**HPV – human papilloma virus**

HPV has a circular, double stranded DNA, protected by capsid proteins.

More than 100 HPV-types are known. HPV16 and 18 cause 70% of all cervix cancers.

**Infection by HPV**

HPV infects epithelial cells in the cervical mucosa. HPV DNA integrates into the cellular genome when causing cancer.

- **Viral replication**
  - Weeks
  - Viral DNA integrates into the cellular genome when causing cancer.

- **~90% heal within two years**
  - HPV DNA integrated into tumour cell DNA

- **0.8% develop cancer**
  - HPV DNA integrated into tumour cell DNA

**Probe for HPV DNA**

Harald zur Hausen found HPV DNA in patient DNA (+).

**Discovery of HPV DNA in cancer cells**

Harald zur Hausen found HPV DNA in patient DNA (+).

**Discovery of HPV DNA in cancer cells**

HPV DNA integrated into tumour cell DNA

**HIV – human immunodeficiency virus**

HIV is a retrovirus of the lentivirus group. Viral RNA is converted to DNA, which integrates into the cellular genome.

**Discovery of an unknown virus**

- **Patient with swollen lymph nodes**
  - T cells from lymph nodes are cultured

- **~2 weeks**
  - Virus replication

- **Virus detected**

- **Electron microscopy identifies retroviral particles budding from infected T cells.**

**Discovery of HIV in patients**

Virus production detected in T cells by reverse transcriptase activity.

**Enzyme activity**

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Illustration: Annika Röhl

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