Cancer immunotherapy stimulates a patient’s immune system to target and kill cancer cells

**How does the immune system work?**

- **Seeks**: T cells look for things that are harmful
- **Scans**: T cells scan cells to distinguish between normal abnormal cells
- **Removes**: Once detected, abnormal cells are attacked and removed by T cells

**What is cancer immunotherapy?**

- Immunotherapy is a very active area of research into cancer treatment
- Its goal is to enable a patient’s immune system to specifically recognize and destroy cancer cells
- There is a high unmet need for physicians and patients to have new therapies for treating certain cancers more effectively than the current standard of care

**In which areas is cancer immunotherapy being investigated?**

- Breast cancer
- Lung cancer
- Renal cell carcinoma
- Colorectal cancer
- Haematological cancers
- Prostate cancer
- Sarcoma
- Melanoma
- Bladder cancer
- Myeloma
- Lymphoma
- Renal cell carcinoma

**A brief history of cancer immunotherapy**

- **1990s**: Non-specific immunotherapies: boost the immune system in a general way. Injecting cytokines is one example of non-specific cancer immunotherapy. Cytokines are used in controlling the growth and activity of immune system and blood cells.
- **2000s**: Cancer vaccines: Vaccines are substances put into the body to start an immune response against certain diseases.
- **Today**: Monoclonal antibodies: Man-made versions of immune system proteins, designed to alter interactions between the immune system and cancer cells. One example of monoclonal antibodies as cancer treatment is to enhance the action of therapies that are used to prevent cancer cells from spreading. These drugs, alongside cytokines, help to suppress abnormal cells.
- **Future**: Targeted therapy: Using drugs that target specific proteins on or inside cancer cells. These drugs can slow or stop the growth of cancer cells.

**What does this mean for future cancer immunotherapy treatment?**

- Large-scale clinical trials to fully assess the benefits of the treatment are being undertaken
- Combination therapy: An effective current treatment combines with immunotherapy, is also a new field of research

**References**

3. *Programmed death-Ligand 1*