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## Diagnostic gene expression profile (GEP) for improving precision and molecular classification of hematological malignancies

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GEP is a powerful tool for investigation and risk group stratification. Recently we have started looking at the utility of GEP in the diagnosis setup. Our preliminary results show significant contribution of GEP to correct diagnosis and management of hematological malignancies, especially when immunophenotype is not unequivocal. Moreover, in certain cases GEP added to a more accurate lineage specification, for example by identifying high TdT expression, which was missed at the protein level. In other cases aberrant expression of various signaling molecules was evident, which opens the door for personalizing the treatment. On the basis of these findings, we intend to start classifying each of the common hematological malignancies and the various clinico-pathological entities using GEP as the main molecular classifier, taking the advantage of its whole genome coverage, the observer independence and the ability to personalize the treatment on the basis of expressed pathways and signatures.

### Biography

Yossi Cohen, MD, BSc, is specialized in hematology and was training on Molecular Cell Biology laboratory in the Weizmann Institute of Science, Israel. In the previous years he published several papers on the regulation of primary bone marrow tumor cells by the niche and a chapter in a book (Nova Publication, 2014) on the mechanism of action of novel antimyeloma agents.

## The function and mechanism of Fbxw7-HIF-1 $\alpha$ in the micrometastasis of hilar cholangiocarcinoma

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Hilar cholangiocarcinoma is the cholangiocarcinoma occurring at the confluence of the right and left hepatic bile ducts, it is characterized by local invasion and metastasis, which can significantly decrease the resection rate and result in poor prognosis of hilar cholangiocarcinoma. We have explored the pre-metastasis stage of hilar cholangiocarcinoma, and its micrometastasis was detected. To further investigate the mechanism of micrometastasis, the function of ubiquitin ligase subunit F-box and WD (tryptophan-aspartic acid) repeat domain containing 7 (Fbxw7) in inhibiting cholangiocarcinoma invasion and metastasis was demonstrated firstly, and its expression was negatively related with hypoxia inducible factor-1 (HIF-1 $\alpha$ ). HIF-1 $\alpha$  is essential in tumor development and local invasion in previous reports, and it can be degraded after ubiquitination by Fbxw7, which is mediated by GSK3. We presume that Fbxw7 can inhibit hilar cholangiocarcinoma micrometastasis by regulating lymph nodes micrometastasis, vasculogenic mimicry and nerve invasion through HIF-1 $\alpha$  ubiquitin degradation. We explored the mechanism of Fbxw7 inhibiting hilar cholangiocarcinoma micrometastasis through HIF-1 $\alpha$  ubiquitin degradation in molecular, cellular and animal levels by *vitro* and *vivo* experiments. It can provide new evidence for the study of hilar cholangiocarcinoma local invasion and metastasis by exploring the mechanism of hilar cholangiocarcinoma micrometastasis. Finally, we hope to provide new theoretical strategies for the clinical diagnosis, treatment, prevention and cure of early postoperative recurrence, and prognosis evaluation of hilar cholangiocarcinoma.

### Biography

Yuxin Chen has completed his PhD from Ehime University and postdoctoral studies from Shandong University. He is a chief surgeon of The Department of Hepatobiliary Surgery in Qilu Hospital, and has been the Professor and doctoral supervisor since the age of 38 years. He is experienced in the surgical treatment of hepatobiliary disease, especially the cholangiocarcinoma and hepatic hereditary hemorrhagic telangiectasis. He has published more than 60 papers in reputed national and international journals and has been serving as an editorial board member and reviewer of many journals.