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**Transcriptome Profiling of Relapse Pediatric Acute Myeloid Leukemia**

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**ABSTRACT**

Acute myeloid leukemia (AML) is the second most common leukemia type among children, and nearly 40% of pediatric AML patients will relapse and succumb to the disease. Clinically, relapsed AML patients respond poorly to the standard chemotherapy regimens, therefore novel therapy strategies are desirable and needed to improve patients’ survival. Since little is known about the changes and biological mechanisms underpinning relapse in paediatric AML, transcriptome profiling using the high throughput transcriptome sequencing approach for both pediatric de novo and relapsed AML may help enhance our understanding on the molecular mechanisms that contribute to the progression of the disease especially in the Malaysian population. This study aims to uncover biological mechanisms which contribute towards relapsed pediatric AML and to identify potential biomarkers and therapeutic targets to improve treatment plans. Based on our initial assessment, approximately 4% of pediatric AML will experience relapse within 9 to 11 months from diagnosis. This is an interesting observation, because previously it was reported that relapse in pediatric AML commonly occurs within 12 to 18 months instead. Hence, this shows that there is a difference in terms of progression of the disease in the Malaysian population. By performing transcriptome sequencing, we will be able to unveil the distinct molecular mechanisms related to the progression of relapse in Malaysian pediatric AML. As a conclusion, as shown by our preliminary data, the progression of relapse pediatric AML in Malaysia is different and therefore by performing this study we will be able to better understand the underlying molecular mechanism.