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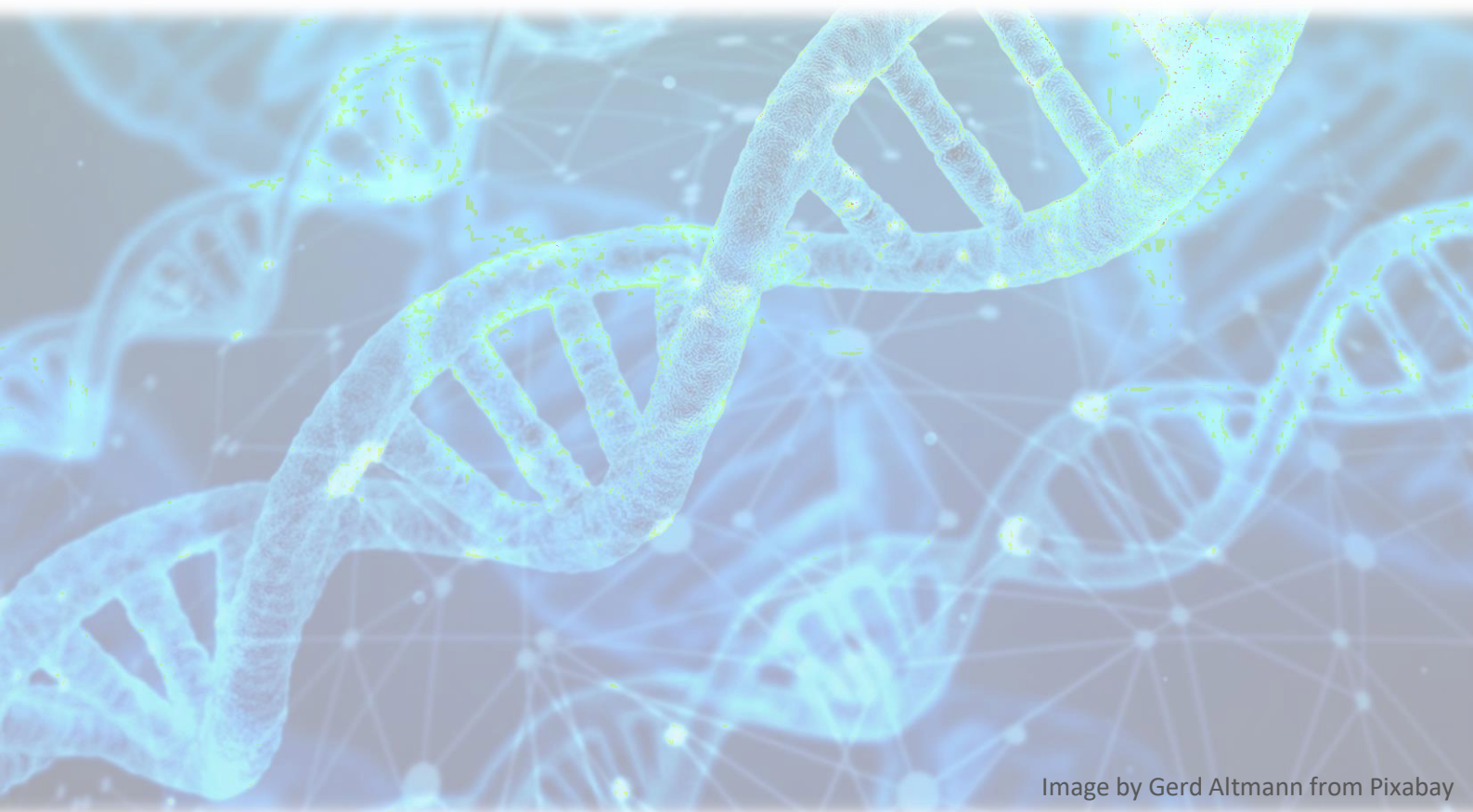


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## Specific microRNAs Among Milk Siblings: An Epigenetics Approach Towards Understanding the Basis of Milk Kinship

Wan Alif Afiq Wan Nor Ruddin<sup>a\*</sup>, Hamizah Ismail<sup>b</sup>, Nurul Yaqin Mohd Nor<sup>b</sup>, Mohd Ariffin Kaderi<sup>a</sup>, Siti Mariam Muda<sup>c</sup>, Normadiah Daud<sup>d</sup>, Norafiza Zainuddin<sup>a\*</sup>

<sup>a</sup>*Department of Biomedical Science, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Malaysia.*

<sup>b</sup>*Department of Obstetrics & Gynaecology, Kulliyah of Medicine, International Islamic University Malaysia, Malaysia.*

<sup>c</sup>*Department of Special Care Nursing, Kulliyah of Nursing, International Islamic University Malaysia, Malaysia.*

<sup>d</sup>*Faculty of Islamic Contemporary Studies, Universiti Sultan Zainal Abidin, Malaysia.*

\*Corresponding author email: alifafiq1@gmail.com, znorafiza@iiium.edu.my

### Abstract

Milk kinship is an Islamic belief described as a relationship established when infants receive breast milk from non-biological mothers. This form of kinship is said to bear a very close resemblance to blood relation whereby the recipients' infants are regarded as milk siblings to the biological children of the breastfeeding mother. Any future marriage between these individuals is forbidden likewise between the recipient infant and the nursing mother herself as they are thought to have a form of consanguinity. The consanguinity formed by virtue of milk sharing might be due to the composition of human breast milk, especially milk microRNAs that are responsible for the epigenetic modulation of gene expression. miRNAs can regulate gene expression by modulating genome-wide epigenetic status of genes, and similarly-shared genes might be the basis that has led to milk kinship formation. Thus, the objective of the present study is to identify potential lactation-specific miRNAs that are similarly shared among milk siblings and their nursing mothers. The study began with molecular extraction of milk RNA from the nursing mothers and cell-free plasma RNA from all milk siblings and their nursing mothers. The RNAs extracted from both sample types were further analyzed using NanoString nCounter® miRNA Panel Analysis (NanoString Technologies, Seattle, WA) to measure the abundance of individual miRNAs biomarkers present within the samples. This study is expected to provide scientific explanation that could divulge the secrets behind milk kinship establishment with thorough presentation on the lactation-specific miRNAs shared between milk siblings. Hence, the way for future research would be paved, making the development of milk kinship identification tool possible.

**Keywords:** epigenetics, milk kinship, milk miRNA, NanoString