A WICB 50th Favorite: Arp2/3 complex is important for filopodia formation, growth cone motility, and neuritogenesis in neuronal cells

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To celebrate the 50th anniversary of the American Society for Cell Biology's Women in Cell Biology Committee (WICB), members of WICB and the MBoC *Editorial Board invited a diverse group of scientists to highlight* MBoC *papers by women that have had a scientific or personal impact on the authors of the highlight.*

The article I highlight by Farida Korobova and Tatyana Svitkina (2008) entitled "Arp2/3 complex is important for filopodia formation, growth cone motility, and neuritogenesis in neuronal cells" graced the cover of *Molecular Biology of the Cell* in April 2008. Though a role for the branched actin nucleator Arp2/3 complex in filopodia formation seemed counterintuitive, the authors capitalized on the increased resolution of platinum replica electron microscopy to capture Arp2/3 complex–dependent filopodia initiation in neuronal growth cones. In contrast to the tip nucleation model whereby filopodia are directly nucleated and elongated by formin clusters at the plasma membrane, Korobova and Svitkina's work provided functional evidence supporting convergent elongation in neuronal cells. In the convergent elongation model, filopodia are nucleated by the Arp2/3 complex within dendritic actin networks before elongation by formins. Korobova and Svitkina's striking images of a complex actin meshwork during neuronal differentiation kick-started my interest in Arp2/3 complex–dependent actin dynamics for my graduate thesis on embryonic stem cell differentiation in 2014. I was supported by an HHMI Gilliam Fellowship during my graduate work with Diane Barber (WICB former chair), and the extensive efforts of WICB/ASCB in supporting and ensuring diversity and inclusion have been particularly valuable for me as a woman, Latinx, first-generation PhD. In celebration of the WICB 50th anniversary, I'm honored to highlight an article by Korobova and Svitkina, two accomplished women cell biologists who completed their PhD work outside of the United States.

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REFERENCE

Korobova F, Svitkina T (2008). Arp2/3 complex is important for filopodia formation, growth cone motility, and neuritogenesis in neuronal cells. Mol Biol Cell 19, 1561–1574.