

IMMUNOLOGY

- The most scientific method to identify which triggers may be causing my nasal allergies is to:**
 - Track the time of year when my symptoms occur
 - Have an allergist perform a skin test
 - Have an allergist run a blood test
 - There is no good way to know what I'm allergic to and/or C
- Which is the most effective treatment for nasal allergies?**
 - Overthecounterantihistamines
 - Prescription antihistamines
 - Antihistamine decongestant combination pills
 - Nasal corticosteroid sprays
 - Oral leukotriene receptor antagonists
- Which one of the following is least likely to trigger asthma?**
 - Strenuous exercise
 - A common cold
 - Reading the newspaper
 - Cat dander
 - Tobacco smoke
- Which of the following factors can predisposeyou to having allergies?**
 - A family history of allergies
 - Environmental Conditions
 - Number and type of Exposures
 - Emotional factors
 - All of the above
- Hypersensitivity of which system of your body creates an allergic response?**
 - Skin
 - Immune System
 - Circulatory System
 - Pulmonary System
 - Digestive System
- Which of the following treatments can be used to reduce allergic reactions to unavoidable substances?**
 - Milk thistle three times daily
 - Mist inhalation therapy
 - Regularly wearing a face mask
 - Desensitization (Allergy shots)
 - Regularly wearing a garlic necklace
- Which of the following is the most commonly prescribed treatment for hives?**
 - Oral antihistamines
 - Oral corticosteroids such as prednisone
 - Epinephrine (adrenaline)
 - Aspirin
 - Immunotherapy
- Which of the following does NOT reduce or delay allergies in children?**
 - Reducing dustcollecting items
 - Limiting exposure early in life to indoor furry pets
 - Avoiding smoking in and around the house
 - Exclusively wearing cotton clothes
 - All actions adequately reduce allergies
- Which of these body systems causes allergic reactions?**
 - Lymph
 - Immune
 - Nervous
 - Autonomic
 - Circulatory
- An allergen is anything that triggers an allergic or hypersensitive response.Which of these could be an allergen?**
 - Dust
 - Food
 - Nickel jewelry
 - All of the above
 - None of the above
- What does the body release to combat allergens?**
 - Plasma
 - Epinephrine
 - Histamine
 - Red Blood cells
 - Cortisone
- The most severe form of allergic reaction is called anaphylaxis. What happens?**
 - Blood pressure drops
 - Breathing becomes difficult
 - Runny nose develops
 - A and B
 - B and C
- Which of these symptoms may indicate a food allergy?**
 - Skin rash
 - Runny nose
 - Diarrhea
 - Nausea
 - Wheezing
- Which of these foods are most likely to trigger an allergy?**
 - Shellfish
 - Wheat
 - Celery
 - A and B
 - B and C
- More Americans are developing a sensitivity to the plant proteins in latex materials or the chemical additives used in manufacturing the materials. Who's most at risk of developing a latex allergy?**
 - Patients who undergo numerous medical procedures
 - Health care workers
 - Children
 - A and B
 - B and C
- Pediatricians who treat children with egg allergies are cautious about using certain vaccines because they may be grown in an egg medium. Which of these vaccines warrant caution?**
 - MMR
 - Flu
 - Polio

- d. A and B
e. B and C
17. **Dust mites trigger indoor respiratory allergies. Where are you most likely to find them in the home?**
a. Carpet
b. Beds
c. Drapes
d. All of the above
e. None of the above
18. **How long ago was asthma identified as an ailment?**
a. 1,000 years ago
b. 500 years ago
c. 100 years ago
d. 50 years ago
e. 100,000 years ago
19. **What are the symptoms of asthma?**
a. Tightness in the chest
b. Wheezing
c. Sneezing
d. A and B
e. B and C
20. **Which of these can trigger an asthma attack?**
a. Exercise
b. Aspirin
c. Laughing
d. All of the above
e. None of the above
21. **Which of these allergens are most likely to induce asthma?**
a. Ragweed
b. Cockroaches
c. Feathers
d. B and C
e. A and B
22. **Which of these foods should children with asthma avoid?**
a. Dairy products
b. All nuts
c. Foods with preservatives
d. None of the above
e. All of the above
23. **Which of these, if eaten on a weekly basis, can help reduce chronic coughing and wheezing in asthmatic children?**
a. Broccoli
b. Oranges
c. Apples
d. Fish
e. Peanut
24. **Which sports are best for asthmatics?**
a. Baseball
b. Swimming
c. Sprinting
d. All of the above
e. Sport is dangerous for asthmatics
25. **What can you do to reduce exposure to outdoor asthma triggers?**
a. Exercise outdoors on high ozone days
b. Schedule camping trips in May, June or August through October
c. Pursue outdoor sports in cold weather
d. None of the above
e. All of the above
26. **Which of these alternative health treatments have reduced symptoms in children?**
a. Nightly massages
b. Evening primrose herb
c. Yoga
d. Aromatherapy
e. All of the above
27. **What should you do if pet hair triggers your asthma?**
a. Bathe the pet weekly
b. Keep the pet outside if possible
c. Own a dog, not a cat
d. All of the above
e. None of the above
28. **People who have atopic dermatitis also may have:**
a. Asthma
b. Allergies
c. Acne
d. A and B
e. B and C
29. **Which group of people is more likely to develop atopic dermatitis?**
a. Infants and young children
b. Teenagers
c. Adults 20 to 49
d. Older adults
e. All of the above
30. **One characteristic of atopic dermatitis is:**
a. It affects the face more than the rest of the body
b. It can leave pockmarks on the skin
c. It cycles through periods of flares and remissions
d. It is worse in autumn
e. There is no correct answer
31. **Atopic dermatitis is also often called:**
a. Acne
b. Eczema
c. Psoriasis
d. Pimples
e. Hives
32. **In the past, doctors thought which of these caused atopic dermatitis?**
a. Too much sun
b. An emotional disorder
c. Food allergies
d. Dust mite allergy
e. None of the above

