Project proposal

Project title	Iron Overload in Diabetes
First Supervisor	Mr — Paul Waller
Second Supervisor	Dr Mike Stolinski
School	Life Sciences
Other member of supervisory team (no more than three KU supervisors in total)	Dr Sarah Davie, Consultant Clinical Biochemist, Kingston Hospital NHS Trust
Specific requirements beyond 2:1 degree	Degree in Life Science/Biology/Biomedical Science related discipline

Project summary

(max 4,000 characters)

Recent evidence indicates that dysmetabolic iron overload syndrome (DIOS) is common in patients with non-alcoholic fatty liver disease, a condition which represents the hepatic manifestation of metabolic syndrome and which is associated with obesity and insulin resistance. This observation potentially distinguishes a population of individuals at an increased risk of developing diabetes and cardiovascular disease.

Iron normally circulates bound to the protein transferrin, but in iron overload 'non transferrin bound iron' (NTBI) may appear; importantly, the rate of cellular uptake of NTBI is not regulated by existing iron stores.

Cellular iron uptake is thought to be governed by two main factors;

- levels of transferrin-iron and NTBI
- cellular expression of iron transport and receptor proteins

We hypothesise that patients at risk of developing DIOS will have abnormal levels of NTBI and/or iron transport/receptor proteins, and this project aims to measure these biomarkers in a targeted patient population to assess their potential for early identification of those who would benefit from intervention and treatment.