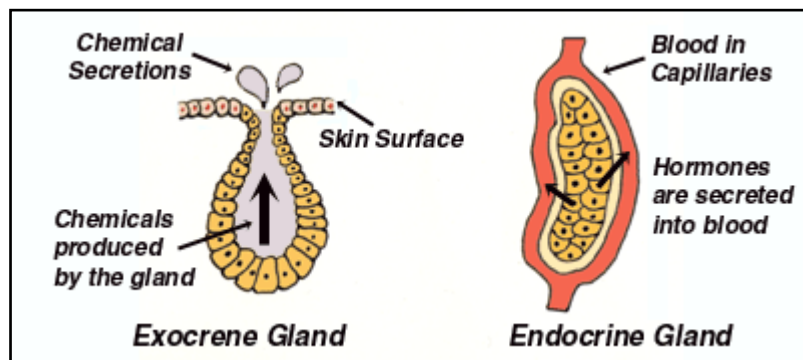
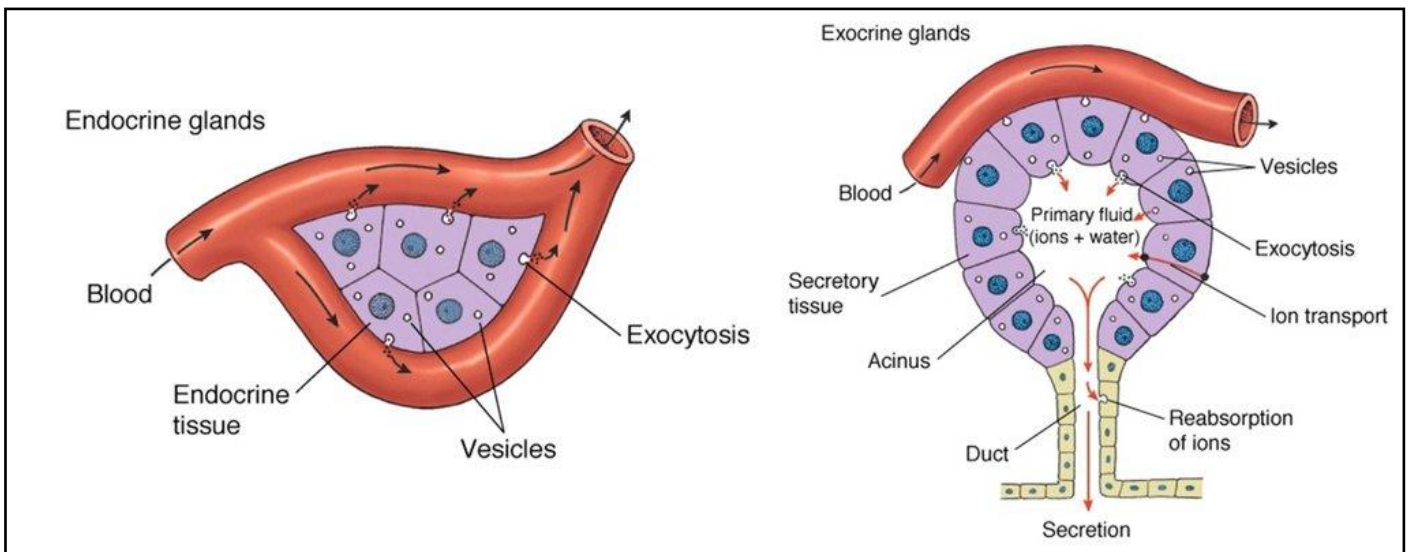


*Name of the student:* ..... *Date:* 02/11/2020

**Gland:**

A **gland** is a group of cells in an animal's body that synthesizes substances (such as hormones) for release into the bloodstream (endocrine gland) or into cavities inside the body or its outer surface (exocrine gland).

Glands are divided into two groups based on their functions:



**Exocrine glands**

Exocrine glands are the glands of external secretion.

- Exocrine glands have ducts.
- Secretory products are sweat, enzymes, mucus, sebum, etc.
- Secretory products are released to an internal organ or the external surface through a duct.
- Exocrine glands secrete their products through a duct onto an outer or inner surface of the body, such as the skin or the gastrointestinal tract.
- Salivary glands, mammary glands, sweat glands, are some of the exocrine glands.

## Endocrine glands

The endocrine glands are glands of internal secretion.

- Endocrine glands do not have ducts.
- Secretory products are hormones.
- Secretory products are released directly into the bloodstream, eventually reaching the target organ.
- Thyroid glands, parathyroid glands, pituitary glands, adrenal glands etc. are endocrine glands.