- 1224 33. Which is a symptom of atopic dermatitis?**
- Blisters on the palms of hands and soles of feet
 - Itchy, inflamed skin
 - Scaly patches of skin on the scalp
 - Coinshaped patches of irritated skin on the arms and lower legs
 - All answers are correct
- 34. Some people with atopic dermatitis develop:**
- Thick, leathery skin
 - Red, scaling skin
 - Small raised bumps on the skin
 - All of the above
 - None of the above
- 35. The skin of a person with atopic dermatitis is more susceptible to:**
- Skin infections
 - Warts
 - Herpes simplex
 - All of the above
 - None of the above
- 36. Match the immune deficiency in WiskottAldrich syndrome with the appropriate lab test:**
- Quantitative immunoglobulins
 - CD11 by flow cytometry
 - NBT test (nitroblue tetrazolium test, oxidated burst)
 - Serum calcium
 - Platelet count and morphology
- 37. Match the immune deficiency in Di George anomaly with the appropriate lab test:**
- Quantitative immunoglobulins
 - CD11 by flow cytometry
 - NBT test (nitroblue tetrazolium test, oxidated burst)
 - Serum calcium
 - Platelet count and morphology
- 38. Match the immune deficiency in Bruton's disease with the appropriate lab test:**
- Quantitative immunoglobulins
 - CD11 by flow cytometry
 - NBT test (nitroblue tetrazolium test, oxidated burst)
 - Serum calcium
 - Platelet count and morphology
- 39. Match the immune deficiency in Leukocyte adhesion defect with the appropriate lab test:**
- Quantitative immunoglobulins
 - CD11 by flow cytometry
 - NBT test (nitroblue tetrazolium test, oxidated burst)
 - Serum calcium
 - Platelet count and morphology
- 40. Match the immune deficiency in Chronic Granulomatous disease with the appropriate lab test:**
- Quantitative immunoglobulins
 - CD11 by flow cytometry
 - NBT test (nitroblue tetrazolium test, oxidated burst)
 - Serum calcium
 - Platelet count and morphology
- 41. State one from airborne substances listed below is Perennial allergen:**
- Dust mites
 - Sagebrush
 - Ragweed
 - Perfume
 - Cigarette smoke
- 42. State one from airborne substances listed below is NonIgEmediated irritant:**
- Dust mites
 - Cat dander
 - Ragweed
 - Sagebrush
 - Cigarette smoke
- 43. State one from airborne substances listed below is Seasonal allergen:**
- Dust mites
 - Cat dander
 - Ragweed
 - Perfume
 - Cigarette smoke
- 44. In June, a 24yearoldfemale presents with angioedema of the face, including eyelids and lips. She has had two previous similar episodes. Her father has also had recurrent angioedema of the face and extremities. Neither has associated pruritis with the angioedema. Which diagnosis is suggested?**
- Hereditary angioedema
 - Food allergy
 - Enterovirus infection
 - Idiopathic angioedema
 - An ACE inhibitor was prescribed by her internist for hypertension
- 45. In June, a 24 year old female presents with angioedema of the face, including eyelids and lips. She has had two previous similar episodes. She always has associated gas and diarrhea with the angioedema. She was previously skin tested and found to have sensitivities to milk, ragweed and molds. Which diagnosis is suggested?**
- Hereditary angioedema
 - Food allergy
 - Enterovirus infection
 - Idiopathic angioedema
 - An ACE inhibitor was prescribed by her internist for hypertension
- 46. In June, a 24 year old female presents with angioedema of the face, including eyelids and lips. She has had two previous similar episodes. This episode, like the previous ones, occurred during the summer and was accompanied by diarrhea, low grade fever once and classical urticarial lesions.**
- Hereditary angioedema
 - Food allergy
 - Enterovirus infection
 - Idiopathic angioedema
 - An ACE inhibitor was prescribed by her internist for hypertension
- 47. Hereditary angioedema is:**
- Inherited as an autosomal recessive disorder
 - Usually associated with urticaria
 - Usually responsive to antihistamines

