

CHAPTER VIII

IMMUNOLOGY

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CHAPTER 10
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VOCABULARY

Acquired Active Immunity:	Acquired after contracting a disease, or receiving vaccination, or transfer of immune cells (lymphocytes or bone marrow cells) from a donor
Acquired Immunity:	Specific immunity developed by the body against invading antigens
Acquired Passive Immunity:	Patient receives immune serum (antiserum) containing antibodies produced in another animal e.g. antitoxins, gamma globulins, maternal antibodies
Afferent:	Conveying towards the center
Allergen: (adj: allergenic)	A substance capable of inducing allergy
Allergin:	The antibody responsible for anaphylaxis
Allergy: (adj: allergic)	A hypersensitive state acquired through exposure to a particular allergen
Anaphylactin: (adj: anaphylaxin)	Antibody formed after the first injection of the foreign protein (antigen) that interacts with it on the second injection
Anaphylaxis: (adj: anaphylactic)	An unusual or exaggerated allergic reaction of an organism to foreign protein or other substances
Assay:	Determination of the amount of a particular constituent of a mixture
Atopen:	The allergen involved in an atopic disorder
Atopy:	A genetic predisposition toward the development of immediate hypersensitivity reaction (type I) against common environmental antigen e.g. allergic rhinitis
B-cell lymphocytes:	Originate in bone marrow stem cells and when confronted with a specific type of antigen they transform into antibody-producing cells called plasma cells
Capsule: (adj: capsular) (capsula)	Fibrous or membranous structure that envelopes another structure
Cellular Immunity: (Cell-mediated immunity)	Acquired immunity in which the role of small lymphocytes of thymic origin is predominant

Cortex: (adj: cortical) (pl.: cortices)	Outer layer of an organ
Cytokines:	Are proteins produced by T cells to aid other cells in antigen destruction (e.g. interferons and interleukins)
Dendritic Cell:	Is derived from monocytes and specializes in recognizing and digesting foreign antigens such as proteins and carbohydrates
Efferent:	Conveying away from the center
Germinal Centre:	The area in lymphoid tissue in which differentiation and formation of lymphocytes occur
Humoral Immunity:	Acquired immunity in which the role of the circulating antibodies (immunoglobulins) is predominant
Immune:	Being highly resistant to disease
Immunity:	Security against a particular disease; or nonsusceptibility to the invasive or pathogenic effects of foreign microorganisms or to the toxic effects of antigenic substances
Immunization: (Immunifaction)	The process of rendering a subject immune
Immunizator:	That which renders immune
Immunize:	To render immune
Immunoassay:	The measurement of antigen-antibody interactions
Immunocompetence: (Immunologic competence) (adj: immunocompetent)	The ability to develop an immune response
Inoculation:	Introduction of microorganisms infective material, serum and other substances into a living animal
Lymph nodes:	Lymphoid organs situated along the course of lymphatic vessels
Lymph: (lymph) (adj: lymphatic)	Fluid found in lymphatic vessels, and derived from tissue fluids

Lymphoid:	Resembling tissue of the lymphatic system
Medulla: (adj: medullary) (pl.: medullae)	Most interior portion of an organ or structure
Natural immunity:	Present in the body at birth and is not dependent on a specific immune response or a previous contact with an infectious agent, depends on the natural presence of phagocytes, macrophages and natural killer (NK) cells
Natural Killer (NK) Cells:	Are lymphocytes that destroy tumor cells and virally infected cells
Plasma cells:	Produce antibodies called immunoglobulins
Spleen: (Splen; lien) (adj: splenic; lienal)	The largest structure of the lymphoid system
Suppressor Cells:	Inhibit the activity of B and T cells
T ₄ Cells: (Helper cells)	Promote antibody production by B cells and stimulates T cells
T ₈ cells:	Cytotoxic cells that act directly on antigens to destroy them
T-cell lymphocytes:	Originate from stem cells in the bone marrow and are processed in the thymus gland where they are acted on by thymic hormone. When a T-cell encounters an antigen, the T cell multiplies rapidly to produce cells that destroy the antigen (bacteria, viruses, cancer cells and transplanted tissues)
Thymus: (adj: thymic)	A ductless gland-like lymphoid body situated in the anterior mediastinal cavity. It is a site of lymphopoiesis and plays a role in immunologic competence. It reaches its maximum development during the early years of childhood and then undergoes involution
Vaccination:	The injection of vaccine for the purpose of inducing immunity
Vaccine:	A suspension of attenuated (weakened) or killed microorganisms administered for the prevention or treatment of infectious diseases