**Q. Write down four differences between exocrine gland and endocrine gland.**

Exocrine gland	Endocrine gland

## Endocrine glands, Locations, Secreted Hormones & Functions:

Endocrine glands	Location	Secreted Hormones	Functions
<b>Pituitary Gland</b>	Situated beneath the brain	Growth hormone, LH, FSH etc., Thyroid-stimulating hormone, such as: Gonadotropin, Thyrotropin, Prolactin, Somatotropin, etc.	They control and regulate other glands in the body.
<b>Pineal Gland</b>	Located deep in the center of the brain	Melatonin	Regulates the wake-up and sleep clock and helps in immunity etc.
<b>Thyroid Gland</b>	Situated at the upper part of the trachea	Tri-iodothyronine (T3), Thyroxine (T4) and Calcitonin	They regulate the metabolism of the body.
<b>Parathyroid Gland</b>	Situated in the posterior part of the thyroid gland	Parathormone	Regulates calcium and phosphorus metabolism.
<b>Thymus Gland</b>	Located in the neck	Thymosin	Stimulates the development of disease-fighting T cells.
<b>Islets of Langerhans</b>	Situated in the pancreas	Glucagon, Insulin, Somatostatin and Pancreatic polypeptide	Balance the blood sugar level in the body
<b>Adrenal glands</b>	Located just above the kidneys	<u>Cortex region secretes:</u> Cortisol, Aldosterone, and Androgens <u>Medulla region secretes:</u> Adrenaline and Nor-adrenaline.	Adrenaline is the “hormone of fight or flight”. Help to regulate metabolism, immune system, blood pressure, response to stress and other essential functions.
<b>Gonads</b>	Situated in the testis of a male and in the ovary of a female	<u>Testes secretes:</u> Testosterone <u>Ovaries secrete:</u> Estrogen and Progesterone.	Responsible for the secondary sexual characteristics.

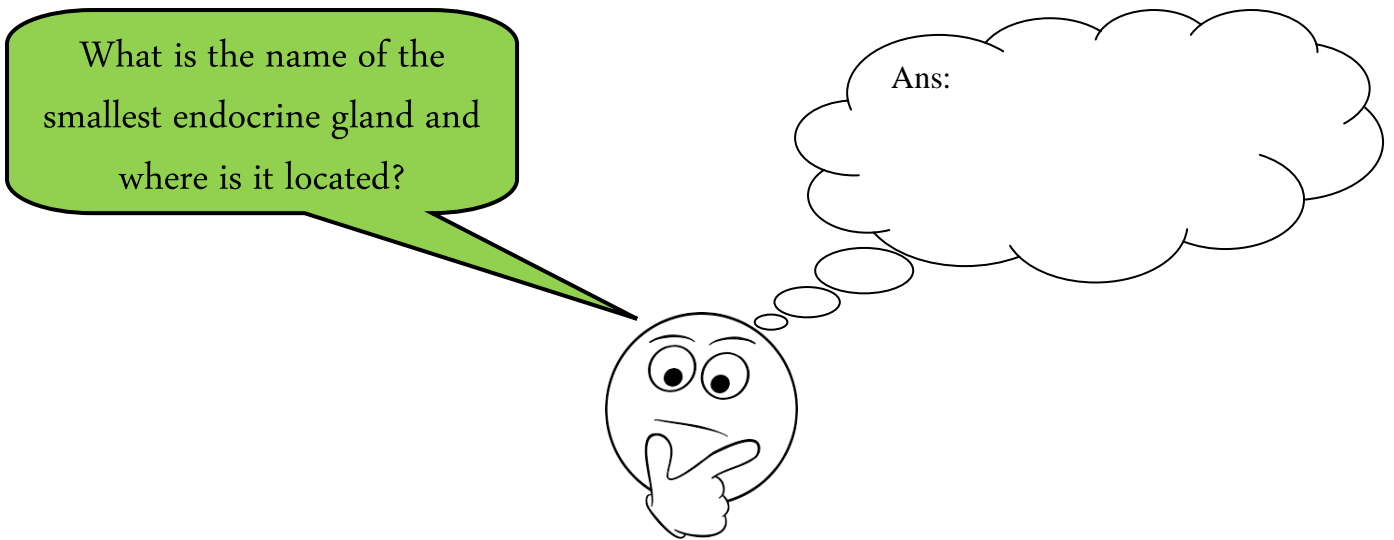
Q. Why is the pituitary gland called the master gland?

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Q. Match the followings.

Column-A	Column-B
a) Pineal gland	Regulates metabolism
b) Estrogen	Develop immune system
c) Islets of langerhans	Situated in the posterior part of the thyroid gland
d) Thyroid stimulating hormones	Express secondary sexual characteristics
e) Androgen	Melatonin
f) Thyroxine	Adrenal gland
g) Thymosin	Control the sugar of blood
h) Parathyroid Gland	Pituitary gland