- d. Can be managed with Danazol (synthetic androgenic steroid)
e. All of the above are correct
48. **Which of the following adverse drug reactions is believed to be due to IgE mediated mechanisms?**
a. Aspirin induced anaphylaxis
b. Reaction to radiocontrast dye
c. Steven Johnson's Syndrome after a course of trimethoprim/sulfa
d. Wheezing, urticaria after administration of penicillin
e. None of the above
49. **Which of the following food allergies is most likely outgrown?**
a. Milk
b. Peanut
c. Walnuts
d. Shellfish
e. All of the above
50. **Indications for immunotherapy for hymenoptera allergy:**
a. Children and adults with a history of a life threatening reaction to a hymenoptera sting
b. People who have a history of a large local skin reaction that gets worse with each sting
c. Children with a history of generalized urticaria after a sting
d. Anyone with a family history of an allergic reaction to a hymenoptera sting
e. Patients with allergic rhinitis
51. **Eczema in an infant most commonly occurs in/on the:**
a. Antecubital and Popliteal fossae
b. Perineal region
c. Scalp and flexural areas
d. Extensor surface of arm and legs
e. All of the above
52. **As part of the work up of adult asthma, which of the following reproducible, pre and post bronchodilator pulmonary function test results would be interpreted as showing significant reversibility?**
a. a 15% increase in FEF 2575%
b. a 15% increase in FEV1 (425 ml improvement)
c. a 20% increase in FEV1 (180 ml improvement)
d. a 15% increase in FEV1/FVC ratio
e. a 15% increase in FVC
53. **All of the following medications can affect late phase (including by prophylaxis of the immediate allergic response) response in asthma except:**
a. Corticosteroids
b. Leukotriene modifiers
c. Cromolyn sodium
d. Albuterol
e. There is no such medication in the list
54. **Drug of choice for uncomplicated acute urticaria is:**
a. Corticosteroid
b. Antihistamines (H2 type)
c. Antihistamines (H1 type)
d. Subcutaneous terbutaline
e. All of the above
55. **Reasonable recommendations for a patient with moderate persistent asthma poorly controlled on low dose inhaled corticosteroids include all except:**
a. Add salmeterol inhaler BID
b. Double the dose of inhaled corticosteroid
c. Add a leukotriene modifier
d. Add nebulized cromolyn BID
e. All answers are correct
56. **Which of the following is a clear indication for penicillin allergy skin testing:**
a. A 40 year old patient with a history of anaphylaxis after ampicillin ten years ago. The patient now has endocarditis. Culture is positive for a streptococcal organism sensitive only to penicillin.
b. A 26 year old patient with a history of Steven Johnson's Syndrome after receiving amoxicillin.
c. A 65 year old ICU patient receiving penicillin and vancomycin with flushing and hypotension.
d. A 39 year old female who, eleven days after taking penicillin for a streptococcal pharyngitis, develops angioedema, arthralgias, urticaria and a low grade fever.
e. All of the above.
57. **The major advantage of second generation antihistamines is:**
a. They do cross the blood brain barrier and help patients to relax
b. They are very long acting
c. They cause decongestion as well as decreasing rhinorrhea
d. They minimally cross the blood brain barrier and have a decreased sedation effect
e. They decrease appetite
58. **Which of the following types of infection are increased in patients with humoral or B cell immunodeficiencies?**
a. Sinusitis
b. Otitis media
c. Pneumonia
d. Meningitis
e. All of the above
59. **The most common cause of chronic urticaria, especially in adults, is:**
a. Food allergy
b. Connective tissue disease
c. Drug allergy
d. Idiopathic
e. Viral infections
60. **Congenital absence of the late complement components (C5, C6, C7, C8) is most often associated with:**
a. Viral infections
b. Recurrent Neisserial infections
c. Lupus like disease
d. Candidiasis
e. Delayed separation of the umbilical cord
61. **Congenital complement deficiencies are best screened by which of the following laboratory tests:**
a. Quantitative immunoglobulins
b. NBT
c. Total CH50
d. C3, C4 and properdin
e. Flow Cytometry

1226 62. All of the following except one can be useful in managing atopic dermatitis:

- a. Skin lubrication/moisturization
- b. Controlling pruritus to reduce scratching
- c. Immunotherapy (allergy injections)
- d. Avoiding specific food allergy triggers
- e. Topical therapy with steroid or nonsteroid immune modulating agent (pimecolimus, tacrolimus)

63. All of the following regarding aspirin intolerance are true except:

- a. Patients with asthma are at no greater risk for aspirin intolerance than the general population
- b. A proposed mechanism of aspirin intolerance involves aspirin's effect on arachidonic acid metabolism
- c. There is cross reactivity between aspirin and NSAID intolerance
- d. Aspirin desensitization may be of benefit in a patient with aspirin intolerance who requires the drug
- e. Leukotriene modifiers are particularly beneficial in most patients

64. Which of the following tests would be most useful in helping to diagnose asthma:

- a. Diffusing capacity
- b. Pre and post bronchodilator FEV1
- c. Arterial blood gases
- d. Pulmonary functions pre and post methacholine challenge
- e. B and D

65. Conditions which may worsen asthma include (Identify the one incorrect choice):

- a. Diabetes Mellitus
- b. Sinusitis
- c. Pregnancy
- d. Cardiac disease
- e. Gastroesophageal reflux

66. Which of the following is the most common underlying cause of asthma (Choose the one best answer):

- a. Beta Blocker sensitivity
- b. Aspirin sensitivity
- c. Bronchitis
- d. Sinusitis
- e. Inhalant allergies

67. Inhaled corticosteroids (Choose the one incorrect answer):

- a. Can be useful in patients who have persistent asthma
- b. Can be useful in patients who require rescue inhaler 12 times per week
- c. Can be used in 612 year old children with asthma
- d. Acutely increase peak flow rate, a measure of large airway function
- e. Reduce airway hyperreactivity

68. A 40 year old male presents to the Emergency Room complaining of hives, wheezing and difficulty breathing following an insect sting. Pulse is 120 beats/min. BP is 100/56. Immediate therapy should include which one of the following:

- a. Diphenhydramine 50 mg IV
- b. Methylprednisolone 100 mg IV
- c. Epinephrine 0.3 ml (1:1000 aqueous) sub Q or IM
- d. Chlorpheniramine 8 mg orally
- e. None of the above

69. A 40 year old male presents to the Emergency Room complaining of hives, wheezing and difficulty breathing following an insect sting. Pulse is 120 beats/min. BP is 100/56. After Epinephrine is administered and quick assessment of the patient is done, you determine that the patient is moving air adequately and is not in shock. The next medication to give the patient immediately is:

- a. Diphenhydramine 50 mg IV
- b. Methylprednisolone 100 mg IV
- c. Epinephrine 0.3 ml (1:1000 aqueous) sub Q or IM
- d. Chlorpheniramine 8 mg orally
- e. None of the above

70. Which of the following symptoms is least common in patients with sinusitis?

- a. Nasal congestion
- b. Cough
- c. Fever
- d. "Postnasal" drip
- e. Mucopurulent rhinorrhea

71. Which of the following would not suggest a FISH (Fluorescence In Situ Hybridization) test to identify DiGeorge syndrome?

