fios GENOMICS

Accelerating the discovery of new biology

WHITE PAPER – CASE STUDY

Use of the Fios Genomics analysis approach for determining immunity pathways

Client/ Partner:

EU Consortium

Question:

Which immunological pathways are responsible for clearance of parasitic infections in people affected by river blindness?

Study design:

192 blood samples obtained from patients with different clinical presentations and uninfected healthy controls

3 groups: endemic normals (n=55), patent infection (n=48) and latent infection (n=71)

RNA samples hybridised to Illumina Human HT-12 arrays

Bioinformatics Analysis:

Group-wise comparisons to identify differences

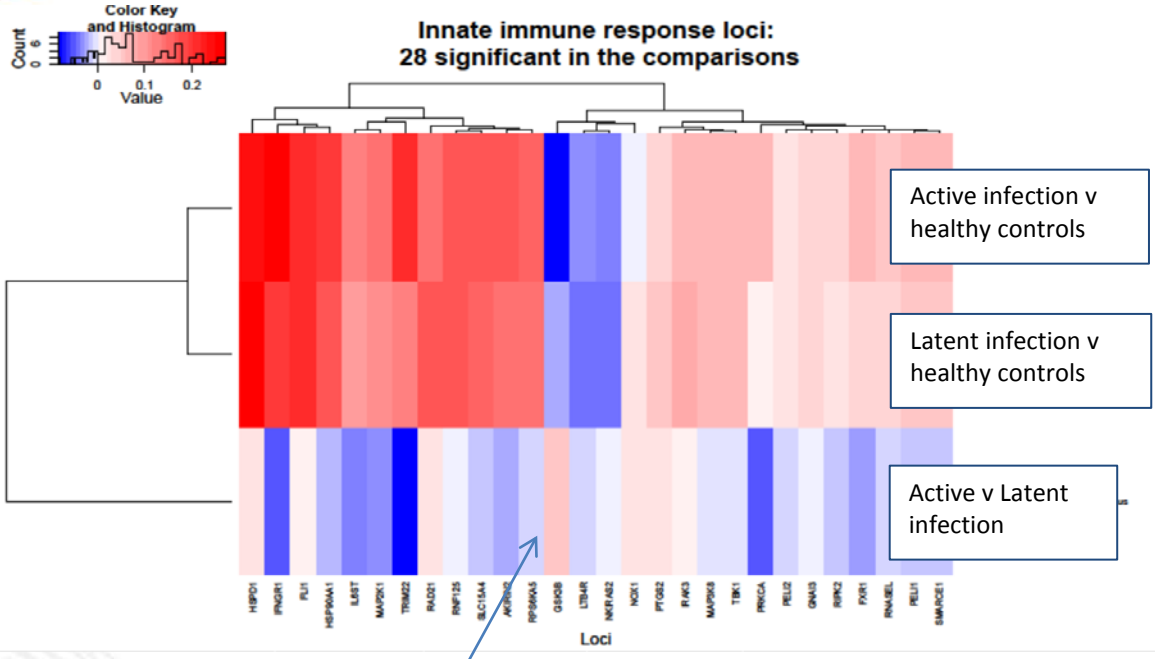
Statistical filtering of outputs to identify robust markers

Functional enrichment analysis of robust markers

Other focussed analysis e.g. markers implicated in immunity

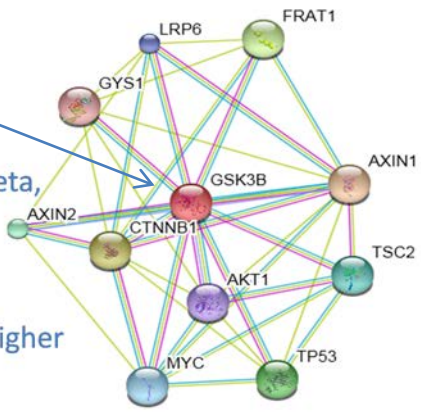
Results

- Latent and active parasitic infections have minimal effect on gene expression in blood cells
- Protective immunity may arise from subtle changes in the levels of expression of immune response genes



GSK3B

Glycogen synthase kinase 3 beta, involved in the hormonal control of several cellular processes, including glucose metabolism, is expressed at higher levels in active infection



Conclusion

The integrated Fios Genomics analysis approach can highlight a pattern or cluster in the most diverse and multi-variant datasets.

Future work

Insight into the immune status of infected patients which will be explored further in an additional cohort of 400 patients from another geographical region.