



Structure of hormones by location

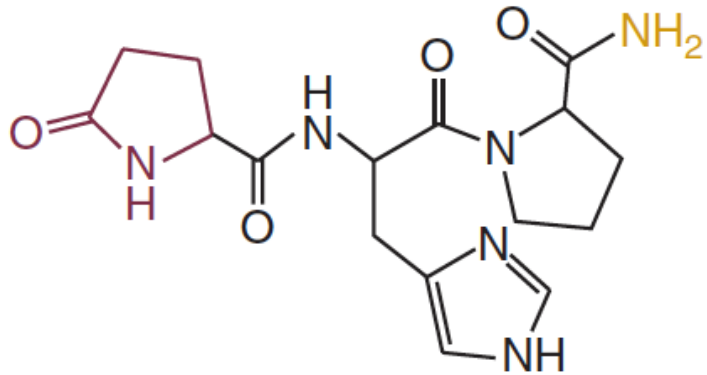


Hypothalamus

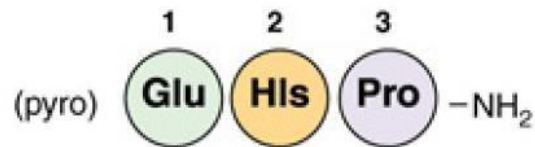
Hormone	Composition
Growth hormone releasing hormone (GHRH)	Two forms: polypeptides (40 & 44 amino acids)
Somatostatin	Two forms: polypeptides (14 & 28 amino acids)
Dopamine	Catecholamine (amino acid derivative)
Corticotropin releasing hormone (CRH)	Polypeptide (41 amino acids)
Gonadotropin releasing hormone (GnRH)	Polypeptide (10 amino acids)
Thyrotropin releasing hormone (TRH)	Polypeptide containing 3 amino acids



Hypothalamus



thyrotropin-releasing hormone, TRH.



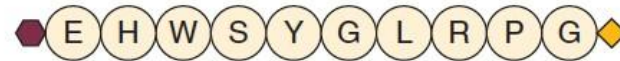
TRH

● (E) = pyroglutamyl

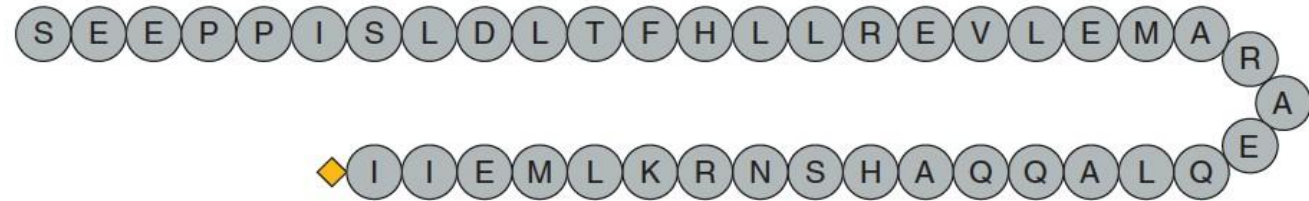
○ ◆ = c-terminal amide: prolinamide (TRH); glycynamide (GnRH); isoleucinamide (CRH); leucinamide (GHRH)