COMBINING FORMS

COMBINING FORM	DENOTING RELATIONSHIP TO	COMBINED WITH	MEANING	TERM	MEANING
Allergo__	Allergy (adj: allergic)	__logy	Study of	Allergology (adj: allergological)	The branch of medicine devoted to the study of allergy
Allergo__	Allergy	__logist	Specialist in	Allergologist (Allergist)	One who specializes in allergology
Allergo__	Allergy	__osis	Disease process	Allergosis	Any allergic disease
Anaphylacto__	Anaphylaxis	__oid	Resembling	Anaphylactoid	Resembling anaphylaxis
Immuno__	Immune	suppression (adj: suppressant)	Sudden stoppage	Immunosuppression (adj: immunosuppressive; immunosuppressant) (syn: immunodepression) (adj: immunodepressive) (adj: immunodepressant)	The artificial prevention of immune response
Immuno__	Immune	pathology	Study of diseases	Immunopathology (adj: immunopathologic)	Branch of medicine concerned with immune reactions
Lymphadeno__	Lymph node	hypertrophy	Enlargement	Lymphadenohypertrophy (lymphadenia)	Hypertrophy of a lymph node
Lymphadeno__	Lymph node	leukopoiesis	Production of white cells	Lymphadenoleukopoiesis	The production of lymphocytes by the lymphadenoid tissue
Lymphangio__	Lymph vessel	__gram	Xray record	Lymphangiogram (n:Lymphangiography)	A radiograph of lymphatic vessels
Lymphangio__	Lymph vessel	__plasty	Repair	Lymphangioplasty (Lymphoplasty)	Surgical restoration or replacement of lymph vessels that have been destroyed
Lympho__	Lymph	edema	The presence of abnormally large amounts of fluid in the intercellular tissue spaces	Lymphedema	Edema associated with obstruction of the lymph vessels or disorders of lymph nodes
Lympho__	Lymph	Aden__	Gland	Lymphaden (lymphoglandula)	Lymph node (gland)
Lympho__	Lymph	__gram	X-ray record	Lymphogram (lymphadenoangiogram)	X-ray record of lymph vessels & lymph nodes

COMBINING FORM	DENOTING RELATIONSHIP TO	COMBINED WITH	MEANING	TERM	MEANING
Lympho__	Lymph	__genesis	Production	Lymphogenesis (adj: lymphogenous)	The production of lymph
Lympho__	Lymph	__pathy	Disease	Lymphopathy (Lymphopathia)	Any disease of the lymphatic system
Lympho__	Lymph	__itis	Inflammation of	Lymphitis	Inflammation of some part of the lymphatic system
Lymphocyto__	Lymphocyte	__toxin	Poison	Lymphocytotoxin	A toxin that has specific destructive action on lymphocytes
Lymphocyto__	Lymphocyte	__rrhexis	Rupture	Lymphocytorrhesis	The rupturing or bursting of lymphocytes
Spleno__	Spleen	__icterus	Jaundice	Splenicterus	Inflammation of the spleen associated with jaundice
Spleno__	Spleen	__itis	Inflammation of	Splenitis	Inflammation of the spleen
Spleno__	Spleen	__cyte	Cell	Splenocyte	The monocyte of the spleen
Thymo__	Thymus	__cyte	Cell	Thymocyte	A lymphocyte arising in the thymus
Thymo__	Thymus	__kesis	Enlargement	Thymokesis	Enlargement of remnants of the thymus in the adult

