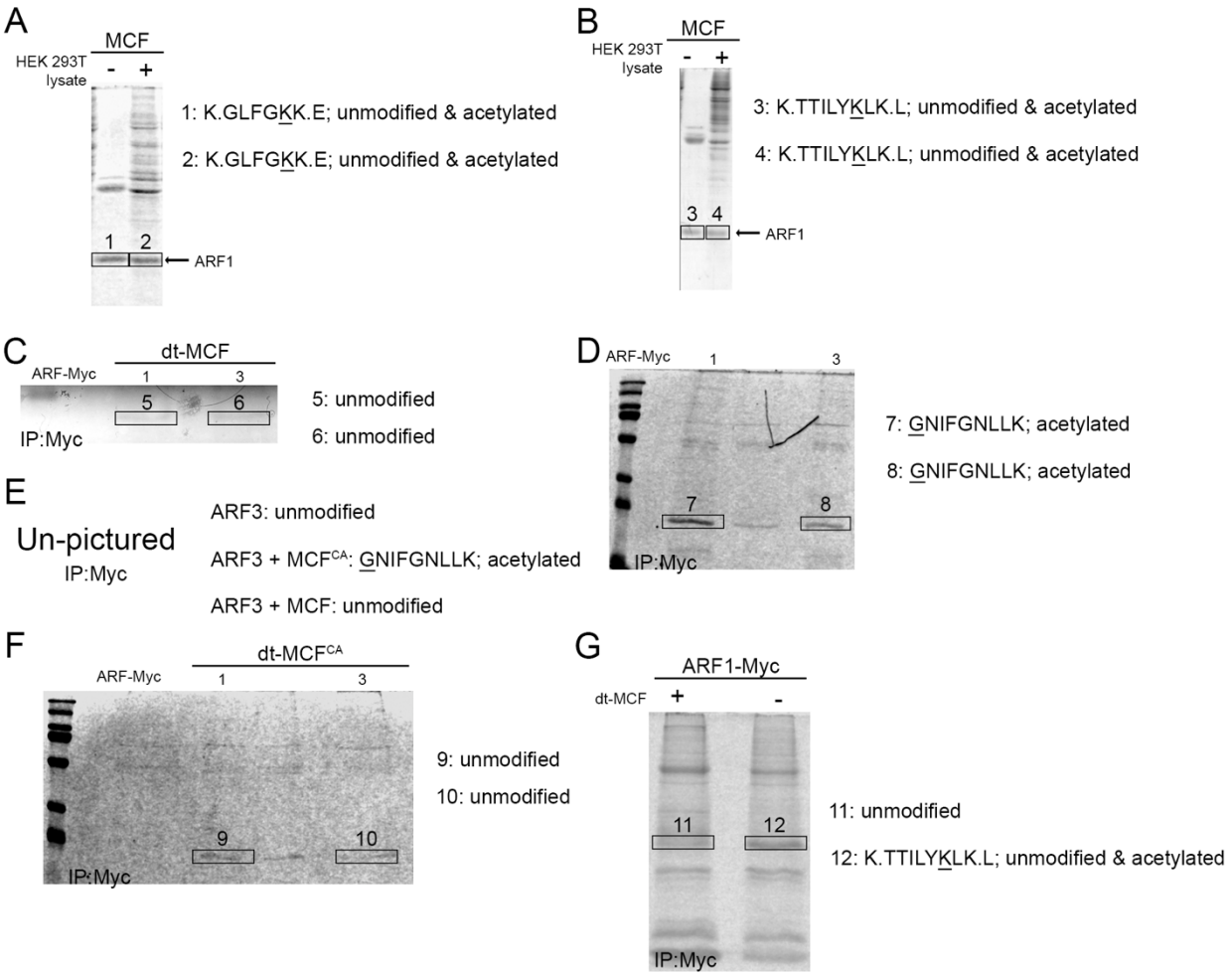

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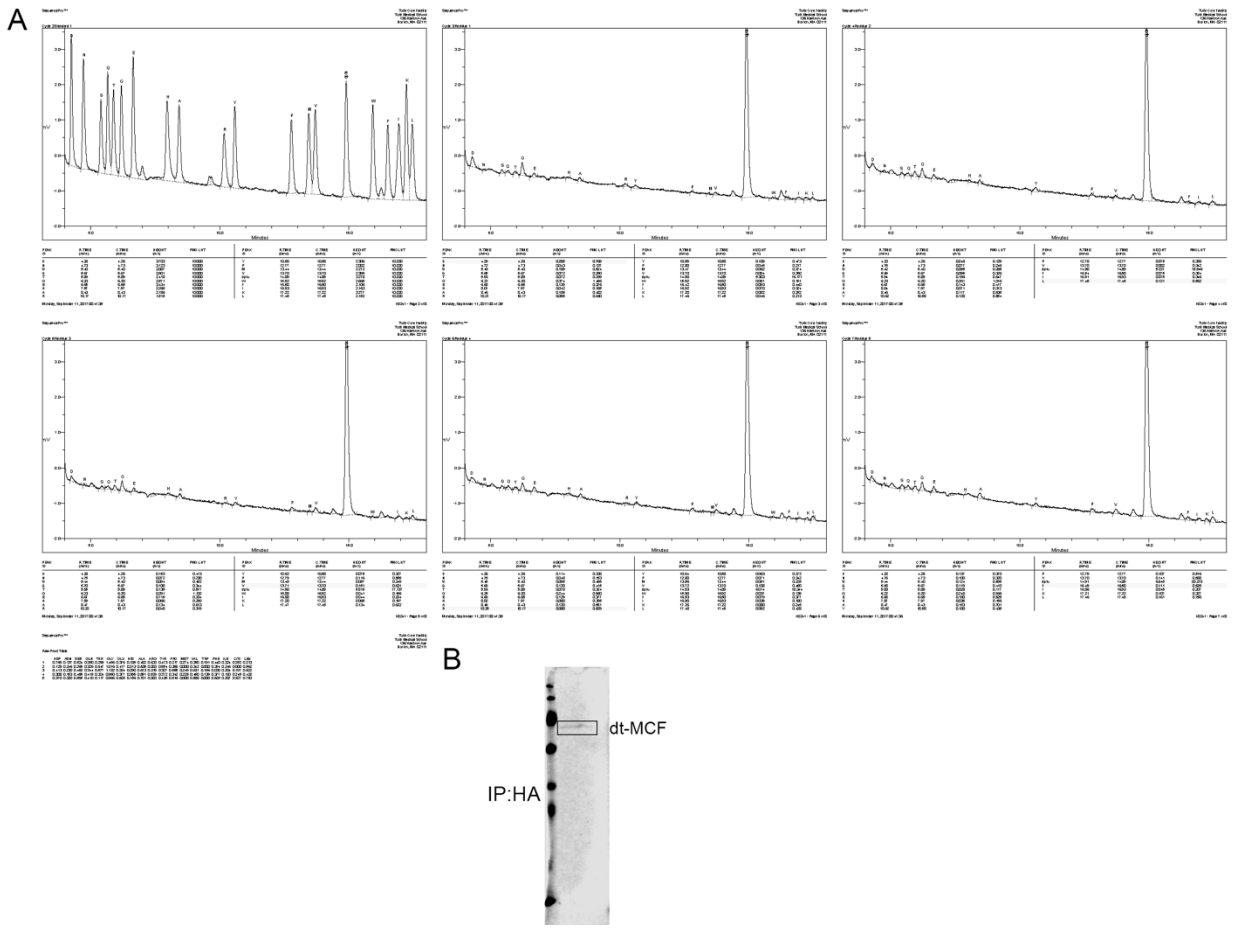

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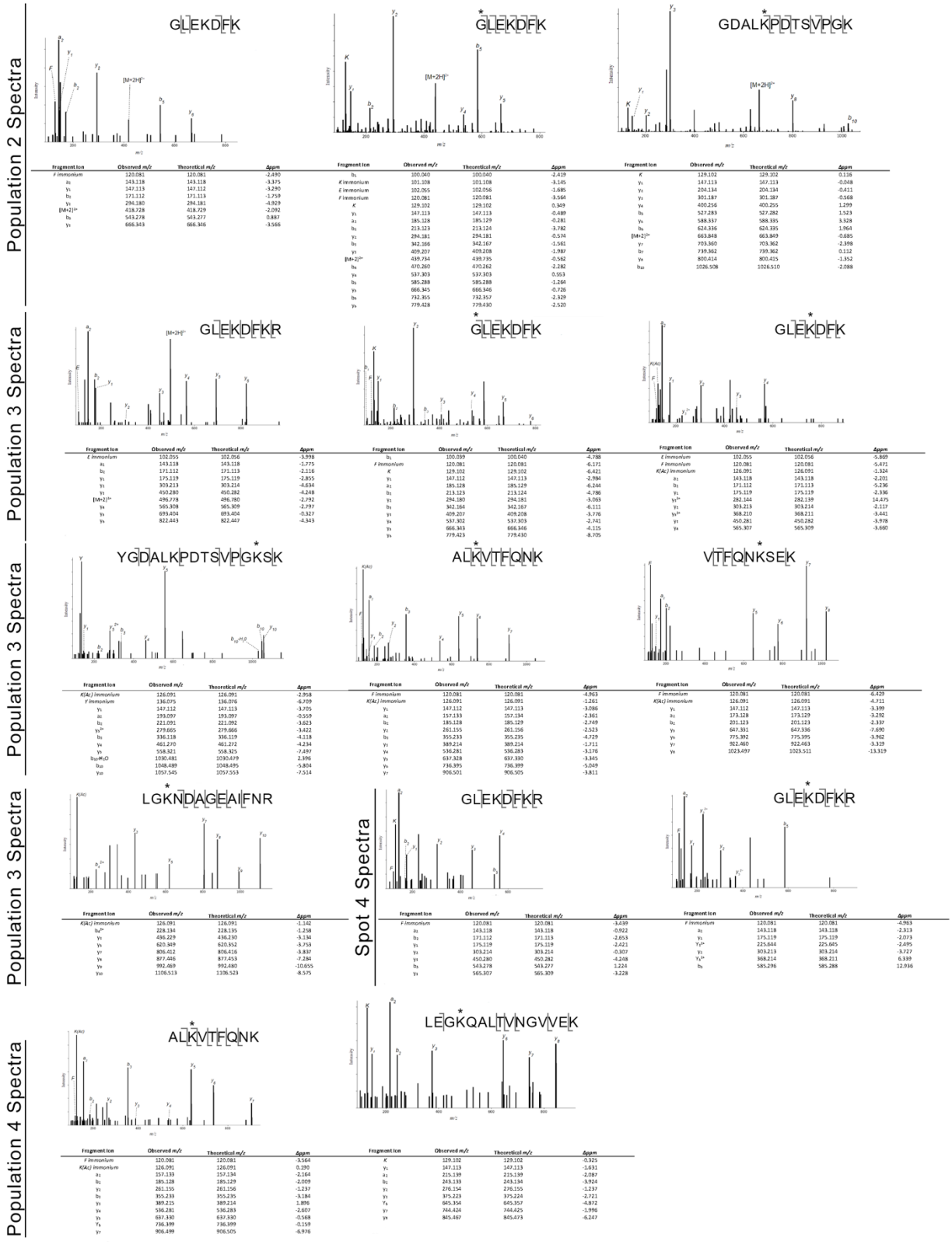

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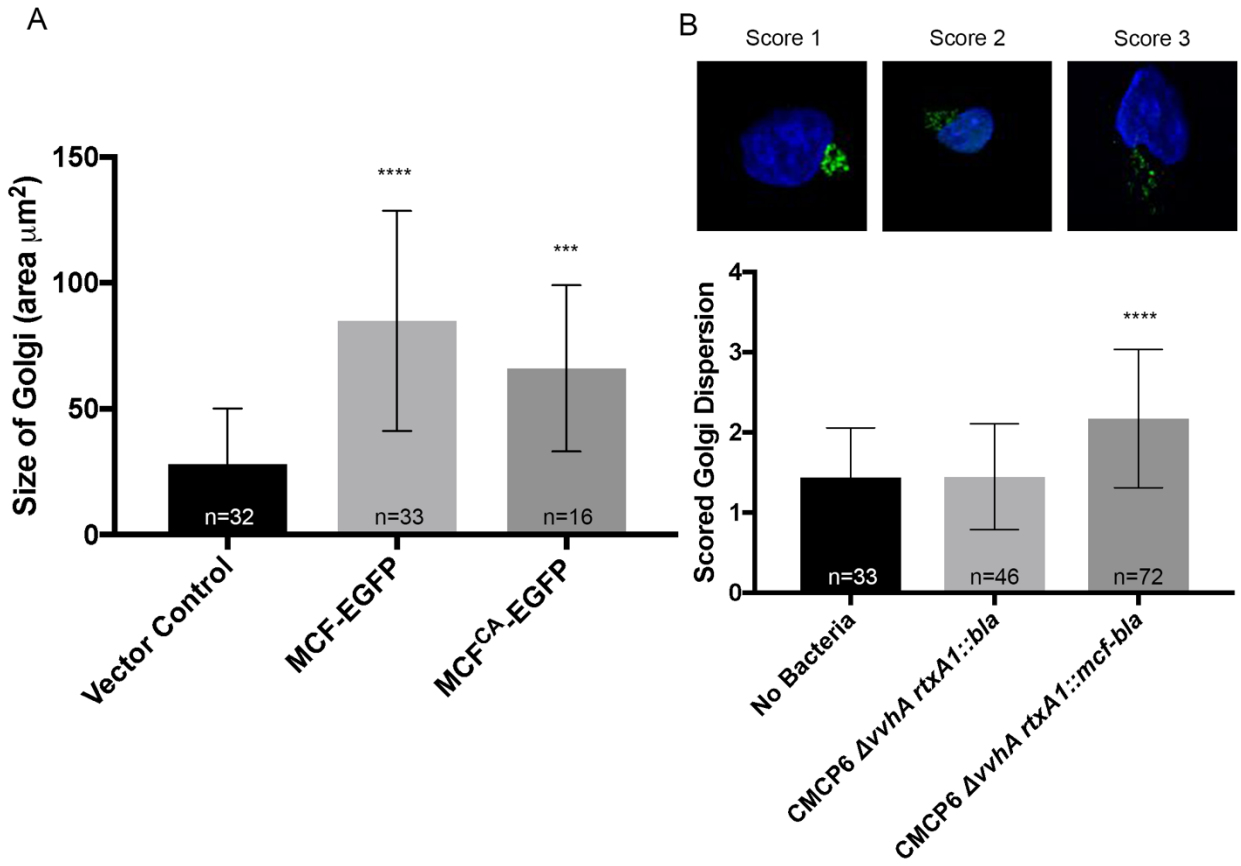