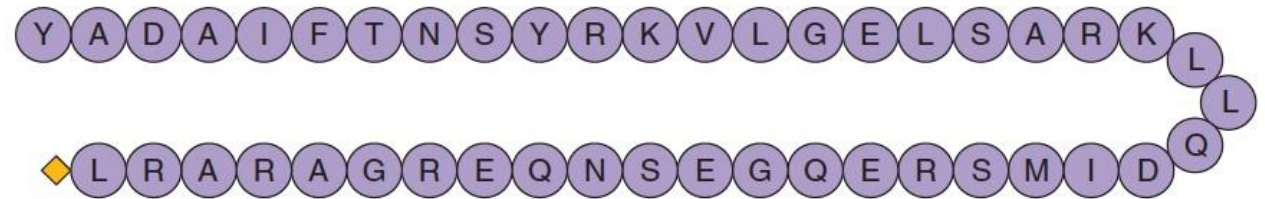
TRH: Thyrotrophin releasing hormone



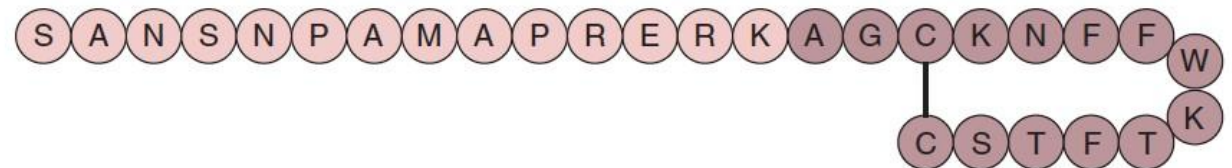
GnRH: Gondaotrophin releasing hormone



CRH: Corticotrophin releasing hormone



GHRH: Growth hormone releasing hormone



ST: Somatostatin



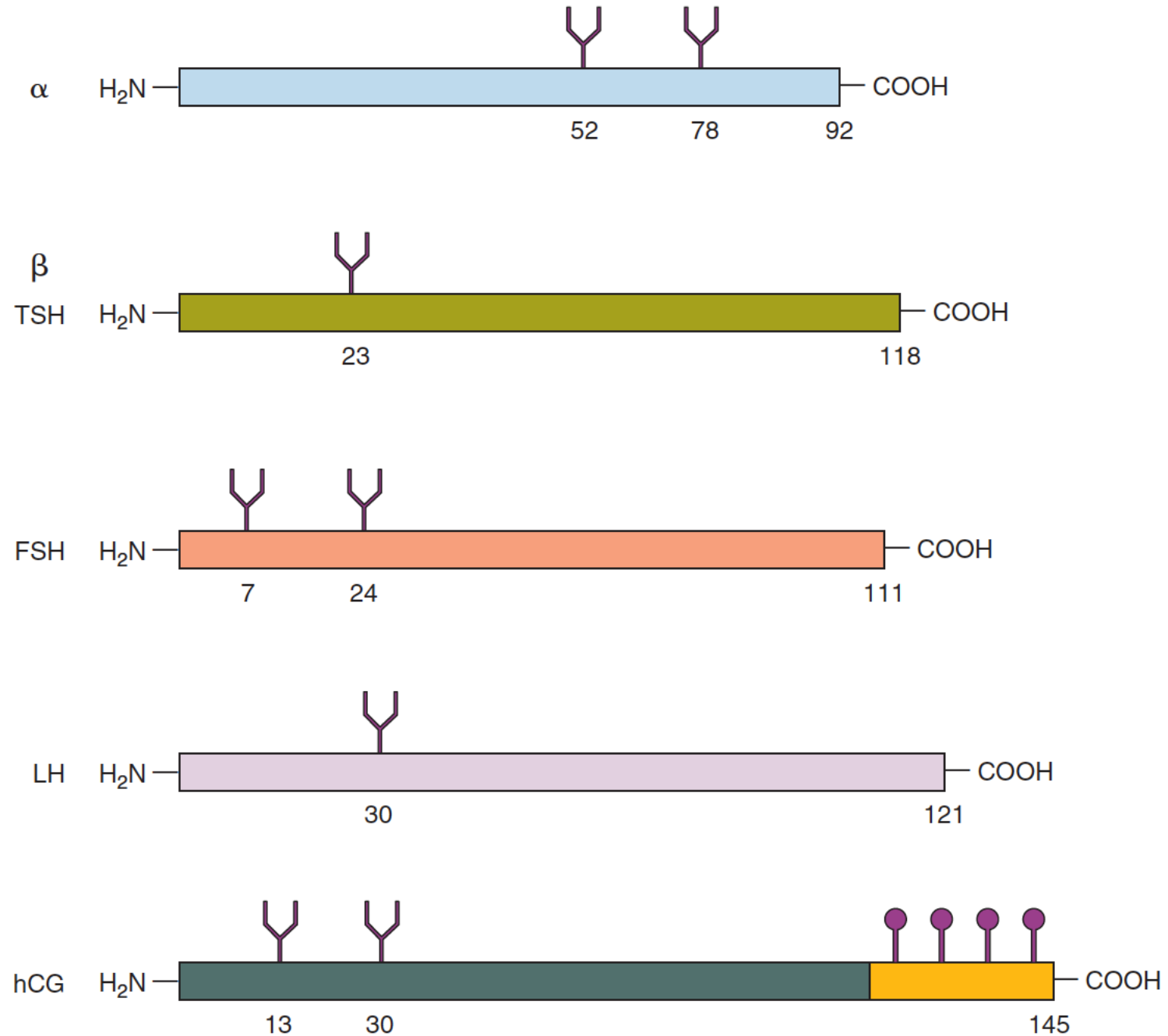
Anterior Pituitary

Hormone	Composition
Growth hormone (somatotropin, GH)	Straight-chain protein: two forms (191 aa) and (176 aa)
Prolactin (PRL)	Straight-chain protein (198 aa)
Adrenocorticotrophic hormone (ACTH)	Small polypeptide (39 aa)
Follicle-stimulating hormone (FSH)	2-chain glycoprotein: (α , 92 aa; β , 111 aa)
Luteinizing hormone (LH)	2-chain glycoprotein: (α , 92 aa; β , 116 aa)
Thyrotropic hormone (TSH)	2-chain glycoprotein: (α , 92 aa; β , 112 aa)



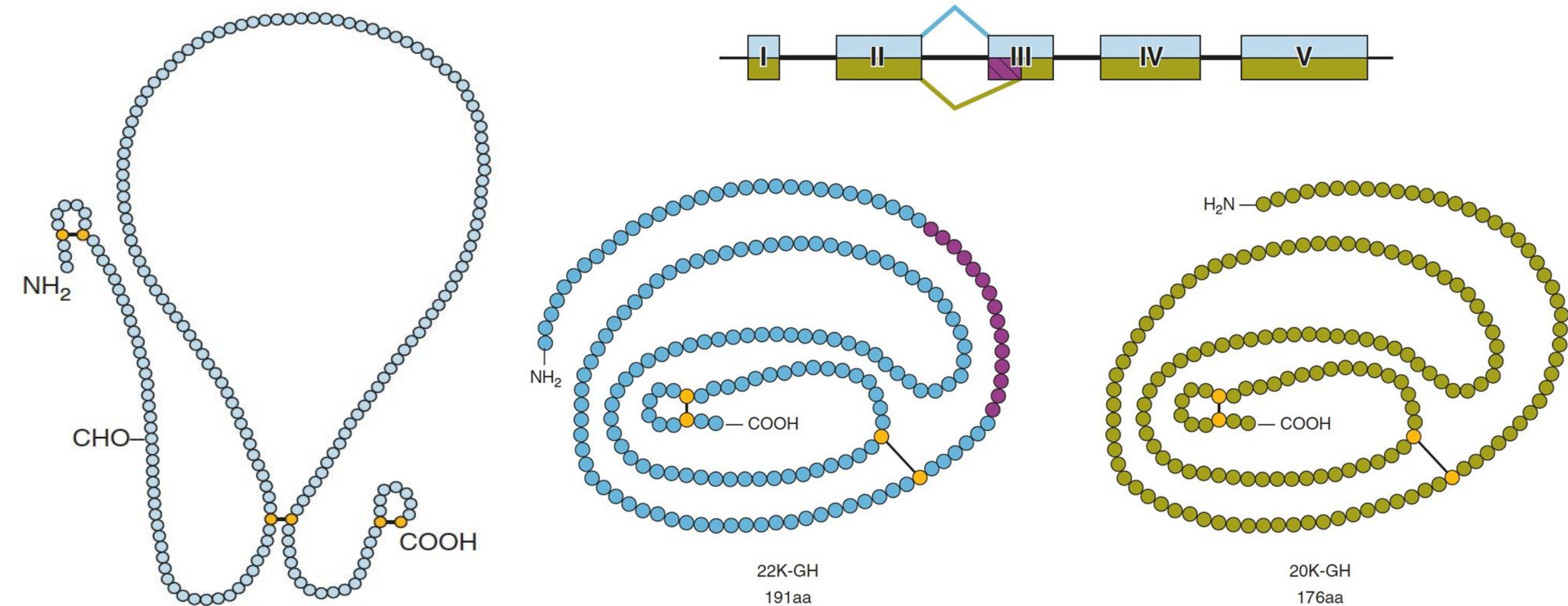
Anterior pituitary

- N-glycosylation (Asn)
vs. O-glycosylation (ser)



