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Plasma exosome miR-155-5p as an independent prognostic risk factor for Mycosis Fungoides

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SI/CTR Abstract

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Plasma exosome miR-155-5p as an independent prognostic risk factor for Mycosis Fungoides

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Introduction: Mycosis Fungoides (MF) is a rare non-Hodgkin Lymphoma with variable progression that comprises half of all cutaneous T-cell lymphomas (CTCLs). Previous studies have shown higher expression of the micro-RNA miR-155-5p isolated from biopsies of MF tumors compared to early-stage lesions and healthy skin, illustrating the potential for miR-155-5p to serve as a prognostic indicator. Small extracellular vesicles (30-150 nm) called exosomes are known to play a role in cancer signaling and progression by carrying micro-RNAs. However, no studies have measured circulating exosomal miR-155-5p in the blood of patients with MF. We hypothesize that miR-155-5p is expressed higher in plasma exosomes of patients with MF compared to healthy volunteers.

Methods: 6 patients with a diagnosis of MF and 9 healthy patients at Jefferson Dermatology Associates were enrolled in the study. Phlebotomy samples were obtained and plasma isolated by centrifugation. Exosomes were extracted by ExoQuick reagent and size confirmed by NanoSight software. RNA was extracted and qRT-PCR performed with Taqman probes for miR-155-5p and miR-103 (control). Delta-delta CT analysis was performed to analyze expression.

Results: Analysis of three PCR runs determined the control (miR-103) to be expressed differently across samples with poor amplification. Additionally, miR-155-5p was variably expressed in the samples extracted from healthy volunteers. No pattern is discernible.

Discussion: Given that sample volume is a proxy for pre-reaction cDNA in each sample, adaptation of the protocol and a new control is needed to more accurately measure miRNA expression. No conclusions can be made at this time.