



## PRESS RELEASE

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### **Fleming researchers unraveled novel functions of the general transcription factor complex TFIID in regulating gene expression.**

The TFIID complex, composed of the TATA-binding protein (TBP) and 14 TBP-associated factors (TAFs), is one of the most studied components of the general transcription machinery. Studies over the past two decades established a prevailing view of its pivotal role in transcription initiation process. This view is now been challenged by data in the recent publication in *Molecular Cell* by Antonis Tatarakis and colleagues. The authors generated a liver-specific TAF10 knock-out animal model and found that in hepatocytes the TFIID complex disassembled to individual subunits. Surprisingly, the expression of less than 5% of the genes was affected by the elimination of TFIID from the cells. In-depth analysis of promoter regions of genes and the developmental timing of their activation revealed that TFIID is required for the initial activation of genes during development, while its function is dispensable for transcription of already active genes.

Of particular interest are the findings that reveal an active role of TFIID in the postnatal repression of several hepatic genes. In the case of silent genes that were active in previous developmental periods, TFIID was required for the tethering of repressor protein complexes to the promoters. Since the studied postnatally silenced hepatic genes are reactivated in cancer, the mechanism described by Tatarakis et al., opens new questions on potential involvement of TFIID in disease.

The findings point to a previously unanticipated functional plasticity of general transcription factors, which contributes to the generation of cell and developmental stage-specific gene expression patterns.

See publication at **PubMed**:

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