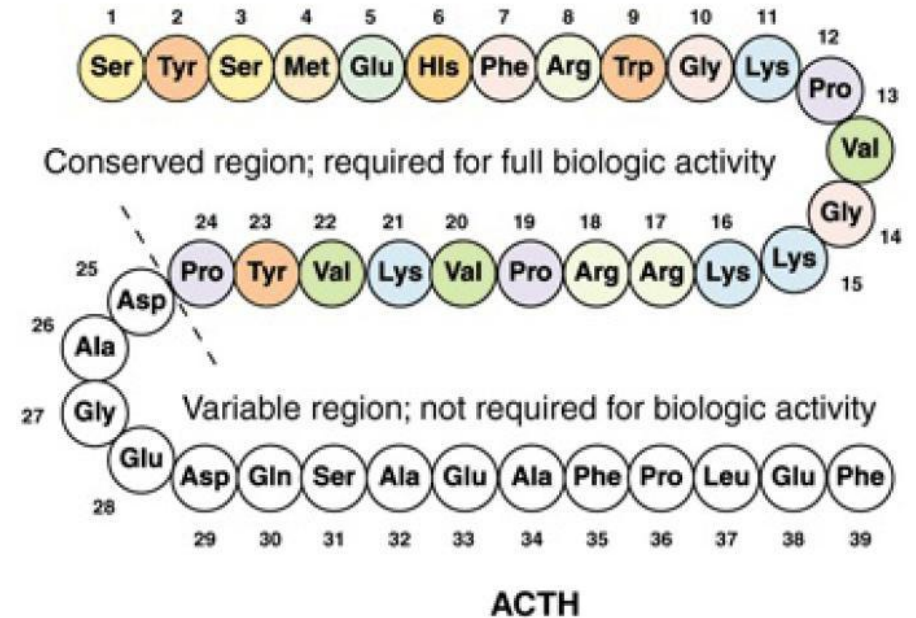
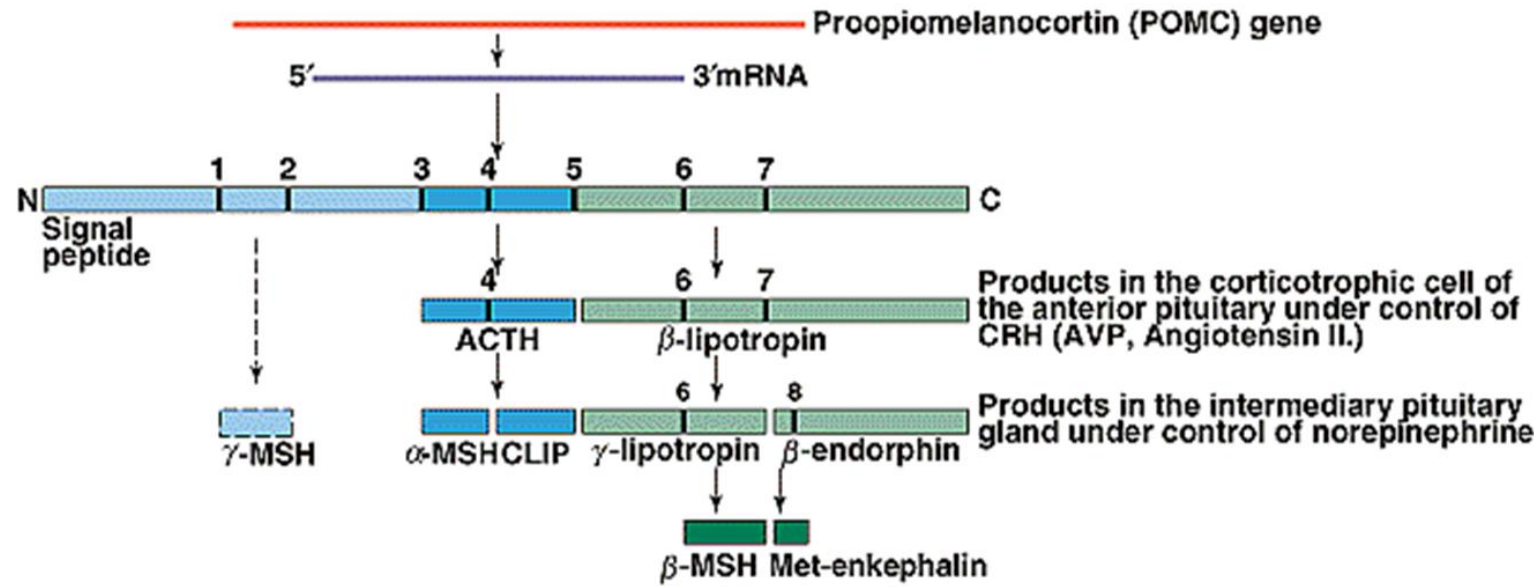
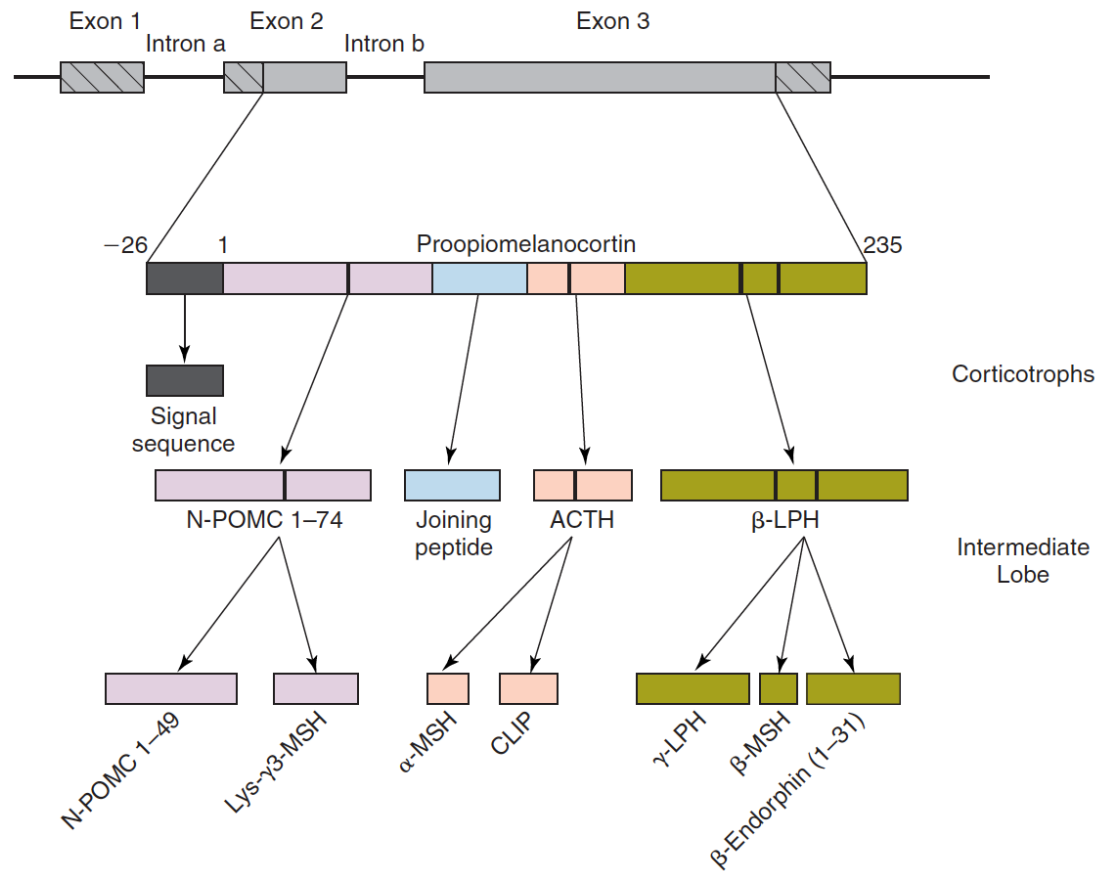


