miR-122 acts as a tumor suppressor in hepatocarcinogenesis in vivo.

Mirjam Zeisel, Sébastien Pfeffer, Thomas Baumert

Table 1. Phenotype of miR122 knock-out mice and effect of miR122 restoration.

This table summarizes the characteristics of *MiR122a*$^{-/-}$ as well as *MiR122*-KO and *MiR122*-LKO mice [6, 7]. n. d.: not determined

	***MiR122*-KO and -LKO mice [6]**	***MiR122a*$^{-/-}$ mice [7]**
Development and fertility	Normal	Normal
Serum lipids	Reduced total cholesterol, LDL, HDL (VLDL n. d.)	Reduced total cholesterol, HDL, VLDL (LDL n. d.)
	Normal TG	Reduced TG
ALP and ALT	Elevated ALP (ALT n. d.)	Elevated ALP and ALT
Serum inflammation markers	Elevated IL-6, TNF-α	Elevated IL-6
Liver histology	Extensive lipid accumulation	Extensive lipid accumulation
	Reduced glycogen storage	Reduced glycogen storage
	Inflammation (infiltrating inflammatory cells expressing Ccr2 and producing IL-6 and TNF-α; increase of Ccl2 expression in hepatocytes)	Inflammation
	Fibrosis	Fibrosis
	Proliferation of bile duct	Portal fibrosis
	Spontaneous tumors (higher in LKO males in 12-17 months; equal penetration in KO males and females after 11-15 months but males display higher tumor weight and grades)	Spontaneous tumors (3.9-fold higher in males)
Hepatic lipid metabolism	Elevated TG	Elevated cholesterol and TG
	Upregulated expression of TG biosynthesis (Agpat1, Mogat1, Agpat3, Agpat9, Ppap2a, Ppap2c and Dgat1)	Reduced expression of genes involved in lipid metabolism (Acaca, Acyl, Fasn, Scd1, Cpt1a, Cpt2, Gsta2, Pklr, Slco1a, Slco1a4, Mttp, Slc27a5, Foxa1, Foxa2, Mlxipl and Nr1h2)
	Abnormal expression of genes involved in development, cellular proliferation and death, and cancer (Epcam, c-Myc, Mapre1 and Rhoa)	Increased expression of genes involved in immune response, fibrogenesis (Klf6), epithelial-mesenchymal transition, signal transduction, cell survival, cell death, and cancer

Rescue of liver pathology and serum lipids	n. d.	Restoration of MTTP or miR-122 expression by hydrodynamic injection
Prevention of HCC	Restoration of liver miR-122 expression by adenoviral delivery in 11-week-old mice	Restoration of miR-122 expression in 3-month-old mice by hydrodynamic injection