The Genes of HIV/AIDS

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What are HIV & AIDS?

- Human immunodeficiency virus
- Retrovirus
- Transmission
- Stages of Infection
  - Acquired immunodeficiency syndrome
HCP5: Overview

- Location
  - 6p21.3
  - 76,805 Bases

- Gene ontology
  - Defense response

- HIV/AIDS
HCP5: GWAS

- GWAS of HCP5
  - Who?
  - What?
  - Odds Ratio
  - Heritability

- What does this mean?
CCR5: Overview

- **Location**
  - 3p21.31
  - 6,065 bases

- **Gene Ontology**
  - C-C Chemokine receptor activity
  - Modulation by virus of host morphology or physiology
CCR5 Δ32 Variant

- Study
  - Who?
  - What?

- What does this mean?
  - Co-receptor
  - Protective genotype
Treatment Possibilities

- Gene Therapy
  - HCP5
  - CCR5

- Hematopoietic Stem Cell Treatment
  - Berlin Patient
Sources

- **CDC**: http://www.cdc.gov/hiv/basics/whatishiv.html
- **DefeatHIV**: http://defeathiv.org/berlin/
- **GeneCards**: http://www.genecards.org/cgi-bin/carddisp.pl?gene=CCR5
- **GeneCards**: http://www.genecards.org/cgi-bin/carddisp.pl?gene=HCP5
- **UniProt**: http://www.uniprot.org/uniprot/P51681
Studies

- Genomewide Association Study of an AIDS-Nonprogression Cohort Emphasizes the Role Played by HLA Genes (ANRS Genomewide Association Study 02): http://jid.oxfordjournals.org/content/199/3/419.full

- Resistance to HIV-1 infection in Caucasian individuals bearing mutant alleles of the CCR-5 chemokine receptor gene: http://www.nature.com/nature/journal/v382/n6593/abs/382722a0.html
Thank you for listening!

Questions?