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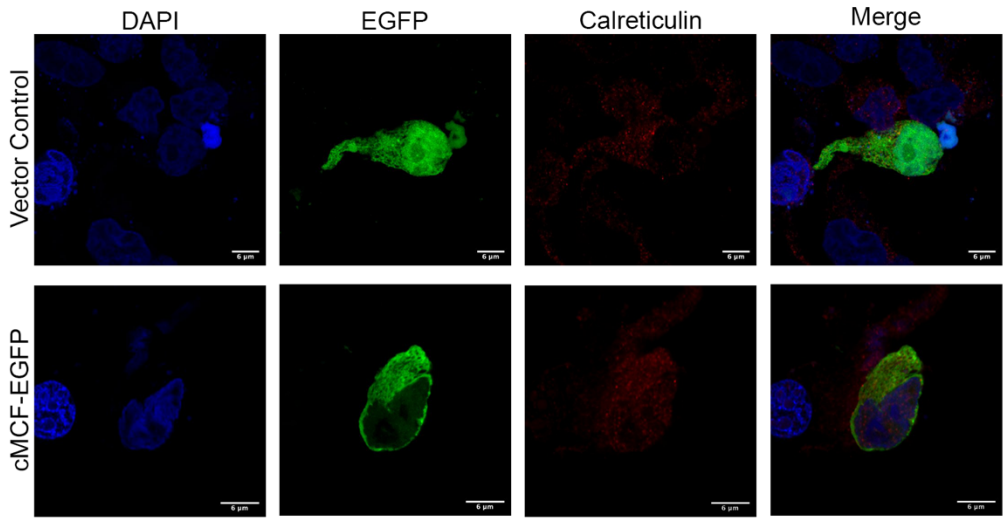

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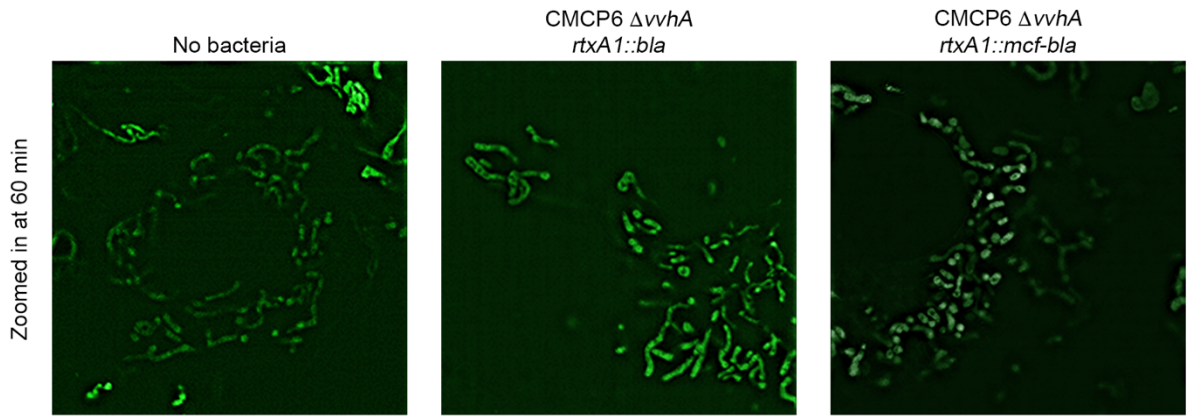

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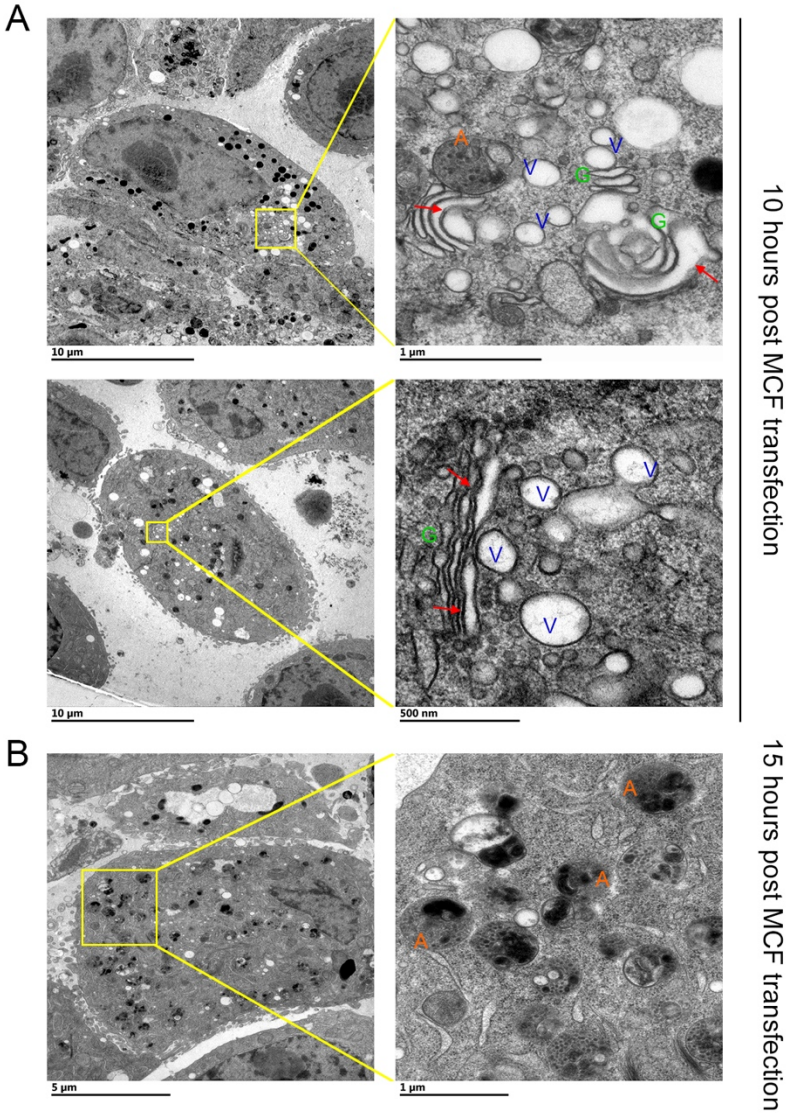
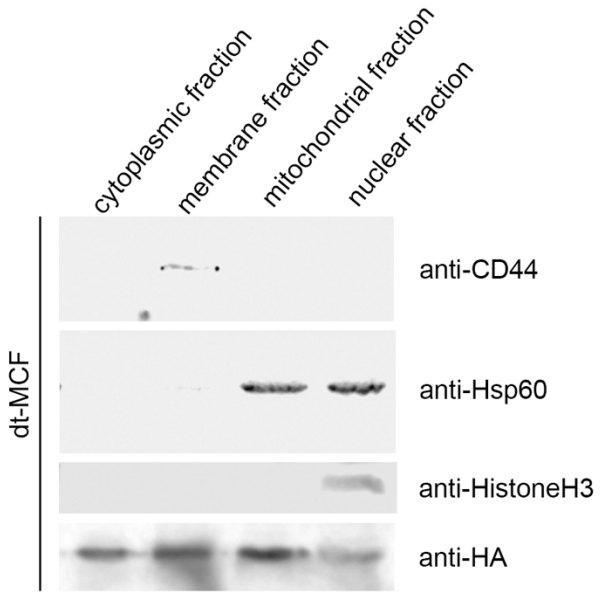