PREFIXES

PREFIX	MEANING	COMBINED WITH	MEANING	TERM	MEANING
A__	Not	Toxic	Poisonous	Atoxic	Not poisonous
A__	Not;	Topic	Place	Atopic (n: atopy)	Pertaining to an atopen (an antigen responsible for atopy) (allergy with hereditary predisposition)
ana__	Excessive	__phylaxis	Protection	Anaphylaxis	An exaggerated allergic reaction to foreign protein or other substances
anti__	Against	__serum	The clear fluid that separates from the clotting of the blood	Antiserum	A serum that contains antibodies
anti__	Against	__toxin	Poison	Antitoxin (adj: Antitoxic)	Antibody to the toxin of a microorganism or animal toxin (zootoxin) e.g. antivenom, antirabies
Auto__	Self	__immune	Protection	Autoimmune (n: autoimmunity)	Directed against the body's own tissues
En__	In	__capsulated	Having a capsule	Encapsulated (n: encapsulation)	Enclosed within a capsule
Exo__	Outside	__toxin	Poison	Exotoxin (adj: exotoxic)	A toxic substance formed by bacteria and is found outside the bacterial cell
-hyper__	Excessive	__sensitive	Able to respond to stimuli	Hypersensitive (n: hypersensitivity)	Exhibiting abnormally increased sensitivity
Hyper__	Excessive	__splenism (splenia)	Destructive function of the spleen	Hypersplenism (Hypersplenia)	Exaggeration of the destructive functions of the spleen resulting in a deficiency of the peripheral blood elements
Im__	Not	Palpable	Felt	Impalpable	Not detected by touch
Inter__	In between	__stitial	Positioned	Interstitial	Situated in the interspaces of a tissue

PREFIX	MEANING	COMBINED WITH	MEANING	TERM	MEANING
Iso__	Same	Antigen	Substance capable of inducing formation of antibodies	Isoantigen (Alloantigen)	An antigen that exists in alternative forms in a species and induces an immune response when one form is transferred to members of the species who lack it
Iso__	Same	Antibody	An immunoglobulin which interacts with the antigen that induced its synthesis	Isoantibody (Alloantibody)	An antibody produced by an individual that reacts with isoantigens of another individual of the same species
Para__	Beside	__sternal	Pertaining to the sternum	Parasternal	Situated beside the sternum
Pre__	Before	Disposition	Tendency toward certain diseases	Predisposition	A latent susceptibility to disease which may be activated under certain conditions
Pre__	Before	Formed	Made	Preformed	Already made
Pre__	Before	Cursor	Runner	Precursor	A substance or cell from which another, usually more active or mature is formed
Pre__	Before	Leukemia	Malignant disease of the blood forming organs	Preleukemia	A stage that precedes the development of overt leukemia
Supra__	Above	__trochlear	Pertaining to a trochlea	Supratrochlear	Situated above the trochlea

SUFFIXES

SUFFIX	MEANING	COMBINED WITH	MEANING	TERM	MEANING
__agogue	An agent that induces	Lympho__	Lymph	Lymphagogue	An agent that promotes the production of lymph
__cele	Cyst	Lymphadeno__	Lymph node	Lymphadenocoele (Adenolymphocoele)	A cyst of a lymph node
__cele	Cyst	Lympho__	lymph	Lymphocoele	A cyst containing lymph
__ectasia	Dilatation	Lymphangio__	Lymph vessel	Lymphangiectasia (Lymphangiectasis)	Dilatation of lymphatic vessels (adj: Lymphangiectatic)
__ectomy	Excision	Capsulo__	Capsule	Capsulectomy	Excision of a capsule
__ectomy	Excision	Lymphoid	Resembling tissue of the lymphatic system	Lymphoidectomy	Excision of lymphoid tissue such as tonsils and adenoids
__ectomy	Excision	Spleno	Spleen	Splenectomy	Excision of the spleen
__ectomy	Excision	Thymo__	Thymus	Thymectomy (Thymusectomy)	Surgical removal of the thymus gland
__ectomy	Excision	Lymphangio__	Lymph vessel	Lymphangiectomy	Excision of one or more lymph vessels
__emia	Blood	Lympho__	Lymph	Lymphemia (Lymphatic leukemia)	The presence of an undue number of lymphocytes or their precursors in the blood
__ogenous	Produced by or derived from	Lymphato__	Lymph	Lymphatogenous (Lymphogenous)	Produced by lymph or spread by the lymph circulation or through the lymph channels
__gram	Record	Lymphadeno__	Lymph node	Lymphadenogram (n: lymphadenography)	X-ray record of lymph nodes
__itis	Inflammation of	Capsulo__	Capsule	Capsulitis	Inflammation of a capsule
__itis	Inflammation of	Lymphadeno__	Lymph node	Lymphadenitis (Lymphnoditis)	Inflammation of lymph nodes
__itis	Inflammation of	Lymphangio (adj: lymphangial)	Lymph vessel	Lymphangitis (Lymphangeitis) (Lymphangioiditis) Lymphangiitis	Inflammation of lymphatic vessels (angiolymphitis)
__megaly	Enlargement	Spleno__	Spleen	Splenomegaly (Splenectasis)	Enlargement of the spleen

