

Understanding the Role of Insulin in the Human Body

What is Insulin?

Where Does Insulin Come From?

What Does Insulin Do?

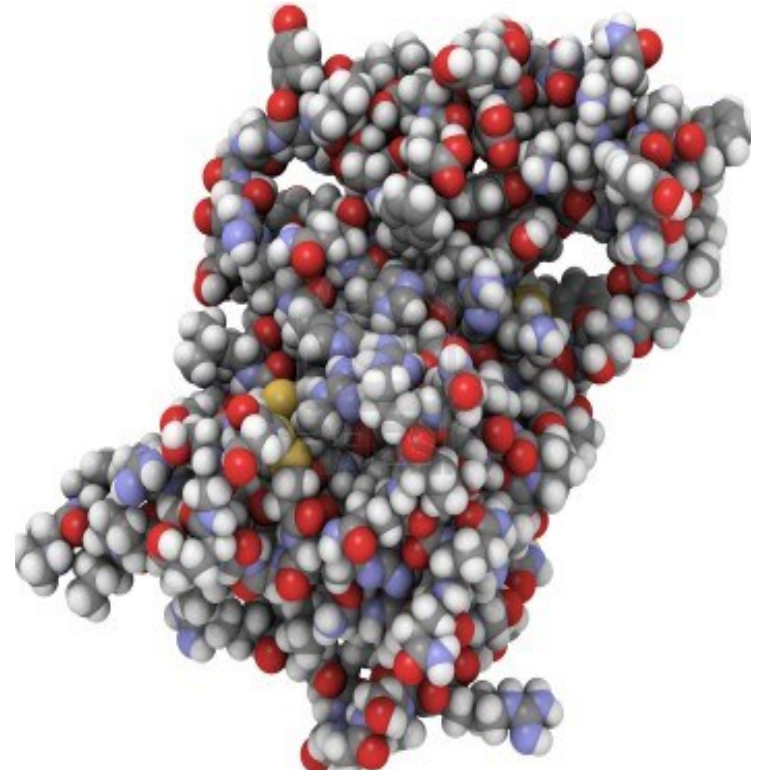
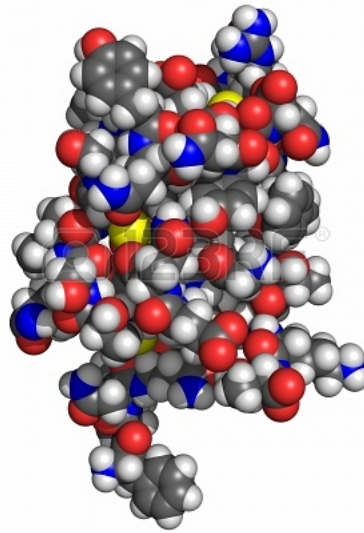
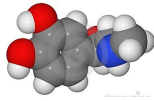
How Does it Work?

What Happens When Insulin Doesn't Work Normally?

What is Insulin?

