Milk is a complex mixture of nutrients, including lipids, proteins, and carbohydrates, which are secreted by mammary epithelial cells. Of these nutrients, the lipid fraction has attracted special attention because it is secreted in the form of membrane-coated droplets of neutral lipid by a unique apocrine mechanism. See the article by Masedunskas et al. on p. 935 of this issue of *MBoC*, in which the kinetics of lipid droplet assembly and secretion are described for the first time by intravital imaging. Lipid droplets of all sizes fuse with each other during transport to the apical surface and even as they are coated with an outer membrane during the secretion process. The micrograph shows lipid droplets (red) accumulating at the apical surface of secretory cells (green) between oxytocin-induced contractions in a transgenic mouse line that expresses green fluorescent protein in the cytoplasm of most cells. (Image: Ian H. Mather, National Cancer Institute, National Institutes of Health, and University of Maryland, College Park)