- a. Recurrent otitis media in a 3 year old
- b. Neonatal tetany
- c. Pervasive developmental delay in a 6 year old female
- d. Recurrent/persistent otitis and diarrhea in a 6 month old
- e. None of the above

72. Hereditary angioedema (C1 inhibitor deficiency) is characterized by all of the following except:

- a. Frequent abdominal pain
- b. Urticaria or hives
- c. Low C4 levels during and between attacks
- d. Family history of swelling
- e. Absence of symptoms before puberty

73. Common causes of acute urticaria include all of the following except:

- a. Food allergy
- b. Drug allergy
- c. Viral infection
- d. Inhalant allergy
- e. Hymenoptera stings

74. The two most common superinfections in atopic dermatitis are due to:

- a. Staph aureus and Herpes simplex
- b. Staph epidermidis and cutaneous viral infections
- c. Staph aureus and Candida
- d. Staph epidermidis and Candida
- e. Acinetobacter and Herpes simplex

75. The most common cause of contact dermatitis in general is:

- a. Latex
- b. Poison ivy, poison oak and poison sumac
- c. Nickel
- d. Dark colored pigments in shoes and clothing
- e. None of the above

76. A 2 year old with wheezing, persistent cough, a history of vomiting with cough, as well as hives and angioedema and increased cough after milk products comes to your office for evaluation. He drinks soy and grandma is not feeding him any milk products. He has been treated with prn albuterol

- nebulizer treatments with benefit in the past. On exam he has frequent congested cough, $p = 112$, $r = 26$, shiners and Dennies lines. On chest exam he has transmitted upper airway rhonchi and coarse breath sounds but no wheezes or rales. Nasal exam reveals swollen pale nasal mucosa without any visible discharge. CXR shows increased bronchovascular markings without infiltrate but with hyperexpansion. What diagnostic lab information do you want to obtain?
- CBC and diff, IgE and IgG RAST to milk and soy
 - CBC and diff, total IgE, IgG RAST to milk
 - CBC and diff, total IgE, and skin or RAST testing to milk, casein and soy
 - CBC, milk precipitins, IgE RAST to milk and casein
 - B and D
77. **The one true statement about anaphylaxis is**
- There are always skin findings—rash, angioedema, etc.
 - People with recurrent anaphylaxis with no identifiable cause (idiopathic) are the most likely to carry adrenalin
 - After adrenalin, the most important medication to administer immediately is steroids
 - After adrenalin, the most important medication to administer promptly is an H2 blocker
 - The most likely patient to die of anaphylaxis has underlying asthma
78. **A 5 year old boy lives in a smoking household and has a history of RSV bronchiolitis in infancy. He has been diagnosed with bronchitis at least once, and sometimes twice, every winter. He has sneezing and allergic salute in spring and fall. When he runs in kindergarten he often coughs but has no obvious shortness of breath. He wakes at night coughing only when he has bronchitis. He is unable to do full pulmonary functions. The historical information most suggestive of asthma in this child is:**
- Cough at night when ill
 - His allergic symptoms
 - RSV bronchiolitis in infancy
 - Cough with exercise
 - He has been living in a smoking household
79. **A 45 year old woman with a strong family history of both allergies and glaucoma presents with frequent red eyes that sometimes itch, sometimes feel dry and sometimes water. On exam, bulbar conjunctivae are injected, palpebral conjunctiva are normal in color. Nasal mucosa is moderately swollen and pale. Which of the following is the most likely diagnosis?**
- Vernal conjunctivitis
 - Allergic conjunctivitis
 - Glaucoma
 - Dryness from hormone replacement
 - Behcet's disease
80. **An 8 year old male has asthma symptoms about three times per month requiring the use of an albuterol inhaler, despite adequate inhaled steroid treatment. These episodes typically occur at night. The child is not allergic to his guinea pig or dust mites, and there is no smoking in the home. He has no problems with exercise and rarely needs albuterol during the day except when he has an upper respiratory tract viral infection. His FEV1 and PEFr are both >80% predicted. Based on this history, the most likely trigger for his nighttime asthma is:**
- Allergic rhinitis
 - Obstructive sleep apnea
 - Gastroesophageal reflux disease (GERD)
 - Drop in endogenous corticosteroid levels at night
 - None of the above
81. **A 10 year old girl has had asthma for 18 months. She typically complains of asthma symptoms 3 times per week on the average, with daily symptoms when she has a URIs. She has never been hospitalized for asthma but has had 2 ED visits for wheezing with URIs. She complains of cough and shortness of breath with strenuous exercise. Her FEV1 and PEFr are both >80% predicted. Her treatment to date has been an albuterol inhaler prn. At this point, the one clearly inadequate therapy for this patient is:**
- Start a leukotriene antagonist daily, albuterol inhaler prn and before exercise
 - Start an inhaled corticosteroid at low to moderate dose, continue albuterol prn and before exercise
 - Start the patient on a combined controller inhaler with inhaled steroid and long acting bronchodilator
 - Start the patient on an inhaled steroid and leukotriene antagonist, and albuterol inhaler before exercise and prn
 - All therapy strategies listed are adequate for this patient
82. **A 52 year old male with known asthma for 27 years is seen in your office for a follow up of his asthma. He states his asthma has been in good control on his low dose of inhaled corticosteroid. But when asked about albuterol use, he says he uses it 23 times daily. When asked about nighttime awakening due to asthma, he states he awakes because of asthma 3 times per month. He also tells you his asthma has been in good control and that he has not missed a day of work. A PFT indicates he has an FEV1 of 81% predicted. You would characterize his asthma as:**
- Mild intermittent
 - Mild persistent
 - Moderate persistent
 - Severe persistent
 - Well controlled asthma
83. **In treating allergic rhinitis, which of the following medication or medications control the symptoms of congestion, rhinorrhea and itching.**
- Antihistamine
 - Anticholinergic
 - Decongestant
 - Nasal corticosteroid
 - Antileukotriene receptor antagonist
84. **An 18 year old teenager with a history of asthma as a young child, which she "outgrew" by the time she was in first grade, presents to her primary care physician in November 4 months pregnant, with wheezing and cough for the last month. On questioning, she admits to ragweed hay fever and frequent heartburn. On exam, she is coughing at frequent intervals. Chest is clear to auscultation with fair breath sounds throughout. There is slightly prolonged expiratory phase. What is the most appropriate treatment for this patient:**
- Prn albuterol inhaler, loratadine and calcium carbonate antacid.
 - Prn albuterol inhaler, beclomethasone inhaled corticosteroid and ranitidine.
 - Prn albuterol inhaler, budesonide inhaled corticosteroid, ranitidine and oral steroid burst.
 - Prn albuterol inhaler, oral steroid burst and proton pump inhibitor.
 - Prn albuterol inhaler, course of erythromycin for possible mycoplasma infection, calcium carbonate antacid.
85. **Complement activation is a part of which type of hypersensitivity reaction?**
- Type I
 - Type II and Type III
 - Type IV