Anterior pituitary – GH & prolactin





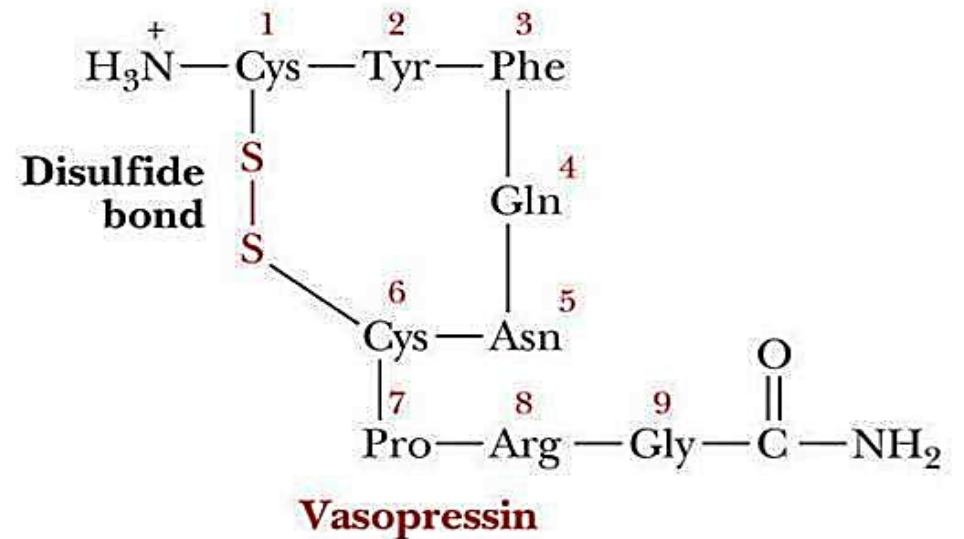
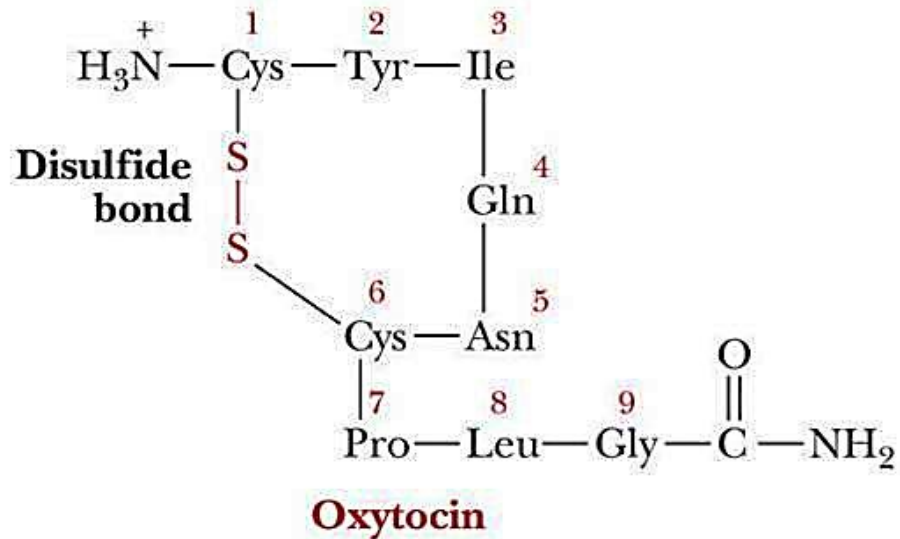
Anterior pituitary – Proopiomelanocortin (POMC)





