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Title: Circulating microRNA signature and its novel involvement in pathogenesis of chronic thromboembolic pulmonary hypertension

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Body: Chronic thromboembolic pulmonary hypertension (CTEPH) is a progressive disease characterized by multiple etiology and mechanism. Circulating miRNA is partially derived from cells affected by disease and therefore can serve as potential biomarker and reflect the pathogenesis of this disease. In present study, we compared miRNA expression in plasma from 10 CTEPH patients and 10 healthy control subjects by microarray, and fourteen miRNAs were indentified to be differentlially expressed.

Selectively, five of the differentially expressed miRNAs were further validated in an independent 40 pairs of subjects by stem-loop qRT-PCR, among which let-7b and miR-22 were downregulated to about 25% in CTEPH patients. Endothelin-1 (ET-1) and transforming growth factor beta receptor 1 (TGFBR1) was the direct targets of let-7b by reporter assay, and plasma ET-1 level was reversely correlated to let-7b. TGFBR1 was further required for induction of ET-1 in endothelial cells.