HISTOLOGY AND RNA INTEGRITY OF LONG-TERM FORMALIN FIXATION STORAGE RABBIT'S LUNG ARCHIVE TISSUES

By

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DECLARATION

"I hereby declare that this thesis is based on my original work and has not has been submitted previously or currently for any other degree at UiTM or any other institutions."

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ABSTRACT

Formalin-fixed archive samples have been used as an alternative sources in a research study. Even though prolong formalin fixation causes the tissues undergo degradation due to formaldehyde modification reaction, the samples still valuable in genomic and histology study. However, this study using lung archive tissues still uncommon. Samples used are the lung tissue harvested from a rabbit fixed in 10 % formalin for seven and eight years. Tissue was processed for paraffin-embedded and stained with hematoxylin and eosin for histology assessment. RNA was extracted from samples, examined the integrity and concentration along with microRNA by using Agilent 2100 Bioanalyzer. Histology of all rabbit's lung archive samples was comparable and has enough characteristic of lung tissue morphology. RNA with moderate to low integrity number (RIN) was isolated from archived samples with RIN 2.2 to 5.0 in 2010 samples and RIN 1.7 to 2.1 in 2009 samples. RNA concentration higher in 2009 sample (901 pg/µl) and lower in 2010 sample (41 pg/µl). Other than that, 27 to 56 percent of microRNA could be isolated from archive lung tissue with acceptable concentration (75.4 pg/µl to 169.6 pg/µl) and length (25 nt to 28 nt). In conclusion, our results demonstrated that formalin-fixed lung samples preserve better histology but due to the chemical modification RNA detect in moderate low integrity. However, RNA and miRNA concentration obtained was in an acceptable value.

KEYWORDS:

Rabbit's lung, archive tissue, haematoxylin and eosin stain, RNA integrity, formalin-fixed, histology