Malignant rhabdoid tumors (MRT) are rare and aggressive cancers that most commonly affect children under the age of three. Despite efforts to identify strategies to treat MRT, few new avenues have emerged in recent years. It is known that these cancers are driven by loss of a single gene, which encodes a subunit of the SWI/SNF chromatin remodeling complex, one of the most frequently mutated protein complexes in human cancer. Interestingly, it is also known that SWI/SNF components interact directly with the oncoprotein transcription factor MYC, but the relevance of these interactions, especially to cancers like MRT, are unclear. In this talk, I will discuss how I have used a combination of biochemical, genetic, and genomic approaches to uncover a new mechanism by which SWI/SNF exerts its tumor suppressive function—by directly tempering the association of MYC with chromatin. I will also discuss the implications of this research and what it tells us about the role of MYC in maintaining the MRT cancer state. And finally, I will describe a novel approach towards pharmacologically inhibiting MYC in this deadly cancer type.