MUST TO KNOW IN IMMUNOLOGY AND SEROLOGY	
IMMUNOLOGY	
Emil von Behring	Serum antitoxins
Robert Koch	TB
Elie Metchnikoff	Phagocytosis
Paul Ehrlich	Immunity
Charles Richet	Anaphylaxis
Jules Bordet	Complement
Karl Landsteiner	ABO blood group SSR
Gerald Edelman Rodney Porter	Structure of antibodies
Rosalyn Yallow	RIA
Snell Dausset Benaceraf	MHC
Niels Jerne	Immunoregulation
Kohler Milstein	Monoclonal antibody
Susumu Tonegawa	Antibody diversity Déjavu
Thomas Murray	Transplantation
Peter Doherty Rolf Zinkernagel	Dual recognition
Barré-Sinoussi Luc Montagner	HIV
Pope Innocent VII	[illegible] blood transfusion
Christopher Columbus	Old world → New world = smallpox New world → Old world = syphilis
1984	Year of discovery of T cell receptor gene
1979	(-) Small pox
US Russia	Pure culture of smallpox
Lysozyme	Attacks bacterial cell wall Ineffective against *Mycoplasma* and *Ureaplasma* (no cell wall)
LAK cells	NK cells + IL-2 Against cancer
NK/Null/3rd population lymphocyte	(-) Markers on T/B cells Kills virus and tumor cells CD 16, CD 56
Complement	Major humoral immunity (natural)
Phagocytosis	"ICED": Initiation, Chemotaxis, Engulfment, Digestion
Direct phagocytosis	Primitive pattern recognition receptor
Indirect phagocytosis	Via opsonins
Initiation	CR3 (3rd C' component) Laminin receptor Leucyl-formyl-methionyl-phenylalanine receptor
Chemotaxis	C5a (potent chemotaxin) Job's syndrome = N-RA/Abn-CA Lazy leukocyte syndrome = Abn-RA and CA Boyden Chamber assay = test for chemotaxis

Cell flow cytometry	Light scatter Forward LS = cell size Side/90^0 LS = cell granularity/complexity	
Fluorescence microscopy	Labeled monoclonal antibodies	
Rosette test	E-rosette assay = T cells (CD2) EAC (Erythrocyte Ab Complement rosette) = B cells	
Differentiate T cells and B cells		
	T cell	**B cell**
Function	CMI	HI
Organ	Thymus	BM (1st: Bursa of Fabricius – birds)
Concentration	60-80%	20-35% (10-20%)
Lifespan	Longer	Shorter
Soluble substances	Lymphokines	Antibodies
ID	E-rosette	Surface immunoglobulins
Mitogen	Concanavalin A Phytohemagglutinin Pokeweed mitogen	Lipopolysaccharide Pokeweed mitogen
Mitogen	Substances that cause cells to divide	
Lymphocyte capping	B cells	
HLA	Chromosome 6 (short arm)	
Class I MHC	Endogenous antigen Locus/Ag = HLA - A, B, C Chain structure = α-chain + β_2 microglobulin Cell distribution = all nucleated cells Presents antigen to CD8+ cells	
Class II MHC	For antigen found on surface of the cell Locus/Ag = HLA - DP, DQ, DR Chain structure = α-chain + β-chain Cell distribution = B cells and macrophages Presents antigen to CD4+ cells	
Class III MHC	"CCTB" Locus/Ag = C2, C4, TNF, Factor B	
Dendritic cells	Most efficient APC	
Langerhans cells	DC in skin	
IL-2	T cell growth factor Stimulates lymphocyte proliferation	
IL-3	Growth of stem cells and differentiation of blood cells	
IL-4 IL-5	B cell growth factor 1 B cell growth factor 2 Differentiates B cell → plasma cell IL-5: eosinophil differentiation	
IL-6	Enhance antibody production of plasma cell	
IL-12	NK stimulating factor Activates NK cells and cytotoxic T lymphocytes	
Heteroantigen	↑↑↑ Antigenic	
Graft rejection	1. Hyperacute = w/in mins 2. Accelerated = 2-5 days 3. Acute = 7-21 days 4. Chronic = >3 months	
Potent antigen	>10 kDa	
Albumin	40 kDa Good immunogen	

	-HDN -HTR -AIHA -DIHA
IgG	Nonagglutinating Ab Can sensitize cells w/o causing visible agglutination
AHG reagent	Spans the distance between 2 IgG's
Mechanisms of DIHA	1. Drug absorption = Penicillin 2. Membrane modification = Cephalosporin 3. Immune complex formation = Stibophen, Phenacetin, Rifampin 4. Autoantibody formation (Gen. to Rh) = Methyldopa (Aldomet: Ab to Kidd), Mefenamic acid (Ponstel)
HTR	(+) DAT (-) DAT (mf) DAT = some are lysed and some are not lysed by C'
IAT	In vitro sensitization Specimen: Patient serum (common) Uses: -Cross-matching -Ab detection -Ab identification -RBC Ag phenotyping (weak D) = Specimen: RBC
Wash 3x	To remove unbound globulins
Inadequate washing	False (-) antiglobulin test Unbound globulins can neutralize AHG reagent
If (-) AHG	Confirm by adding Check or Coomb's cells (O+ RBCs sensitized w/ IgG) -Valid: Agglutination -To ensure AHG was added or not neutralized
Types of AHG reagent	1. Polyspecific AHG = contain anti-IgG and anti-C3d (C' degradation products) 2. Monospecific AHG = contain anti-IgG or anti-C3d
Radioimmunoassay (RIA)	Uses radioactive substances as label -Tritiated Hydrogen -^{125}I
Scintillation counter	Measure radioactivity β = liquid scintillation counter γ = crystal scintillation counter
Competitive binding assays (RIA)	Bound radiolabeled Ag is 1/α to patient Ag present
Noncompetitive immunoradiometric assays (IRMA)	Bound radiolabeled Ab is α to patient Ag present in supernatant fluid
RIST	Measure total IgE
RAST	Measure Allergen-specific IgE
Wastes container (DOH)	1. Red = sharps, needles 2. Yellow = infectious 3. Yellow w/ black band = chemical wastes 4. Green = non-infectious wet waste 5. Black = infectious dry waste 6. Orange = radioactive waste
Enzyme immunoassay (EIA)	Similar to IRMA except that it uses enzymes 1. Horseradish peroxidase = most common 2. ALP