**MASTER PROJECT OFFER:**

Molecular Mechanisms Regulating Ethanol-Induced Changes in Apolipoprotein Expression

**Background:**
- Coronary vascular disease (CVD) is the most common cause of death in industrialized countries.
- Moderate (!) alcohol consumption reduces both CVD and overall mortality (approx. 50,000 deaths/year in USA).
- This effect is mediated by enhanced transport of cholesterol from the periphery to the liver (Fig. 1).
- The molecular mechanism for this effect is unknown.

**What we know:**
1. Moderate alcohol consumption enhances the concentration of apolipoproteins that are produced in the liver (Fig. 2).
2. This increase is associated with a reduced risk of CVD.

=> How does ethanol regulate the expression of apolipoproteins?

**Methods:**
1. Cell culture
2. Isolation/purification/reverse transcription of mRNA.
3. Semi-quantitative cDNA-chip microarray technology
4. Quantitative real-time-PCR
5. Statistical evaluation/ontology annotation of chip array data

**What we have to support this thesis:**
1. Cells isolated from the liver of mice (C57/BL6)
2. A transcriptomics platform capable of dealing with microchip arrays for the mouse genome
3. An animal facility
4. Cell culture facility suitable for human hepatocyte cell lines.

**Aim:** To identify key factors of ethanol-induced changes in the apolipoprotein production profile of hepatocytes.

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