

KIRs, Immune cell dynamics & Control of Chronic Viral Infection

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Chronic viral infections such as human immunodeficiency virus (HIV-1), hepatitis C virus (HCV) and human T cell leukemia virus (HTLV-1) are marked by huge between-individual variation in outcome. Some people infected with HIV-1 will develop AIDS in less than 5 years others will remain healthy for 10 years or more. In HCV infection, some individuals spontaneously clear the virus others develop persistent infection and subsequent risk of liver failure. Similarly in HTLV-1 infection, some individuals remain lifelong healthy carriers of the virus whilst others will develop an aggressive, rapidly fatal leukemia.

We are coupling analysis of genetic data from large patient cohorts with mechanistic mathematical modelling and *in vitro* and *in vivo* T cell dynamics experiments to gain insight into what determines the clinical outcome of viral infection.