Posterior pituitary

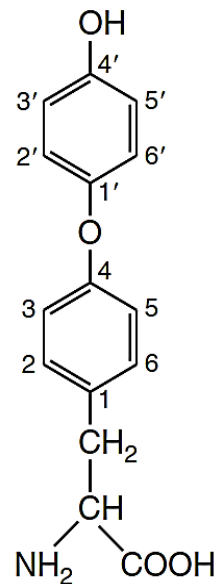
Hormone	Composition
Oxytocin	Polypeptide containing 9 amino acids
Antidiuretic hormone (ADH; vasopressin)	Polypeptide containing 9 amino acids; two forms: arginine-ADH (most common in humans) and lysine-ADH



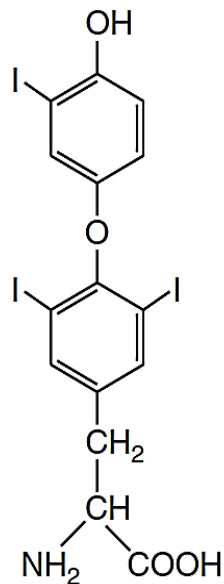


Thyroid

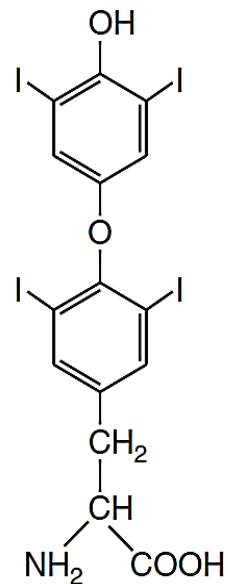
Hormone	Composition
Thyroxine (tetraiodothyronine, T ₄) and triiodothyronine (T ₃)	Amino acid derivative
Calcitonin (thyrocalcitonin)	Polypeptide containing 32 amino acids



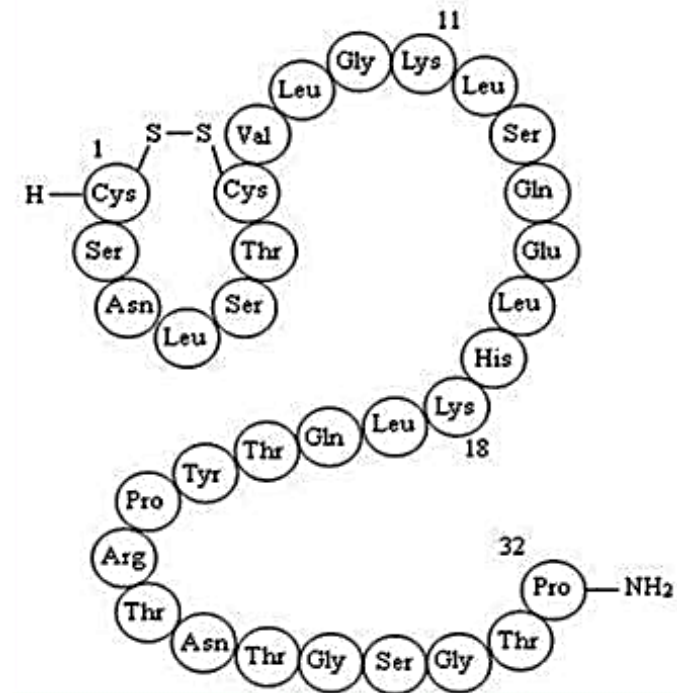
Thyronine



T₃: 3,5,3'-triiodo-thyronine



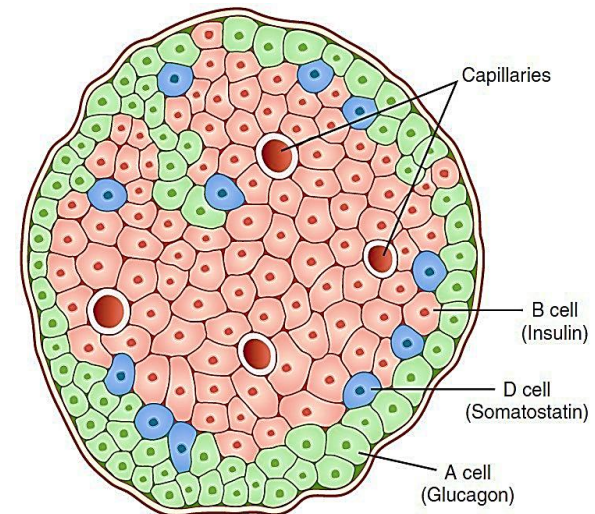
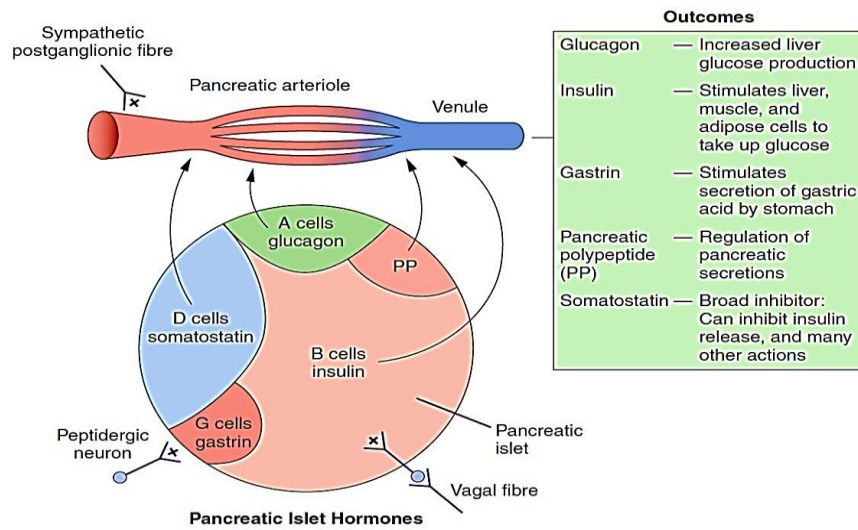
T₄ = Thyroxine:
3,5,3',5'-tetraiodothyronine





