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The transporter associated with antigen processing (TAP) is active in a post-ER compartment.

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Abstract: The translocation of cytosolic peptides into the lumen of the endoplasmic reticulum (ER) is a crucial step in the presentation of intracellular antigen to T cells by major histocompatibility complex (MHC) class I molecules. It is mediated by the transporter associated with antigen processing (TAP) protein, which binds to peptide-receptive MHC class I molecules to form the MHC class I peptide-loading complex (PLC). We investigated whether TAP is present and active in compartments downstream of the ER. By fluorescence microscopy, we found that TAP is localized to the ERGIC (ER-Golgi intermediate compartment) and the Golgi of both fibroblasts and lymphocytes. Using an in vitro vesicle formation assay, we show that COPII vesicles, which carry secretory cargo out of the ER, contain functional TAP that is associated with MHC class I molecules. Together with our previous work on post-ER localization of peptide-receptive class I molecules, our results suggest that loading of peptides onto class I molecules in the context of the peptide-loading complex can occur outside the ER.