Supplemental Figure 9. Transmission electron microscopy shows Golgi vesiculation induced by MCF.

A, B. Electron microscopy tomograms taken of HeLa cells ectopically expressing MCF for 10 (A) or 15 hours (B). A-D. On right, higher magnification of boxed region on left showing Golgi (G), herniated Golgi (red arrows), vesicles (V). and autolysomes (A).



Supplemental Figure 10. Western blot of subcellular fractions from HEK 293T cells ectopically expressing dt-flMCF. Each fraction probed with standards for membrane (CD-44), mitochondria (Hsp-60), and nucleus (HistoneH3), and MCF (anti-HA).

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Primer/Gblock	**Sequence**
Δ17ARF3	CCTGTACTTCCAATCCAATGCTATGCGCATCCTGATGGTGGGCCTGGATGCC GCAGGAAAGACCACCATCCTATACAAGCTGAAACTGGGGGAGATCGTCACCA CCATCCCTACCATTGGGTTCAATGTGGAGACAGTGGAGTATAAGAACATCAG CTTTACAGTGTGGGATGTGGGTGGCCAGGACAAGATTCGACCCCTCTGGAGA CACTACTTCCAGAACACCCAAGGGTTGATATTTGTGGTCGACAGCAATGATCG GGAGCGAGTAAATGAGGCCCGGGAAGAGCTGATGAGAATGCTGGCGGAGGA CGAGCTCCGGGATGCTGTACTCCTTGTCTTTGCAAACAAACAGGATCTGCCT AATGCTATGAACGCTGCTGAGATCACAGACAAGCTGGGCCTGCATTCCCTTC GTCACCGTAACTGGTACATTCAGGCCACCTGTGCCACCAGCGGGGACGGGC TGTACGAAGGCCTGGACTGGCTGGCCAATCAGCTCAAAAACAAGAAGTGATA AATTGGAAGTGGATAACGG
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