- d. Type III and IV
e. Type I and IV
86. After playing in the bushes during a camping trip, a 7-year-old girl complains of intense itching & blistering of the hands, arms, & legs. What is the most likely condition & what type of hypersensitivity reaction is she displaying?
- Hives; Type I reaction
 - Hives; Type IV reaction
 - Contact Dermatitis; Type IV reaction
 - Contact Dermatitis; Type I reaction
 - SLE; Type V reaction
87. Skin testing is useful in the diagnosis of which type of hypersensitivity reaction?
- Type I
 - Type II and Type III
 - Type IV
 - Type III and IV
 - Type I and IV
88. Rh disease & Goodpasture's syndrome are which type of hypersensitivity reaction?
- Type I
 - Type II
 - Type III
 - Type IV
 - Type V
89. Megakaryocytes are minimally immunoresponsive. What type of cell do megakaryocytes give rise to?
- RBC
 - Platelets
 - Leukocytes
 - Monocytes
 - Mast cells
90. A latent, measles-like viral infection &, presumably, a defect in cellular immunity is associated with which of the following diseases?
- Hereditary angioedema
 - Systemic lupus erythematosus (SLE)
 - Subacute sclerosing panencephalitis (SSPE)
 - DiGeorge syndrome
 - Bruton disease
91. What host cell membrane structures enable the attachment of a virus like human immunodeficiency virus (HIV)?
- Ion channels
 - Nuclear pores
 - Ribosomes
 - Receptors
 - All of the above
92. Name the process a cell such as a neutrophil or a macrophage uses to ingest (eat) its prey.
- Halitosis
 - Chemotaxis
 - Botulism
 - Phagocytosis
 - Pinocytosis
93. In HIV infection, reverse transcription describes which of the following?
- Converting viral DNA into RNA
 - Converting viral RNA into DNA
 - Converting proteins into viral RNA
 - Both A and B
 - Both B and C
94. Which of these produces and secretes antibodies in the body?
- Bacteria
 - Plasma Cell
 - Red blood cell
 - Virus
 - Both A and D
95. What's a specific term for a bacterial or other foreign protein that initiates antibody production by the body?
- Peptide
 - MHC II molecule
 - Complement
 - Antigen
 - Allergen
96. What product of the immune system attaches to bacteria, making them easier to eat by white blood cells?
- Hemoglobin
 - Antibody
 - Antigen
 - Both A and B
 - Both B and C
97. What is an important mechanism white blood cells use to kill bacteria, fungi and other invading pathogens?
- Asphyxiation
 - Oxidative activity
 - Fright
 - Drowning
 - All of the above
98. What is the term applied to white blood cells squeezing between endothelial cells lining the blood vessel to reach the site of an infection?
- Diapedesis
 - Chemotaxis
 - Phagocytosis
 - Enucleation
 - All of the above
99. What HIV protein helps insert the HIV provirus into the host's DNA?
- Transcriptase
 - Integrase
 - Protease
 - Dismutase
 - Oxydase
100. What main characteristic of HIV makes the virus difficult to treat with a single drug?
- Its ability to destroy drugs
 - Impenetrable capsule
 - Its ability to mutate

