

Virus	Sketchy video	Memory Hook	Lecture	Genetic information	Major Disease	Transmission	Diagnosis	Basics of Pathogenesis	Vaccines	Anti-viral Therapy	Long term Consequences
Poliovirus	1.2 - (Pico) Polio Virus	The Flamingo Breeding Pool	01- Biology of viruses	+ss RNA	Poliomyelitis	Fecal-oral	Sequencing by RT-PCR by the CDC	Viremia, invasion of the CNS, Lytic destruction of anterior horn cells	Live-attenuated oral and killed-virus injection	None	Long-lived protective immunity or paralysis
Coxsackie Virus	1.3 - (Pico) Coxsackie A	Coxsackie Cockatoos	02- Enterovirus	+ss RNA	Hand, foot, and mouth disease	Fecal-oral	Clinical diagnosis or RT-PCR	Viremia, target skin, cell death	None	None	Long-lived protective immunity
D68	1.1 - Picornaviridae Overview	The Peak-Orna Animal Nursery	02- Enterovirus	+ss RNA	Respiratory Infection	Respiratory and contact with contaminated surfaces	PCR and/or isolate virus and culture for cytopathic effect	Viremia leading to respiratory tract infection	None	Pleconaril (severe cases)	Long-lived protective immunity
Hepatitis A Virus	1.5 - (Pico) Hepatitis A	Hungry Hungry Hep A Hippos	02- Enterovirus	+ss RNA	Hepatitis	Fecal-oral	IgM Serology by antibody capture	Viremia, target liver	Killed-virus	vaccine during prodrome period of	Long-lived protective immunity
Rotavirus	2.7 - Reovirus (Double Stranded RNA)	A Race on the Rio	02- Enterovirus	DS segmented RNA	Diarrhea	Fecal-oral	Viral antigen in stool detected by EIA	Local replication, enterotoxin production	Rotateq: a live-attenuated pentavalent vaccine Rotarix: a live-attenuated vaccine protective against one genotype (more commonly given because fewer doses required)	None	Short-term immunity, less severe reinfection
Noroviruses	1.6 - (Norwalk) Calicivirus	Cali Sea Cruise	02- Enterovirus	+ss RNA	Diarrhea	Fecal-oral	RT-PCR by film array	Lysis and shedding of epithelial cells	None	None	Type specific immunity
Influenza virus	2.1 - Orthomyxovirus	A Night Shift at the Orthodontist's	03- Respiratory virus ii	-RNA, segmented, enveloped	"The Flu"	Respiratory	Film array RT-PCR assay	Local replication in respiratory tract, necrosis of epithelial cells	Live-attenuated and killed-virus	Amantidine or Neuraminidase inhibitors	Annual reinfection due to antigenic shift and drift
Rhinoviruses	1.4 - (Pico) Rhinovirus	Paranormal Mixer	04- Respiratory virus ii	+ RNA	Common cold	Respiratory	Film array RT-PCR assay	Lytic replication in the respiratory epithelium	None	None	Type-specific immunity
Respiratory Syncytial Virus	2.2 - Paramyxovirus	Paranormal Mixer	04- Respiratory virus ii	-ss RNA, enveloped	Severe lower respiratory tract infection in children	Respiratory	Film array RT-PCR assay	Local replication in respiratory tract, necrosis of epithelial cells	Preventative monoclonal antibody, Palivizumab	None	Short-term immunity, less severe reinfection

Parainfluenza Virus	2.2 - Paramyxovirus	Paranormal Mixer	04- Respiratory virus ii	-ss RNA, enveloped	Croup	Respiratory	Clinical diagnosis or RT-PCR	Local replication in respiratory tract, necrosis of epithelial cells	None	Glucocorticoids for severe cases of Croup	Short-term immunity
Mumps Virus	2.2 - Paramyxovirus	Paranormal Mixer	05 - Systemic virus	-ss RNA, enveloped	Mumps	Respiratory (before the Parotitis)	Clinical, confirmed by serology or sequencing performed by public health department	Replication in respiratory tract, viremia, targeting parotid gland	Live-attenuated vaccine, MMR	None	Long-term immunity
