Correction

In the article, "UNC-11, *a Caenorhabditis elegans* AP180 Homologue, Regulates the Size and Protein Composition of Synaptic Vesicles," by M.L. Nonet *et al*. (Mol. Biol. Cell [1999], *10*, 2343–2360), the affiliation for Aixa Alfonso should be Department of Biological Sciences, University of Illinois at Chicago, Chicago, Illinois 60607.

Cover

The phragmoplast, or cytokinetic apparatus of plants, when examined in living cells by polarized light microscopy is seen to contain fibrous elements aligned perpendicular to the division plane. Just as with the mitotic apparatus there had been an ongoing controversy about whether the fibrous components observed in fixed cells were coagulation artifacts. Shinya Inoué settled the controversy, showing in 1953 (Chromosoma *5*, 487–500) that birefringent fibers were present in the phragmoplast of dividing lily pollen mother cells. Dynamic changes in this structural entity, depicted in these images published by Inoué in 1964 (Primitive Motile Systems in Cell Biology, ed. R. Allen and N. Kamiya, New York: Academic Press, 549–598), revealed that although the phragmoplast initially derived from remnant fibers in the spindle interzone, it quickly acquired an independent identity as evidenced by the marked increase in birefringence. These images also depict the emergence of the cell plate, which arises as a dense line in the midplane of the phragmoplast and grows centrifugally, eventually fusing with the parental cell wall. In the studies noted here, Inoué exploited the fact that the pollen mother cell wall is composed of callose (β1,3-glucan), which, in contrast to cellulose (β1,4-glucan), is nonbirefringent and thus would not mask the relatively weak birefringence of the phragmoplast. He further improved the images by centrifuging the cells lightly to displace birefringent granules away from the area of interest (note the brightness in the lower quadrant of the cell). In 1961 Inoué and Bajer (Chromosoma *12*, 48–63) achieved further success by examining the mitotic apparatus and phragmoplast in endosperm cells of *Haemanthus*, which, because of a lack of cell wall and flattened cell morphology, produced images of high resolution and elegance.

With the introduction of electron microscopy, using material fixed with glutaraldehyde, Ledbetter and Porter (J. Cell Biol. [1963]. *19*, 239–250) discovered microtubules in the phragmoplast and postulated that these were the birefringent fibers. More recently it has been shown that actin microfilaments are also present in the phragmoplast (Clayton and Lloyd [1985]. Exp. Cell Res. *156*, 231–238; Gunning and Wick [1985]. J. Cell Sci. Suppl. *2*, 157–179; Zhang *et al*. [1993]. Cell Motil. Cytoskeleton *24*, 151–155). The cytoskeletal elements of the phragmoplast create a palisade that excludes nuclei and large organelles (e.g., mitochondria, plastids, and Golgi dictyosomes); however, there are numerous elements of endoplasmic reticulum and small vesicles, of which the latter are transported inwardly where they aggregate in the midplane and fuse to form the cell plate (Samuels *et al*. [1995]. J. Cell Biol. *130*, 1345–1357). The phragmoplast cytoskeleton thus defines the plane of the cell plate and controls its lateral expansion and spatial positioning, thereby influencing the shape of the daughter cells. The figure is reproduced by copyright permission of Academic Press.—*Peter Hepler*