Pancreas

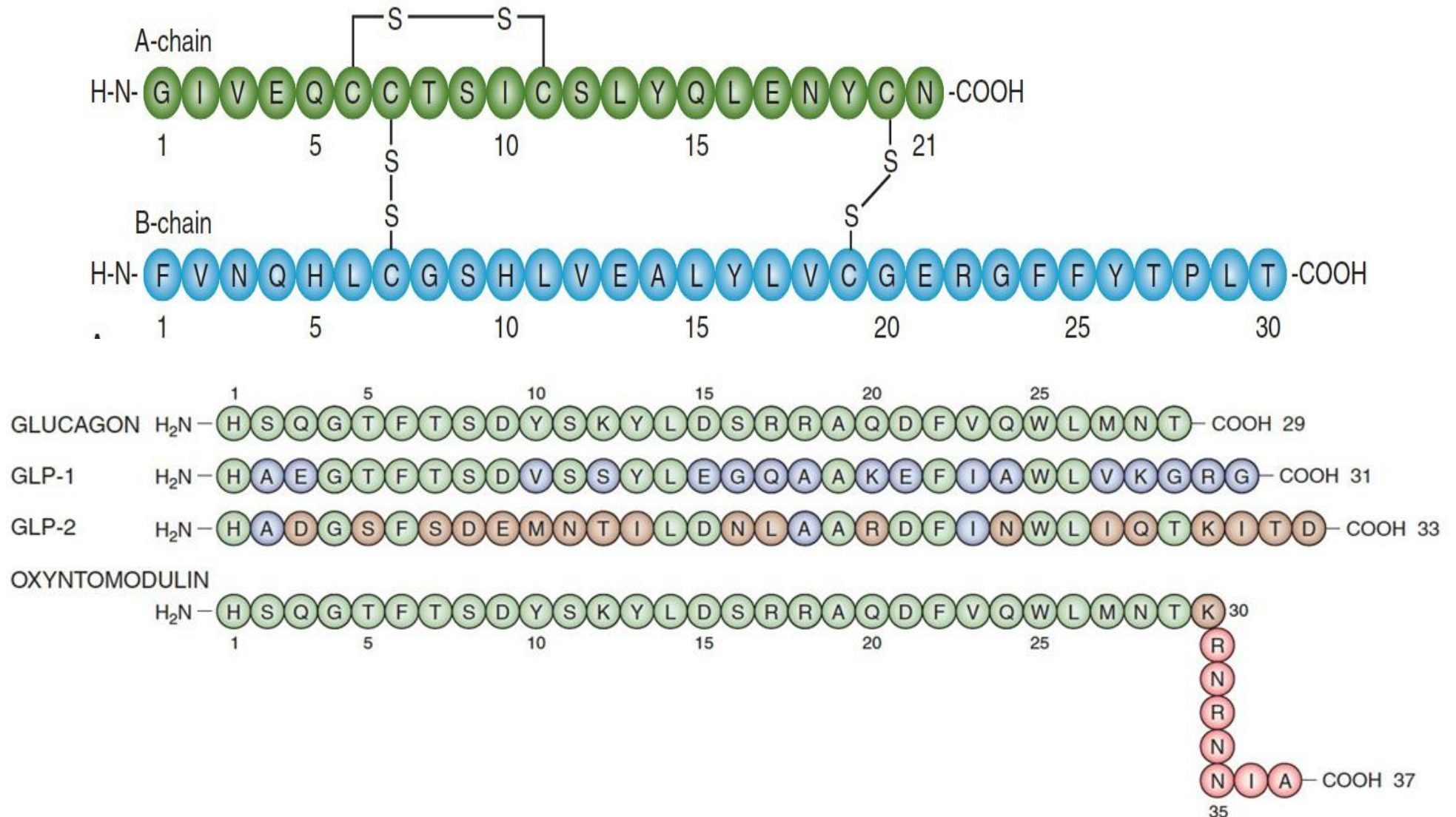
Hormone	Composition (amino acids)
Insulin	51
Glucagon	29
Somatostatin	37
Pancreatic polypeptide (PP)	14
Gastrins	34, 17, 14





Pancreas

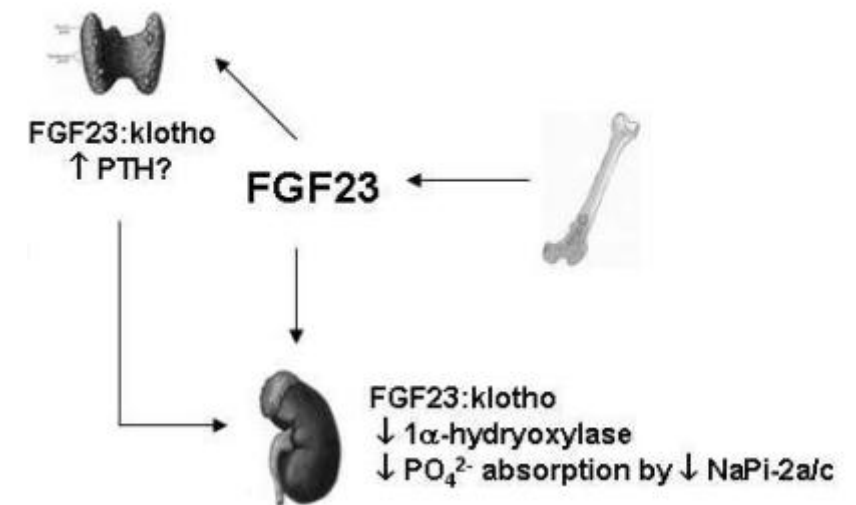
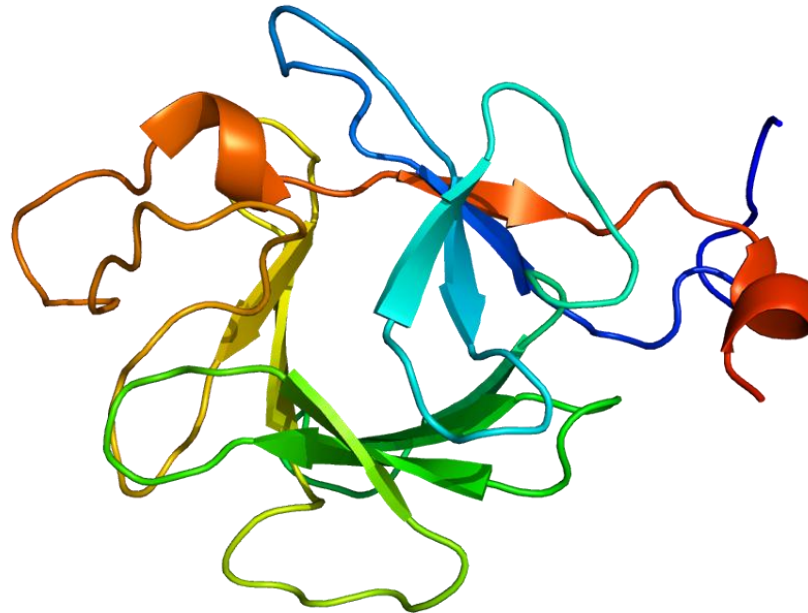
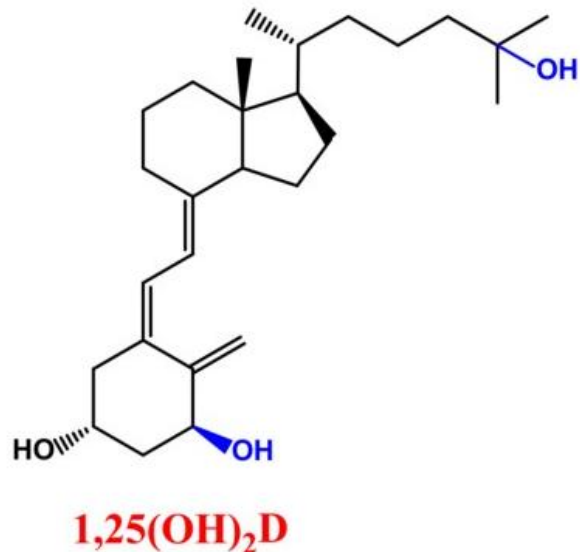
Primary structure of insulin: Amino acid sequence of the A-chain and B-chain of one insulin molecule.





