Lewis University
STEM Undergraduate Research Experience (S.U.R.E.) 2019
Faculty Mentor – Project Application

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Research Project Title: Drosha as a metastatic factor associated with cell migration rates- student 2

Cancer is a leading cause of death with about 8.2 million cancer deaths worldwide in 2012 alone and 14 million new diagnoses (National Cancer Institute, 2017). This demonstrates the urgent need to find molecular targets for therapeutics and to understand the underlying mechanisms behind the metastatic spread of cancer. Drosha is a protein that is often mis-regulated in varying disease states including cancer. Drosha's canonical role is in the biogenesis of microRNAs, which requires the Drosha protein to bind and cleave the RNA. However, numerous non-canonical roles have recently been elucidated that require Drosha to bind to RNA, but not cleave it. The underlying mechanism of how Drosha mis-regulation affects the metastatic properties of cancer is unknown. It is also unknown if this affect is derived from Drosha's canonical (cleavage-dependent) or non-canonical (cleavage-independent) role in the cell. The **purpose** of this research is to elucidate if the canonical role of Drosha in which it binds to and cleaves RNA or its non-canonical role in which it binds to but does not cleavage RNA affects the metastatic properties of increased growth rates or the ability of cancer cells to migrate throughout the body. This work will help determine how Drosha mis-regulation can lead to cancer and potentially provide a mechanism that can be targeted therapeutically.