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## A novel predictor of leukemia transformation in myelodysplastic syndrome patients

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Anemia is a common condition in the older population. Unexplained anemia (UA) contributes one third of anemia in older ages. And most of those patients can meet at least one of the diagnosis criteria of myelodysplastic syndrome (MDS). In MDS, leukemia transformation is a lethal problem. Many genes alternations and clinical characteristics have been reported to associate with leukemia transformation in MDS patients. Iron overload is one majority causes. Siderophores help transport iron. Type-2 hydroxybutyrate dehydrogenase (BDH2) is a rate-limiting factor in the biogenesis of siderophores. We analyzed 187 MDS patients, compared with de novo acute myeloid leukemia patients and normal bone marrow patients. Elevated BDH2 mRNA expression was observed in MDS patient bone marrow ( $P=0.009$ ) and was related to ferritin levels ( $P=0.049$ ). The higher BDH2 expression (15%) group showed a greater risk for leukemia transformation than the lower expression group (3.18%) ( $P=0.017$ ). We investigated the mechanism by using RNA-interference mediated-knockdown of BDH2 (BDH2-KD) in the leukemia cell line, THP1. Cell cycle arrest and increasing apoptosis rate by surviving were noticed in BDH2-KD cells. Here we present a novel predictor of leukemia transformation in MDS that relates to iron metabolism, apoptosis and cell cycle control.

### Biography

Wen-Chi Yang has completed her MD and PhD from Kaohsiung Medical University and 2 years Postdoctoral studies from Harvard Medical School during 2007 to 2009 and half year Postdoctoral studies from Massachusetts Institute of Technology. She is a Specialist in Hematology, Medical Oncology and Hospice Care in Taiwan. She is the Attending Physician of Yuan's General Hospital. She is also Chief Staff of Molecular Medicine Lab in Yuan's General Hospital.

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