Measles Virus	2.2 - Paramyxovirus	Paranormal Mixer	05 - Systemic virus	-ss RNA, enveloped	Measles	Respiratory	Clinical, confirmed by serology or sequencing performed by public health department	Replication in respiratory tract, viremia, rash	Live-attenuated vaccine, MMR, with boosters	None	Long-term immunity, rare SSPE
Rubella Virus	1.9 - Togavirus Group	Toga-toga-togavirus	05 - Systemic virus	+ss RNA, enveloped	"German Measles"	Respiratory, Mother to Fetus	Serology	Replication in respiratory tract, viremia, rash	Live-attenuated vaccine, MMR	None	Long-term immunity, Congenital Rubella
Parvovirus b19	3.9 - Parvovirus	Bombs Away	05 - Systemic virus	ssDNA	Erythema Infectiosums (Fifth Disease)	Respiratory	Clinical diagnosis/ Serology or PCR of serum from aplastic crisis	Replicates in Erythroid precursor nuclei	None	Intravenous Ig for aplastic crisis in immunocompromised	Long-term immunity
HIV	1.11 Retrovirus (HIV/AIDS)	One Cane to Rule them all	06 HIV	+RNA Lentivirus	Progress to AIDS	Mother-to-child, transfusion, IV drug abuse, sexual	Serology and confirmation by western blot; RT-PCR for viral load in response to HAART; sequencing to look for	Depletion of CD4+ T cells	None	HAART: multiple RT-inhibitors and protease inhibitors	Suseptability to oppertunistic infections, progression to AIDS, death
Herpes Simplex Virus I	3.1 HSV 1 & HSV 2	Herpes Hermes	07- Latent Herpes Viruses I	DNA, enveloped	Cold sores/Encephalitis	Contact	Clinical presentation, can PCR from infected tissue	Replicates in epithelia, latent in trigeminal ganglia, reactivation	None	Acyclovir and Priteliver	Latent infection with recurrence
Herpes Simplex Virus II	3.1 HSV 1 & HSV 2	Herpes Hermes	07- Latent Herpes Viruses I	DNA, enveloped	Genital lesions, Neonatal Herpes	Contact	Clinical presentation, PCR of infected tissue, culture virus from lesion	Replicates in epithelia, latent in sacral ganglia, reactivation	None	Acyclovir and Priteliver	Latent infection with recurrence, Neonatal death or neurological impairment or
Varicella-Zostar Virus	3.4 Varicella Zoster Virus	Varicella Zeus-ter Virus	07- Latent Herpes Viruses I	DNA, enveloped	Chicken pox/ Shingles	Respiratory	Clinical presentation	Replicates in respiratory epithelium, viremia, rash, latent in dorsal root ganglia, reaccurrence as shingles can occur	Live-attenuated	Acyclovir	Latent infection with reacurrence as shingles
Epstein-Barr Virus	3.2 Epstein-Barr Virus	Ye Old Epstein Bar	07- Latent Herpes Viruses II	DNA, enveloped	Infectious mononucleosis	Respiratory, Salivia	Monospot (heterophile Ab) and/or serology for IgM to VCA	Replicates and latent in B cells	None	None	Latent infection with sporadic shedding, Burkitts lymphoma, Nasopharyngeal
Cytomegalovirus	3.3 Cytomegalovirus	Cyto "Mega-Lo" virus	07- Latent Herpes Viruses II	DNA, enveloped	Post-transplant pneumonia, Neonatal CMV	Contact: saliva, secretions, mother to newborn	PCR, Serology, Histology	Infects epithelium, cell proliferation, latency in Tc cells, macrophages, and other cells, sporadic shedding	None	Ganciclovir or Letermovir	Latent infection with life-long shedding of virus, Sequelae in neonates
Human Herpes Virus 6 & 7	3.5 HHV-6 Roseola	The Roses of Roseola	07- Latent Herpes Viruses II	DNA, enveloped	Roseola/ exanthem subitum	Respiratory	Clinical presentation	Sudden onset of fever, fever resolves, THEN red rash appears, latency in T cells	None	None	Latent infection