- d. Its environmental durability
e. RNA containing
101. A 36-year-old woman presents to the rheumatology outpatient clinic with a two-month history of stiff hands and wrists. She mentions that the pain is particularly bad for the first few hours after waking up and is affecting her work as a dentist. On examination, the wrists, metacarpophalangeal joints and proximal interphalangeal joints are swollen and warm. What is the most likely diagnosis?
- Rheumatoid arthritis
 - Osteoarthritis
 - Septic arthritis
 - Polymyalgia rheumatica
 - Reactive arthritis
102. A 45-year-old woman presents to the rheumatology outpatient clinic with a three-month history of stiff hands and wrists. She mentions that the pain is particularly bad first thing in the morning. On examination, the wrists, metacarpophalangeal joints and proximal interphalangeal joints are swollen and warm. A diagnosis of rheumatoid arthritis is suspected. Which of the following investigations is most specific for confirming the diagnosis?
- X-rays
 - Rheumatoid factor levels
 - Anti-citrullinated peptide antibody (anti-CCP) levels
 - C-reactive protein
 - Erythrocyte sedimentation rate
103. A 40-year-old woman presents to the rheumatology outpatient clinic with a three-month history of stiff hands and wrists. She mentions that the pain is particularly bad first thing in the morning. On examination, the wrists, metacarpophalangeal joints and proximal interphalangeal joints are swollen and warm. A diagnosis of rheumatoid arthritis is suspected. Blood tests for rheumatoid factor return as positive. What is the most appropriate management?
- Non-steroidal anti-inflammatory drugs (NSAIDs)
 - Intramuscular depot injection of methylprednisolone plus NSAIDs
 - Anti-TNF therapy
 - Intramuscular depot injection of methylprednisolone plus NSAIDs and methotrexate and sulfasalazine
 - Physiotherapy
104. A 50-year-old woman, who has received a recent diagnosis of rheumatoid arthritis, presents to her GP with ongoing pain and stiffness in her hands and feet. Which joints are usually spared at onset of rheumatoid arthritis?
- Proximal interphalangeal joints
 - Distal interphalangeal joints
 - Metacarpophalangeal joints
 - Wrists
 - Metatarsophalangeal joints
105. A 55-year-old man presents to his GP with a 2-week history of pain in his hands. The pain is particularly bad in his right hand. On examination, brown discoloration of the nails with onycholysis is noted and the distal interphalangeal joints are tender on palpation. What is the most likely diagnosis?
- Rheumatoid arthritis
 - Dermatomyositis
 - Reactive arthritis
 - Osteoarthritis
 - Psoriatic arthritis
106. A 75-year-old woman presents to accident and emergency complaining of pain in her knees. She mentions that this has been troubling her for several months. Pain is generally worse in the evenings and after walking. On examination, there are palpable bony swellings on the distal interphalangeal joints of the fingers on both hands. In addition, there is reduced range of movement and crepitus in the knees. What is the most likely diagnosis?
- Rheumatoid arthritis
 - Osteoarthritis
 - Reactive arthritis
 - Polymyalgia rheumatica
 - Gout
107. A 79-year-old woman presents to her GP with pain in the left knee. This is particularly bad in the evenings and is stopping her from sleeping. The GP explains that her discomfort is most likely due to osteoarthritis and arranges for her to have an x-ray of the knee. Which of the following descriptions are most likely to describe the x-ray?
- Reduced joint space, subchondral sclerosis, bone cysts and osteophytes
 - Increased joint space, subchondral sclerosis, bone cysts and osteophytes
 - Reduced joint space, soft tissue swelling and peri-articular osteopenia
 - Increased joint space, soft tissue swelling and peri-articular osteopenia
 - Normal x-ray
108. A 76-year-old man presents to accident and emergency with pain in his knees. It is worse in the right knee. He describes the pain as being worse in the evening and after exertion. On examination, bony nodules are palpable on the distal interphalangeal joints of both his hands. The right knee is swollen and there is a reduced range of active movement. X-rays show reduction in the joint space, subchondral sclerosis and osteophyte formation. What is the most appropriate treatment?
- Anti-TNF therapy
 - NSAIDs and urgent orthopaedic follow up
 - NSAIDs and GP follow up
 - NSAID and intramuscular depot injection of methylprednisolone with GP follow up
 - Admit the patient for orthopaedic assessment
109. A 32-year-old man presents to accident and emergency with a 1-day history of pain in the right knee. He also mentions that he has had a fever and is feeling generally unwell. On examination, the right knee is swollen, warm and extremely painful to move. What is the most appropriate next step?
- Empirical intravenous antibiotic treatment
 - X-rays of the right knee
 - Aspiration of the joint and blood cultures
 - Referral for physiotherapy
 - Immobilize the joint
110. A 30-year-old man presents to his GP with a 1-week history of painful, swollen knees and a painful right heel. Further history reveals that he has been experiencing burning pains while urinating for the past 2 weeks and that his eyes have become red and itchy. What is the most likely diagnosis?
- Septic arthritis
 - Gout
 - Ankylosing spondylitis
 - Enteropathic arthritis
 - Reactive arthritis

1230 111. A 70-year-old woman presents to accident and emergency with sudden onset pain and swelling in the right knee. Her past medical history includes hypertension and hypercholesterolaemia. She is currently taking aspirin, ramipril and simvastatin. On examination, she is afebrile and the right knee is swollen. There is reduced range of movement in the knee due to swelling and pain. X-ray of the right knee shows chondrocalcinosis. What is the most likely diagnosis?

- a. Gout
- b. Pseudo-gout
- c. Septic arthritis
- d. Reactive arthritis
- e. Osteoarthritis

112. A 74-year-old woman presents to accident and emergency with sudden onset pain and swelling in the left knee. On examination, she is afebrile and the left knee is swollen. There is reduced range of movement in the knee due to swelling and pain. X-ray of the right knee shows chondrocalcinosis. Microscopy of the fluid aspirated from the joint is most likely to show:

- a. Rhomboidal, weakly positively birefringent crystals under polarized light microscopy
- b. Needle-shaped negatively birefringent crystals under polarized light microscopy
- c. Atypical mononuclear cells
- d. Reed Sternberg cells
- e. Tophi

113. A 23-year-old man presents to the rheumatology clinic with lower back and hip pain. These have been occurring every day for the past two months. Pain and stiffness are worse in the mornings. He also mentions that his right heel has been hurting. He is previously fit and well, but had occasions of lower back pain when he was a teenager. His symptoms have stopped him from playing tennis. Recent blood tests organized by his GP have shown a raised C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). What is the most appropriate treatment?

- a. NSAID and spinal exercises
- b. NSAID and bed rest
- c. Oral prednisolone
- d. Methotrexate plus sulfasalazine
- e. Bed rest

114. A 32-year-old man presents to the minor injuries walk-in clinic, complaining of back pain. This had started suddenly that morning after he had lifted a heavy box at home. He mentions that the pain has been shooting down his left leg and he cannot walk without the support of his friend. He has not passed urine since the onset of pain. On neurological examination of the lower limbs, tone and power cannot be assessed due to pain but there are decreased ankle reflexes and a sacral anaesthesia. What is the most appropriate next step?

- a. Give NSAID analgesia and complete neurological examination
- b. Send the patient home with NSAID analgesia and bed rest advice
- c. Arrange urgent MRI of spine
- d. Give NSAID analgesia and catheterize the patient
- e. Send the patient home with NSAID analgesia and advice to avoid heavy lifting

115. A 70-year-old woman with a history of vertebral crush fractures presents to the osteoporosis outpatient clinic. Which of the following investigations is most useful to assess the extent of her osteoporosis?