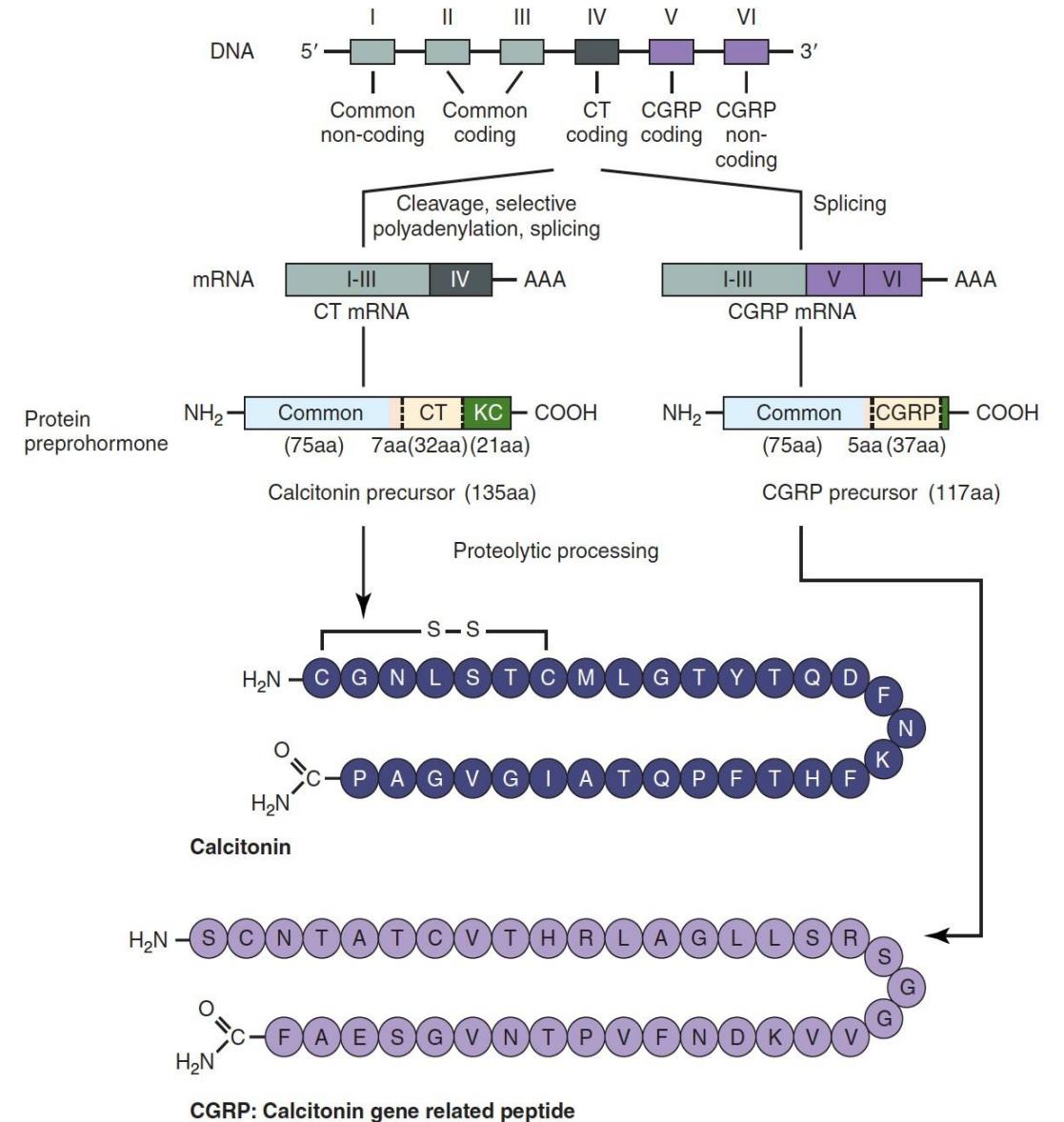
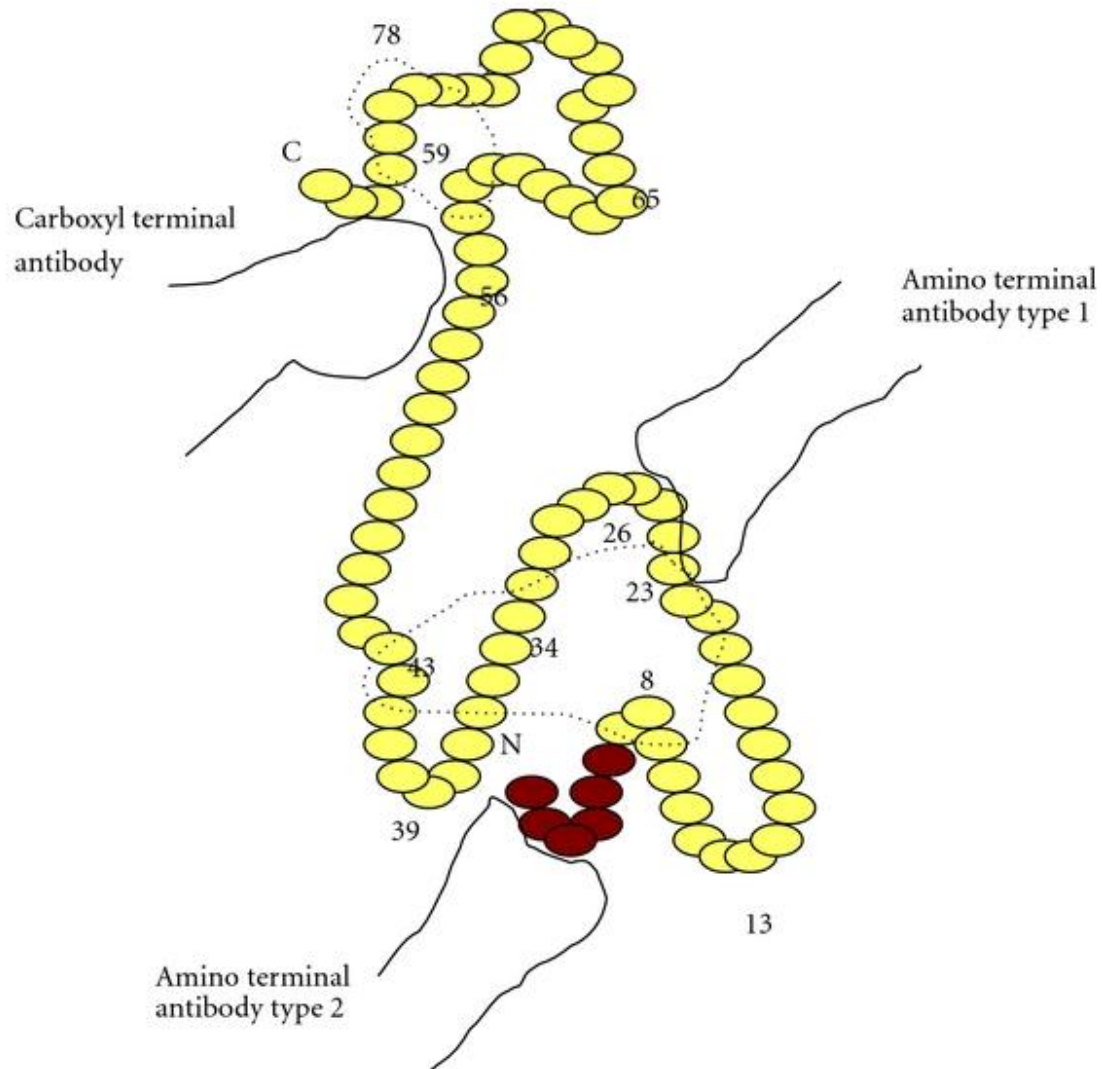
Calcium Regulating Hormones

