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MODY-fying gene expression in diabetes

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HNF1 α (hepatocyte nuclear factor 1) was originally isolated as a liver transcription factor. So it came as a sweet surprise to researchers when HNF1 α was identified as the gene mutated in patients suffering from MODY3, maturity onset diabetes of the young subtype 3. As they report in the 15 August *EMBO Journal* Wang *et al.* (*EMBO Journal* 2000, **19**:4257-4264) used a tetracyclin-regulated system to identify genes controlled by HNF1 α . They expressed the most common diabetes-associated mutant form of HNF1 α (P291fsinsC) in the INS-1 insulinoma cell line. This mutant form reduced the expression of several genes important for pancreatic β -cell function and inhibited expression of the insulin gene. Other genes suppressed by HNF1 α include those involved in glucose transport (GLUT2) and glycolysis (e.g. encoding proteins aldolase B and L-pyruvate kinase). These inhibitory effects result in reduced cellular insulin, insulin secretion and ATP production.

References

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