The Science Behind Targeted Treatments and Immunotherapies for Haematological Cancers

09.00 *Registration & coffee*

9.30 **Biology and genetics of haematological cancers**
- Cell of origin of different haematological cancers
- Types of DNA damage in haematological cancers
- Consequences of common chromosome translocations and other mutations
- Understanding the incidence of blood cancers in infants and children
- Why most haematological cancers are derived from B cells
- Important features of B cell cancers: indolent vs. aggressive, TP53-mutated, IgHV mutated, B cell receptor signalling pathway activation

10.30 *Break*

10.45 **Overview of treatment approaches**
- Importance of cell surface proteins and signalling pathways as the targets of treatment across various haematological cancers
- Other targets: cell metabolism, epigenetics, cell survival, the immune microenvironment
- Antibody-based treatments: naked antibodies, conjugated antibodies, BiTEs & bi-specifics
- Small molecules as cancer treatments
- Cell-based therapies

11.30 *Break*

11.45 **Treatments for chronic lymphocytic leukaemia, non-Hodgkin lymphoma (NHL) and acute lymphoblastic leukaemia (ALL)**
- CD20-targeted antibody therapies
- BiTEs, bi-specifics and conjugated antibodies
- B cell receptor signalling pathway inhibitors (targeting BTK, PI3Kδ, CD79B)
- Bcl-2 inhibitors

12.30 *Lunch*

13.30 **Treatments for multiple myeloma, acute myeloid leukaemia, Hodgkin lymphoma and chronic myeloid leukaemia (CML)**
- Treatments for multiple myeloma: proteasome inhibitors, immunomodulators, monoclonal antibodies
- Treatments for acute myeloid leukaemia: targeting IDH1/2, FLT3, smoothened, CD33, Bcl-2
- Kinase inhibitors for CML (and Ph+ ALL)
- Targeting CD30 and PD-1 for Hodgkin lymphoma

14.30 *Break*

14.45 **CAR T cell therapy for ALL, NHL, myeloma**
- Overview of the CAR T cell process
- CAR protein design – what each bit does and why it matters
- Reasons for side effects of CAR T cells
- Reasons for resistance and relapse
- Overview of the results so far, the lessons learned, and what the future might look like

16.00 *Questions and Close*