**Part Four: Questions**: Use your **lab notes, your lecture notes, and your text book** to find the answers to the following questions. Please make sure your questions are complete before leaving lab.

1. List the five cell types in the anterior pituitary. Somatotrophs, thyrotrophs, gonadotrophs, lactotrophs (or mammotrophs), corticotrophs

Location: from text book (table 16.1) and lecture notes

1. List the hormones that are released from the five cell types.

Growth hormone, thyroid stimulating hormone, follicle stimulating hormone, Leutinizing hormone, Adrenocorticotrophic hormone, prolactin

Location: text book (ch 16) and lecture notes

1. List the functions of the hormones released from the anterior pituitary

Growth hormone: growth. Growth of long bones. Mobilizes fats

 Thyroid stimulating hormone: stimulates thyroid gland to release thyroid hormones,

Follicle stimulating hormone: female: stimulates the development of the follicle in the ovary. Male: stimulates sperm production,

 Leutinizing hormone: female: triggers ovulation. Male: promotes production of testosterone Adrenocorticotrophic hormone: stimulates adrenal cortex (glucocorticoids and mineralcorticoids)

Prolactin: promotes lactation

Location: Text book (ch 16) and lecture notes.

1. What are some of the differences between anterior and posterior pituitary?

Anterior pituitary makes and secretes hormones; posterior pituitary only secretes.

Anterior pituitary is glandular; posterior pituitary is not.

Anterior pituitary gets its hormones delivered through the portal system (hypophyseal portal) whereas the posterior pituitary hormones are released through the hypothalamic-hypophyseal tract)

Location: Chapter 16, lecture notes

1. Which hormones are released from the posterior pituitary?

Antidiuretic hormone

Oxytocin

Location: Chapter 16, lecture notes

1. Where are the posterior pituitary hormones made?

Hypothalamus

Location: Chapter 16, lecture notes

1. What are the functions of the posterior pituitary hormones?

ADH: reduces urine formation which in turn increases blood volume

OT: stimulates smooth muscle of the uterus and breast. Functions during labor and delivery, as well as during breast feeding.

Location: Chapter 16, lecture notes

1. Which hormones are produced at the follicular region of the thyroid gland?

The follicles produce T3 and T4, the thyroid hormones

Location: Chapter 16, lecture notes

1. Which thyroid hormones are extrafollicular?

Calcitonin

Location: Chapter 16, lecture notes

1. What are the functions of the thyroid hormones?

Multiple widespread functions: Increases metabolism, basal metabolic rate, heat production, and contributes maintaining blood pressure, regulates tissue growth and development, essential for nervous system and reproduction.

Location: Chapter 16, lecture notes

1. Which cells produce parathyroid hormone?

Parathyroid gland

1. What is the function of parathyroid hormone?
Essential for regulation of blood calcium levels
2. Which hormones are produced from the adrenal cortex? What are their functions?
Aldosterone from zona glomerulosa: controls Na+ and therefore water. Keeps Na+ in the body which retains water
Cortisol and other glucocorticoids from zona fasciculata: resistance to stress, maintain blood glucose between meals
Androgens from zona reticularis: produces testosterone
3. Which hormones are produced from the adrenal medulla? What are their functions?
Epinephrine and norepinephrine: mimics sympathetic nervous system: increases HR and metabolic rate, increases blood pressure
4. Which hormones are released from which cells of the pancreas?
alpha: glucagon
beta: insulin
5. What does heterocrine mean? A mixed gland that has both endocrine and exocrine function
location: found in pancreas info of lab manual
6. What are the functions of the hormone release from the pancreas?
Glucagon: increases blood glucose levels
Insulin: decreases blood glucose levels
7. Other than in the testes, where is testosterone produced?
Adrenal cortex
8. What are the layers of the ovary? What functions do they have?
Cortex and medulla. Cortex is the region where the follicles will develop and produce hormones. Medulla has no hormone function.
Location: “Ovary” section of lab manual
9. What function does estrogen have?
Female sex organs. Mature the reproductive organs and development of secondary sex characteristics. Contribute to the menstrual cycle.
Location: Chapter 16, lecture notes
10. Which hormones are produced at the thymus? What functions do they have?
Thymosins are produced at the thymus and contribute to immune cell development.
Location: Chapter 16, lecture notes

In the spaces below, draw and label the images as best you can from your work with the microscope. Please label each image and indicate which magnification was used.