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3.3 Diet-induced hyperglycemia alters the hepatic microRNA profile in rainbow trout, *O. mykiss*.

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MicroRNAs are small, non-protein coding RNAs, which have emerged as potent regulators of glucose metabolism in mammalian model species through destabilization of specific mRNAs and inhibition of protein translation. While many miRNAs are highly conserved in evolution, teleost fish possess additional lineage- and species-specific miRNAs, targeting a potentially vastly different set of mRNA targets. To gain insight into the role of miRNA networks in the 'glucose-intolerant' phenotype in rainbow trout, we profiled hepatic miRNA abundance in the liver of rainbow trout exhibiting diet-induced normo- and hyperglycemia. Our study identified a total of 26 differentially regulated miRNAs, among them several previously identified as being regulated in a hyperglycemic environment in mammalian models. While this suggests at least some regulatory similarities between miRNA regulation in hyperglycemic rainbow trout and mammalian models, predicted mRNA targets suggest a large degree of divergence. Using our identified miRNA targets, future studies will focus on possible causative roles for select hepatic miRNAs towards the glucose-intolerant phenotype in rainbow trout.