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Molecular mechanisms of targeted cancer treatments and cancer immunotherapy

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09.15 *Registration & coffee*

09.45 **Targeted cancer treatments: the current landscape**

- Hallmarks of cancer cells – which can we target?
- The pros and cons of small molecule kinase inhibitors and monoclonal antibodies

10.30 **Introduction to the most common targets:**

- Targeting cell communication via growth factors & growth factor receptors
- Targeting angiogenesis
- Targeting PARP and the cell cycle

11.00 *Break*

11.20 **Targeting cell communication pathways**

- Inhibitors of growth factor receptors: EGFR, HER2, MET, FGFRs
- Inhibitors of growth factor receptor fusion proteins: ALK, ROS1, RET, TRK proteins
- Inhibitors of the MAP kinase cascade: B-Raf, K-Ras and MEK inhibitors
- Inhibitors of the PI3K pathway: PI3K, AKT & mTOR inhibitors
- Common drug resistance mechanisms

12.30 *Lunch*

13.30 **Cancer's relationship with the immune system**

- A brief overview of the immune system
- How cancer's relationship with the immune system changes over time
- How the immune system can recognise and react to the presence of cancer
- Mechanisms of immune-evasion by cancer cells
- An overview of cancer immunotherapy
- Introduction to T cells and checkpoint proteins
- Mechanism of action of checkpoint inhibitors

14.30 *Afternoon break*

14.50 **Immunotherapy with checkpoint inhibitors**

- Spot the difference: CTLA-4 and PD-1/P-L1 targeted checkpoint inhibitors
- Examples of results and lessons learned from clinical trials

15.30 **Cancer treatment vaccines, CAR T cell therapy and TCR-engineered T cells**

16.00 *Questions and close*