Human Herpes Virus 8	3.6 - HHV-8 Kaposi's Sarcoma	Ring around a Kaposi	07- Latent Herpes Viruses II	DNA, enveloped	Kaposi's Sarcoma	Sexual contact	Clinical presentation and PCR	T cells control infection, activation occurs during immunosuppression	None	None	sarcoma lesions in AIDS patients unless treated with HAART
Papilloma Virus	3.8 - Papillomavirus	Pilloma Bugs	11 Oncogenic Viruses	DNA	Warts, Cervical carcinoma	Contact	Clinical presentation, Hybridization (Pap smear)	Virus production associated with cell differentiation	Virus-like particle vaccine	None	Type 16, 18, 31 Cervical Carcinoma
Hepatitis B Virus	3.12 - Hepatitis B	Hep B Love	12 Viral Hepatitis	Partial dsDNA, enveloped	Hepatitis	Mother-to-child, transfusion, IV drug abuse, sexual	Serology by antibody capture	Viremia, targeting of the liver, persists in cells	Subunit vaccine	Nucleoside reverse transcriptase inhibitors (NRTIs)	Hepatocellular Carcinoma
Hepatitis C virus	1.8 - (Flavi) Hepatitis C	The Hep Sea	12 Viral Hepatitis	+ssRNA, enveloped	Hepatitis	Transfusion, IV drug abuse, contact with blood	RT-PCR, sequencing for genotype, serology	Viremia, targeting of the liver, persistent infection	None	Direct acting anti-virals (DAAs)	Hepatocellular Carcinoma
Hepatitis Delta virus	3.12 - Hepatitis B	Hep B Love	12 Viral Hepatitis	ss RNA viroid, enveloped	Fulminant Hepatitis	Mother-to-child, transfusion, IV drug abuse, sexual	Serology by antibody capture	Co-infection with HBV, viremia, targeting of the liver, fulminant disease	HBV subunit vaccine	Nucleoside reverse transcriptase inhibitors (NRTIs)	Chronic Hepatitis or Death
Hepatitis E virus	-	-	12 Viral Hepatitis	+RNA	Hepatitis (developing world)	Fecal-oral	Serology or RT-PCR by the public health department	Viremia, targeting of the liver	None (in trials)	None	Long-lived immunity; high mortality during pregnancy
Yellow Fever Virus	1.7 - Flavivirus Group	Flavor Packed Flavi	14 Emerging Viruses	+ss RNA, enveloped	Yellow Fever	Mosquito bite (w/ urban cycle)	Clinical diagnosis, confirmation by serology by public health department	Viremia, extensive replication and cell death in the liver	Live-attenuated	None	Long-term immunity or death
Dengue Virus	1.7 - Flavivirus Group	Flavor Packed Flavi	14 Emerging Viruses	+ss RNA	Hemorrhagic fever/ Break bone fever	Mosquito bite	ELISA for NS1, serology or RT-PCR	Immunophogenesis causing fever and rash	None	None	Antibody dependant enhancement of disease if infected with immunity of infancy or death (more neurologic damage)
West Nile Virus	1.7 - Flavivirus Group	Flavor Packed Flavi	14 Emerging Viruses	+ssRNA, enveloped	Encephalitis, meningitis	Mosquito bite	RT-PCR and serology	Viremia, CNS infection	None	None	Long-term immunity or death (more neurologic damage)
St Louis Encephalitis virus	1.7 - Flavivirus Group	Flavor Packed Flavi	14 Emerging Viruses	+ssRNA, enveloped	Encephalitis	Mosquito bite	RT-PCR and serology	Viremia, CNS infection	None	None	Long-term immunity or death (more neurologic damage)
Chikugunya Virus	1.9 - Togavirus Group	Toga-toga-togavirus	14 Emerging Viruses	+ssRNA, enveloped	Chikugunya fever, myalgias, arthralgias	Insect vector	Serology or RT-PCR by the public health department	Viremia, polyarthralgia, rash	None	None	Polyarthralgia can last weeks or months; Long-term immunity or death
