

**Lynnsey McLain, Class 2024**

**Campus:** Baylor Scott and White Hospital, Temple, TX

**Research Area:** Pathogenic epigenetic mechanisms of plasma cell myeloma

**Mentor:** Carlos Tirado, M.D.

**Launch Talks:** September 2022

Lynnsey McLain, a medical student at Texas A&M School of Medicine, is writing a review article focusing on the epigenetic mechanism underlying plasma cell myeloma under the guidance of [Carlos Tirado, PhD](#), Section chief, cytogenetics at Baylor Scott and White in Temple, Texas. The pathogenesis of plasma cell myeloma (formerly called multiple myeloma) can be attributed to chromosomal abnormalities, disruptions in the bone marrow microenvironment and numerous epigenetic mechanisms. Specifically, the epigenetic events behind this malignancy drive disease progression, from an asymptomatic, precancerous state (MGUS) to plasma cell myeloma and eventually plasma cell leukemia, a particularly aggressive disease. Beyond the tumorigenesis, epigenetic events also facilitate drug resistance of plasma cell myeloma as well as mechanisms of immune evasion. These epigenetic events can be sorted into three classes of mechanisms, including DNA methylation events, histone modifications and noncoding RNA activity (particularly miRNAs and lncRNAs.) This project aims to analyze these specific epigenetic mechanisms and their potential to be targeted with new therapeutics to improve understanding and future management of plasma cell myeloma.