Lab Answer Key – 12e
BIO 141
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LABORATORY EXERCISE 11
INTEGUMENTARY SYSTEM

Figure Labels

FIG. 11.1
1. Epidermis
2. Dermis
3. Subcutaneous layer (hypodermis)
4. Hair shaft
5. Stratum corneum
6. Stratum basale
7. Sebaceous gland
8. Arrector pili muscle
9. Hair follicle
10. Sweat gland (eccrine gland)
11. Blood vessels

FIG. 11.2
1. Stratum corneum
2. Stratum granulosum
3. Stratum spinosum
4. Stratum basale

FIG. 11.3
1. Arrector pili muscle
2. Region of cell division
3. Hair shaft
4. Sebaceous gland
5. Hair follicle
6. Sweat gland (eccrine gland)

Critical Thinking Application Answers
Melanin granules are concentrated within some of the most superficial living cells of the body. Because melanin absorbs the ultraviolet radiation of sunlight, minimal damaging wavelengths reach the living cells of the dermis. (Most of the melanin granules are orientated on the superficial side of the nucleus that serve as a protective shield of the nucleus of the epidermal cells.)

Laboratory Report Answers

PART A
1. a
2. b
3. c
4. d
5. e
6. f
7. g
8. h
9. i
10. j
11. k

PART B
1. Answers will vary.
2. Answers will vary.
3. Epidermal cells at the base of the hair follicle divide and grow, pushing older cells outward; as these cells die, they become keratinized parts of the hair.
4. The pigment melanin is produced by melanocytes.

PART C
1. The epidermis is the superficial layer composed of stratified squamous epithelium. The dermis is the deep layer of skin composed of irregular dense connective tissue. The subcutaneous layer is beneath the dermis and composed of areolar and adipose connective tissues.
2. Cells of the stratum basale are living and reproduce actively; cells of the stratum corneum are dead and keratinized and form the surface layer of the skin.
3. Melanin is found in the stratum basale.
4. It contains both elastic and collagenous fibers that give the dermis the qualities of elasticity and strength.

PART D
1. Hair root
2. Dermis
3. Sebaceous glands are connected to hair follicles and secrete sebum into the follicles.
4. Dermis

PART E
(sketch)