SUFFIX	MEANING	COMBINED WITH	MEANING	TERM	MEANING
__oid	Resembling	Lympho__	Lymph or tissue of the lymphatic system	Lymphoid	Resembling tissue of the lymphatic system
__oid	Resembling	Lymphadeno__	Lymph node	Lymphadenoid	Resembling a tissue of a lymph node
__oma	Tumor	Lymphadeno	Lymph node	Lymphadenoma (Lymphoma)	Hyperplasia of lymphadenoid tissue
__oma	Tumor	Lymphangio__	Lymph vessel	Lymphangioma	A benign tumor formed of lymph spaces and channels
__oma	Tumor	Thymo__	Thymus	Thymoma	Tumor of the thymus gland
__pathy	Disease	Lymphadeno__	Lymph gland (node)	Lymphadenopathy	Disease of lymph nodes
__pathy	Disease	Thymo__	Thymus	Thymopathy	Any disease of the thymus
__tomy	Incision	Lymphangio__	Lymph vessel	Lymphangiectomy	Incision into a lymph vessel

ACRONYMS & ABBREVIATIONS

AIDS:	Acquired Immunodeficiency Syndrome Syndrome associated with suppression of the immune system and marked by opportunistic infections, secondary neoplasms and neurological problems
CD ₄ :	Protein on T-cell helper lymphocyte that is infected with HIV in AIDS
CMV:	Cytomegalovirus: causes AIDS related enteritis and retinitis
Crypto:	Cryptococcus: yeast-like fungus that causes opportunistic AIDS related infection of the lungs, brain and blood
ELISA:	Enzyme-linked Immunosorbent Assay (Test for the presence of antibodies to AIDS virus in serum)
HD:	Hodgkin Disease: Malignant tumor of lymph tissue in the spleen and lymph nodes Non Hodgkin lymphoma: a) Lymphocytic lymphoma: composed of lymphocytes b) Histiocytic lymphoma: composed of large lymphocytes that resemble histiocytes or large macrophages
Histo:	Histoplasmosis: fungal infection seen in AIDS patients
HIV:	Human Immunodeficiency Virus
HSV:	Herpes Simplex Virus: causes small blisters on the skin of the lips or nose or on the genitalia.
KS:	Kaposi Sarcoma: a malignant (cancerous) condition associated with AIDS; arises from the lining of capillaries and appears as bluish-red skin nodules
Toxo:	Toxoplasmosis: parasitic infection involving the central nervous system

ASSIGNMENT # 10

SUFFIXES	COMBINING FORMS/ROOTS
__cythemia: increase in number of blood cells	Immuno__: immune
__ectasis: distension	Cyto: cell
__genic: producing	Deficiency: lack
__graphy: x-ray recording	Senescence: process of growing old
__therapy: cure	Prophylaxis: prevention of disease
__tomy: incision	Lymphadeno: lymph node
	Lympho: Lymph
	Lymphangio: lymph vessel

Use the above, suffixes and combining forms and roots to produce a medical term for each of the following meanings:

1. The prevention of disease by the use of vaccines or antisera: _____
2. Incision into a lymphatic vessel: _____
3. A cell of the lymphoid system which can react with antigen to produce antibody or to become active in cell-mediated immunity: _____
4. X-ray recording of lymphatic vessels following injection of a contrast medium: _____
5. Producing immunity: _____
6. Enlargement of a lymph node: _____
7. Lack or defect in immune response: _____
8. Excess of lymphocytes in the blood _____
9. The weakness and atrophy of the immune system with advancing age: _____
10. X-ray recording of lymphatic channels and lymph nodes following injection of radio-opaque material: _____
11. Passive immunity conferred by administration of preformed antibodies actively produced in another individual: _____