Hormone	Composition
Parathyroid hormone (PTH)	Polypeptide 84 amino acids
Vitamin D	Steroid
Calcitonin	Polypeptide 32 amino acids
Fibroblast Growth Factor 23	Protein 251 amino acids





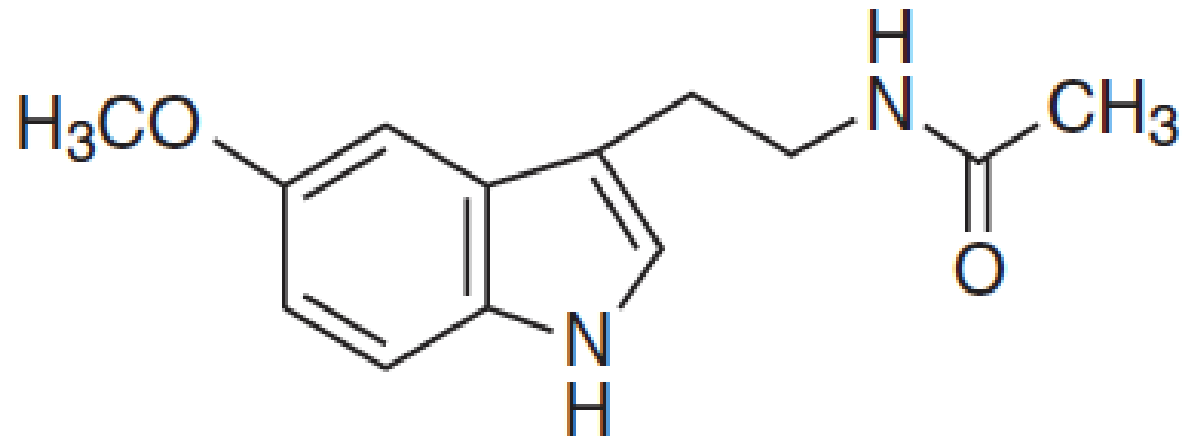
Calcium Regulating Hormones





Pineal Gland Hormones

Hormone	Composition (amino acids)
Melatonin	Indolamine (N-acetyl-5- methoxytryptamine)



Melatonin



Adrenal and Sexual Glands' Hormones

Hormone	Composition (amino acids)
Group of hormones	steroids
Norepinephrine	Amino acid derivative