EEE, WEE, and VEE	1.9 - Togavirus Group	Toga-toga-togavirus	14 Emerging Viruses	+ssRNA, enveloped	Encephalitis	Mosquito bite	Serology or RT-PCR by the public health department	Viremia, CNS infection	For horses only	None	Long-term immunity or death
California Encephalitis Virus	2.5 - Bunyavirus	Paul Bunyavirus	14 Emerging Viruses	7- segmented RNA, enveloped	Encephalitis	Mosquito bite	Serology	Viremia, CNS infection	None	None	Long-term immunity
Colorado Tick Fever Virus	2.7 - Reovirus (Double Stranded RNA)	A Race on the Rio (Grande Prix)	14 Emerging Viruses	DS segmented RNA	Fever and rash	Tick bite	Serology by the public health department	Verimia, inflammation and rash, recovery	None	None	Long-term immunity

Hantavirus	2.5 - Bunyavirus	Paul Bunyavirus	14 Emerging Viruses	-/+ segmented RNA, enveloped	Pulmonary syndrome	Inhalation of secretions from infected animal	Serology by the public health department	Viral replication in respiratory tract, inflammation, pneumonia	None	None	Long-term immunity and latency
Ebolavirus	2.4 - Filovirus	Soccer Field'o virus	14 Emerging Viruses	-ss RNA, enveloped	Hemorrhagic fever	Direct contact with blood or body fluids	RT-PCR from sera	Viremia, replication in all cells, cell death, organ failure	None	Supportive care, Non-FDA approved specific antibodies, vaccines in development	Long-term immunity, persistent infection, or death
Coronavirus	1.10 - Coronavirus	Kingdom of Sars	14 Emerging Viruses	+ssRNA	Common cold (229e, OC43), croup (NL63), pneumonia in elderly (HKU1); pandemic potential SARS & MERS	Respiratory, fecal-oral	Film array PCR	Local replication and cell death	None	None	Pandemic potential of emerging viruses like SARS and MERS, type specific immunity
Adenoviruses	3.10 - Adenovirus	A Den-O Lions	04- Respiratory virus ii; 02 Enteroviruses; 10 Virology Seminar	DNA	Multiple UR syndromes, conjunctivitis	Respiratory	Film array PCR	Replication in epithelial cless, viremia	Live-attenuated (military only)	None	Long-term immunity
Smallpox virus	3.11 - Poxvirus	Pox in a box	15 Viral Vaccines	DNA enveloped	Smallpox	Respiratory	CDC would sequence the virus and follow up on contacts	Viremia and rash	Live-attenuated	None	Eradicated! Candidate vaccine vector
Rabies Virus	2.3 - Rhabdovirus	Rabid Wrecking Yard	15 Viral Vaccines & 13 CNS Viruses	-ss RNA, enveloped	Rabies	Bite or contact with secretions from racoon, skunk, or bat	Detection of viral antigens in the brain; RT-PCR for genotype	Replication in muscle, spread from nerves to brain	Killed-virus	Anti-rabies Ig post exposure, no effective therapy after onset of CNS symptoms	Immunity or Death
Molluscum Contagiosum	3.11 - Poxvirus	Pox in a box	15 Viral Vaccines	DNA enveloped	Molluscum contagiosum	Contact	Clinical diagnosis from pearl-like lesions	Painless lesions that take months to resolve	None	None	Long-term immunity, persistent in AIDS patients
Zika Virus	1.7 - Flavivirus Group	Flavor Packed Flavi	14 Emerging Viruses	+ssRNA, enveloped	Fever, rash in 20% of people infected; Microcephaly (in babies of pregnant mothers infected with the virus)	Sexual contact (semen); mosquito (aedes aegypti) bite	RT-PCR and serology done by CDC or Public Health Dept	Fever rash and viremia in mom; microcephaly in fetus	None (17D-based vaccines in development)	None	From cdc website: "once a person has been infected, he or she is likely to be protected from future infections"