- a. Spinal x-rays

- b. MRI scan
- c. Full blood count, bone and liver biochemistry blood tests
- d. Vitamin D levels
- e. DEXA scan

116. A 20-year-old man presents to accident and emergency with sudden onset pain in the right eye, with associated blurred vision and discomfort when gazing at the lights. He has a history of back pain and has recently been diagnosed with ankylosing spondylitis. What is the most likely cause of his eye pain?

- a. Conjunctivitis
- b. Retinal detachment
- c. Anterior uveitis
- d. Corneal ulceration
- e. Acute glaucoma

117. A 70-year-old woman presents to her GP complaining of severe unilateral headache over the left side of her head. On further questioning, she mentions that she has been having bilateral shoulder and neck pains over the past few weeks. She has also been feeling lethargic. On examination, the left side of her scalp is painful to touch. What is the most likely diagnosis?

- a. Polyarteritis nodosa
- b. Polymyositis
- c. Hypothyroidism
- d. Migraine
- e. Giant cell arteritis

118. A 77-year-old woman presents to accident and emergency complaining of severe unilateral headache over the left side of her head. On examination, the left side of her scalp is painful to touch. Blood tests reveal a raised ESR and CRP. What is the most appropriate management?

- a. Steroid therapy and arrange urgent temporal artery biopsy
- b. NSAID analgesia and arrange urgent temporal artery biopsy
- c. Paracetamol analgesia and discharge with advice to bed rest
- d. Arrange urgent MRI head
- e. NSAID analgesia and arrange urgent electromyography

119. A 60-year-old woman presents to her GP with a two-month history of lethargy and weakness. She mentions that she is finding it increasingly difficult to climb the stairs and do the housework. On examination, there is wasting and weakness of the proximal muscles in the upper and lower limbs. What is the most likely diagnosis?

- a. Dermatomyositis
- b. Polymyositis
- c. Polymyalgia rheumatica
- d. Kawasaki's disease
- e. Polyarteritis nodosa

120. A 30-year-old Afro-Caribbean woman presents to accident and emergency with a 1-week history of progressive shortness of breath and fever. On further questioning she mentions that her hands have been painful and stiff over the past few months and she has been having recurrent mouth ulcers. Chest x-ray confirms bilateral pleural effusions and blood tests reveal a raised ESR and a normal CRP. What is the most likely diagnosis?

- a. Systemic lupus erythematosus
- b. Systemic sclerosis
- c. Sjögren's syndrome
- d. Discoid lupus
- e. Behçet's disease

121. A 34-year-old Afro-Caribbean woman has been admitted for management and investigation of increasing shortness of breath. On further questioning, she mentions that her hands have been painful and stiff over the past few months and she has been having recurrent mouth ulcers. Chest x-ray confirms bilateral pleural effusions and blood tests reveal a raised ESR and a normal CRP. A diagnosis of systemic lupus erythematosus (SLE) is suspected and a full autoantibody screen is sent to the laboratory. Which of the following autoantibodies is most specific to the suspected diagnosis?
- Anti-nuclear antibody
 - Rheumatoid factor
 - Anti-double stranded DNA antibody
 - Anti-centromere antibody
 - Anti-mitochondrial antibody
122. A 55-year-old woman presents to her GP with shortness of breath and dry cough. These symptoms began a few months ago and have progressed. She has a past medical history of rheumatoid arthritis, diagnosed ten years earlier. On respiratory examination, there are bibasal fine inspiratory crackles on auscultation. What is the most likely cause of her symptoms?
- Pulmonary oedema
 - Consolidation
 - Pleural effusions
 - Pulmonary fibrosis
 - Intrapulmonary nodules
123. A 27-year-old woman presents to accident and emergency complaining of sudden onset shortness of breath and right-sided pleuritic chest pain. She has a past medical history of three miscarriages and a deep venous thrombosis in the right leg. On examination, pulse is 110 bpm, respiratory rate is 24 bpm, oxygen saturation is 88 per cent on room air. An arterial blood gas shows pH 7.40, PO₂ 8.0, PCO₂ 3.1. What is the diagnostic investigation of choice?
- Full blood count
 - Chest x-ray
 - D-dimer
 - CT pulmonary angiogram (CTPA)
 - ECG
124. A 27-year-old woman presents to accident and emergency complaining of sudden onset shortness of breath, right-sided pleuritic chest pain and haemoptysis. She has a past medical history of three miscarriages and a deep venous thrombosis in the right leg. CTPA confirms a large pulmonary embolism. What is the most likely underlying diagnosis?
- SLE
 - Primary anti-phospholipid syndrome
 - Raynaud's disease
 - Systemic sclerosis
 - Beçhet's disease
125. A 27-year-old woman presents to accident and emergency complaining of sudden onset shortness of breath, right-sided pleuritic chest pain and haemoptysis. She has a past medical history of three miscarriages and a deep venous thrombosis in the right leg. CTPA confirms a large pulmonary embolism. A diagnosis of anti-phospholipid syndrome is suspected and a full autoantibody screen is sent. Which of the following autoantibodies would confirm the diagnosis if detected?
- Anti-cardiolipin antibody
 - Anti-centromere antibody
 - Anti-nuclear antibody
 - Anti-mitochondrial antibody
 - Anti-histone antibody
126. A 45-year-old woman presents to the rheumatology clinic with a three-month history of itchy, dry eyes and a persistently dry mouth. She also mentions that her fingers have been extremely cold, occasionally turning blue after going outside in the morning. Shirmer's test is positive. What is the most likely diagnosis?
- Systemic sclerosis
 - Raynaud's disease
 - SLE
 - Primary Sjögren's syndrome
 - Secondary Sjögren's syndrome
127. A 24-year-old woman presents to her GP complaining of cold hands and feet. This has been ongoing for the past three months and is especially bad when she goes out in the mornings and may last for hours. On further questioning, she mentions that her hands sometimes turn blue or red and that gloves are unhelpful. She has otherwise been feeling well and has no past medical history. What is the most appropriate treatment?
- Propranolol
 - Aspirin
 - Nifedipine
 - Subcutaneous injection of low molecular weight heparin
 - Prednisolone
128. A 42-year-old woman presents to accident and emergency with retrosternal discomfort. She was diagnosed with systemic sclerosis a year ago. Which of the following statements is true about systemic sclerosis?
- Microstomia is only seen in diffuse cutaneous systemic sclerosis
 - Skin involvement is limited to face, hands and feet in limited cutaneous systemic sclerosis
 - Oesophageal dysmotility is only seen in limited cutaneous systemic sclerosis
 - Anti-double stranded DNA antibodies are normally detected in patients with systemic sclerosis
 - Raynaud's phenomenon occurs as a result of skin fibrosis (scleroderma)
129. A 30-year-old woman presents to accident and emergency with worsening stiffness in the hands, wrists and feet. She mentions that the pain has been particularly bad in the mornings. On examination, there is a palpable spleen. Initial blood tests reveal a low neutrophil count and a raised C-reactive protein. The most likely diagnosis is:
- Felty's syndrome
 - Reactive arthritis
 - Still's disease
 - Infectious mononucleosis
 - Serum sickness
130. A 53-year-old man, who works as a chef, presents to accident and emergency with sudden onset severe pain, tenderness and swelling of the first metatarsophalangeal joint. The pain is making it difficult for him to mobilize. He has had two previous similar episodes. Blood tests reveal a raised serum urate level. The most likely diagnosis is:
- Gout
 - Pseudo-gout
 - Septic arthritis
 - Reactive arthritis
 - Osteoarthritis