QUIZ # 23

I. Write one synonym for each of the following terms:

1. Immunosuppression : _____
2. Allergologist : _____
3. Lymphogram : _____
4. Lymphoplasty : _____
5. Isoantigen : _____
6. Helper cells : _____
7. Lymphaden : _____
8. Lymphadenia : _____
9. Hypersplenism : _____
10. Immunocompetence : _____
11. Immunification : _____

II. Write an adjective for each of the following terms :

1. Lymph : _____
2. Cortex : _____
3. Anaphylaxis : _____
4. Immunocompetence : _____
5. Thymus : _____
6. Immunosuppression : _____

III. Write an opposite term for each of the following:

1. Immunocompetent : _____
2. Natural : _____

- 3. Afferent : _____
- 4. Toxic : _____
- 5. Palpable : _____
- 6. Active : _____

IV. Write the medical term for each of the following meanings:

- 1. Area in lymphoid tissue where differentiation and formation of lymphocytes occur: _____
- 2. Fibrous or membranous structure that envelopes another structure: _____
- 3. An unusual or exaggerated allergic reaction of an organism to foreign protein or other substance: _____
- 4. Being highly resistant to disease: _____
- 5. Determination of the amount of a particular constituent in a mixture: _____
- 6. The largest structure of the lymphoid system: _____
- 7. Cells that produce immunoglobulins: _____
- 8. Proteins produced by T cells to aid other cells in antigen destruction: _____
- 9. Cells that inhibit the activity of B and T cells: _____
- 10. A suspension of weakened or killed microorganisms administered for the prevention or treatment of infectious diseases: _____
- 11. Introduction of microorganisms, infective material, serum and other substances into a living animal: _____
- 12. Any disease of the lymphatic system: _____
- 13. A lymphocyte arising in the thymus: _____
- 14. Enlargement of remnant of the thymus in the adult: _____

- 15. Directed against the body's own tissues: _____
- 16. A substance or cell from which another, usually more active or mature form, is formed: _____
- 17. Innermost portion of an organ or structure: _____
- 18. The measurement of antigen-antibody reaction: _____
- 19. Lymphocytes that destroy tumor cells and virally infected cells: _____
- 20. Acquired immunity in which the role of the small lymphocytes of thymic origin is predominant: _____
- 21. A serum that contains antibodies: _____
- 22. A latent susceptibility to disease which may be activated under certain conditions: _____

Answers to Assignment 10

1. Immunoprophylaxis
2. Lymphangiectomy
3. Immunocyte
4. Lymphangiography
5. Immunogenic
6. Lymphadenectomy
7. Immunodeficiency
8. Lymphocytosis; lymphocytopenia
9. Immunosenescence
10. Lymphangiography; lymphography
11. Immunotherapy

Answers to Quiz 23

I. Synonyms

1. Immunodepression
2. Allergist
3. Lymphadenoangiogram
4. lymphangioplasty
5. Alloantigen
6. T₄ cells
7. Lymphglandula
8. Lymphadenohypertrophy
9. Hypersplenism
10. Immunologic competence
11. Immunization

II. Adjective

1. Lymphatic
2. Cortical
3. Anaphylactic
4. Immunocompetent
5. Thymic
6. Immunosuppressive;
immunosuppressant

III. Opposites

1. Immunodeficient
2. Acquired
3. Efferent
4. Atoxic
5. Impalpable
6. Passive

IV. Meanings

1. Germinal Centre
2. Capsule
3. Anaphylaxis
4. Immune
5. Assay
6. Spleen
7. Plasma Cells
8. Cytokines; interferons; interleukins
9. Suppressor cells
10. Vaccine
11. Inoculation
12. Lymphopathy; lymphopathia
13. Thymocyte
14. Thymokinesis
15. Autoimmune
16. Precursor
17. Medulla
18. Immunoassay
19. Natural killer cells
20. Cellular immunity
21. Antiserum
22. Predisposition