- 1232** 131. A 59-year-old man presents to his GP with sudden onset severe pain, tenderness and swelling of the first metatarsophalangeal joint. He is known to suffer from acute gout and has had several previous similar episodes. What is the most appropriate treatment?
- Allopurinol
 - NSAIDs
 - Conservative measures including reduced alcohol intake and weight loss
 - Intra-articular steroid injection
 - Methotrexate
132. A 30-year-old Turkish man presents to accident and emergency with oral ulcers, genital ulcers and painful legs. On examination, there are aphthous ulcers in the mouth, genital ulceration, erythema nodosum over the shins. He is admitted under the medical team on call and a skin pathology test is positive. What is the most likely diagnosis?
- Henoch–Schönlein purpura
 - Lyme disease
 - Berger’s disease
 - Caplan’s syndrome
 - Behçet’s disease
133. A 23-year-old woman presents to accident and emergency with a purpuric rash over the buttocks and lower limbs and haematuria. She is finding it difficult to mobilize due to pain in her ankles and knees. What is the most likely diagnosis?
- Henoch–Schönlein purpura
 - Perthes’ disease
 - Behçet’s disease
 - Still’s disease
 - Ehlers–Danlos syndrome
134. A 67-year-old man presents to his GP with pain in his pelvis. During the consultation, he mentions that his friends have been commenting that his head appears larger than before. In addition, he has noticed deterioration in hearing in his left ear. On neurological examination, a left-sided sensorineural deafness is detected. Closer inspection of the legs reveals bowing of the tibia. What is the most likely diagnosis?
- Osteomalacia
 - Osteoporosis
 - Acromegaly
 - Rickets
 - Paget’s disease
135. In a patient with Paget’s disease of the bone, which of the following blood test results are most likely to be seen?
- Normal serum calcium, normal serum phosphate, raised serum alkaline phosphatase
 - Normal serum calcium, normal serum phosphate, normal serum alkaline phosphatase
 - Raised serum calcium, low serum phosphate, normal serum alkaline phosphatase
 - Normal serum calcium, low serum phosphate, raised serum alkaline phosphatase
 - Low serum calcium, low serum phosphate, low serum alkaline phosphatase

Immunology - Answers

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|---------------|-------|-------|--------|--------|
| 1. b and/or c | 28. d | 55. d | 82. b | 109. c |
| 2. d | 29. a | 56. a | 83. d | 110. e |
| 3. c | 30. c | 57. d | 84. a | 111. b |
| 4. e | 31. b | 58. e | 85. b | 112. a |
| 5. c | 32. b | 59. a | 86. c | 113. a |
| 6. d | 33. b | 60. b | 87. e | 114. c |
| 7. a | 34. d | 61. c | 88. b | 115. e |
| 8. d | 35. d | 62. c | 89. b | 116. c |
| 9. b | 36. e | 63. a | 90. c | 117. e |
| 10. b | 37. d | 64. e | 91. d | 118. a |
| 11. c | 38. a | 65. a | 92. d | 119. b |
| 12. d | 39. b | 66. e | 93. b | 120. a |
| 13. a | 40. c | 67. d | 94. b | 121. c |
| 14. d | 41. a | 68. c | 95. d | 122. d |
| 15. d | 42. e | 69. b | 96. b | 123. d |
| 16. d | 43. c | 70. b | 97. b | 124. b |
| 17. b | 44. a | 71. c | 98. a | 125. a |
| 18. a | 45. b | 72. b | 99. b | 126. d |
| 19. d | 46. d | 73. d | 100. c | 127. c |
| 20. d | 47. d | 74. a | 101. a | 128. b |
| 21. d | 48. d | 75. b | 102. c | 129. a |
| 22. d | 49. a | 76. c | 103. a | 130. a |
| 23. b | 50. a | 77. c | 104. b | 131. b |
| 24. d | 51. c | 78. d | 105. e | 132. e |
| 25. d | 52. b | 79. b | 106. b | 133. a |
| 26. a | 53. d | 80. c | 107. a | 134. e |
| 27. d | 54. c | 81. d | 108. c | 135. a |