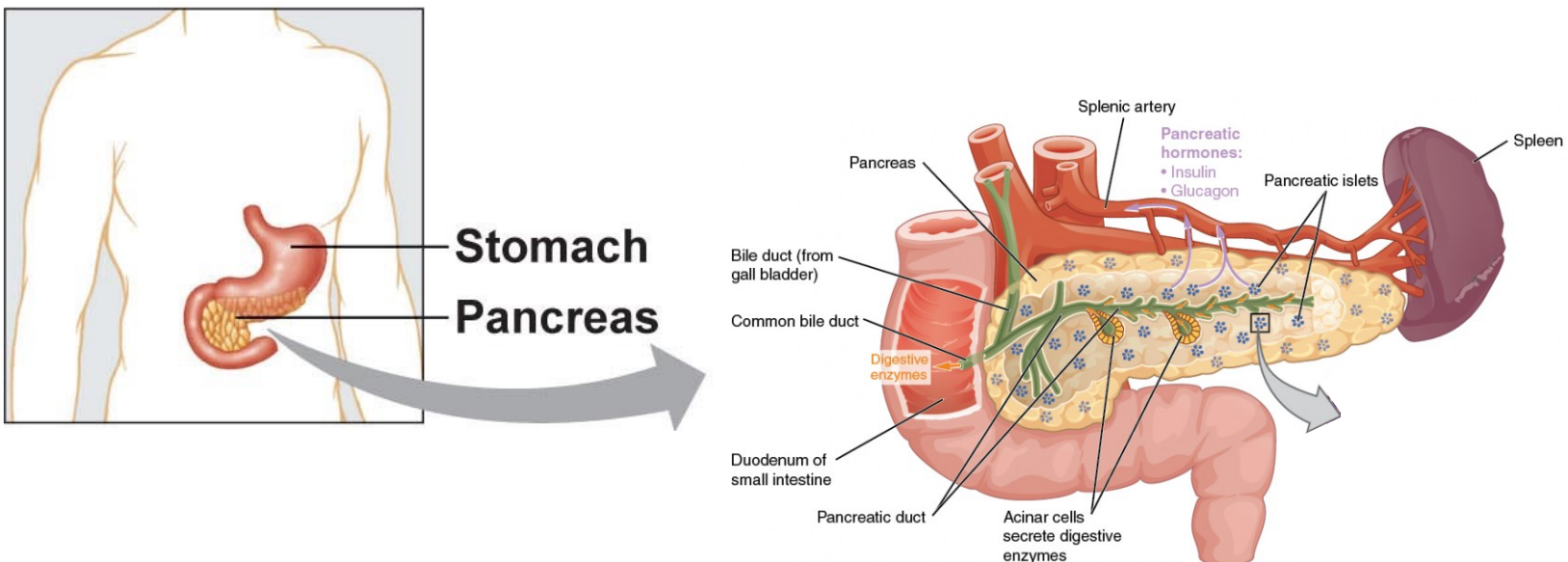
Hormone

A small protein (peptide) of 52 amino acids



Where Does Insulin Come From?

   -cells

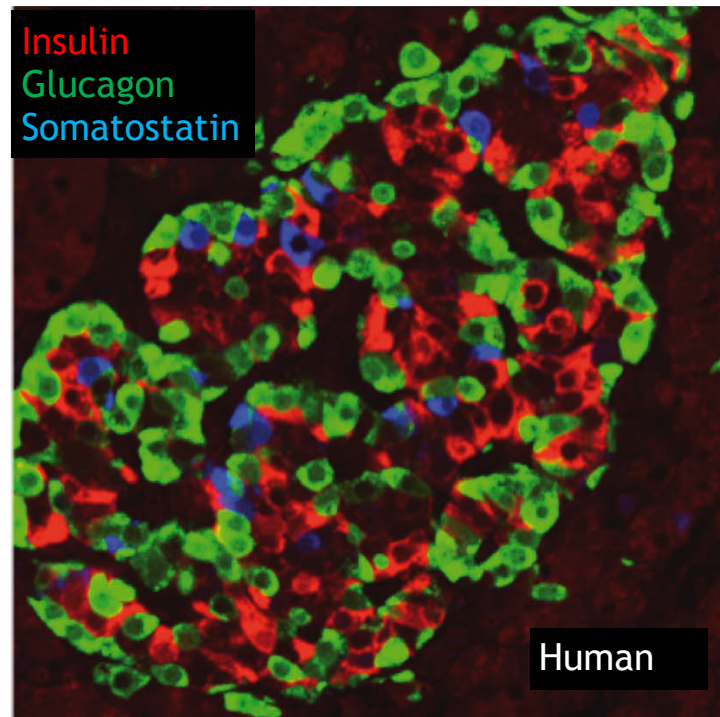
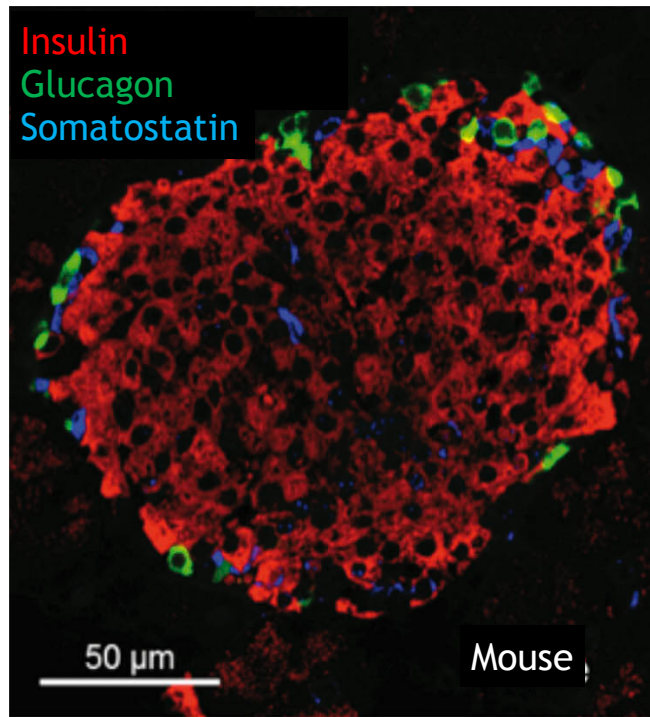


Where Does Insulin Come From?



-cells

Found in the islets of Langerhans located in the pancreas



B-cells - release insulin
α-cells - release glucagon
δ-cells - release somatostatin
E-cells - release ghrelin
PP-cells - release pancreatic polypeptide

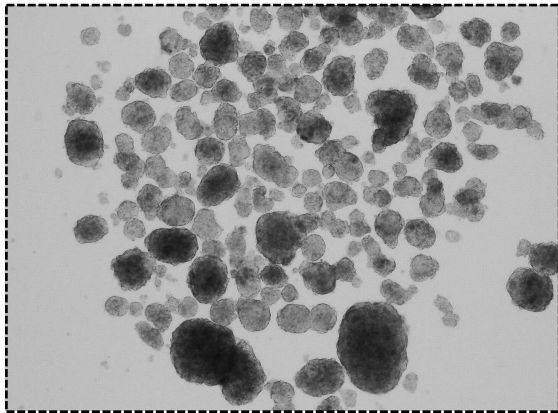
From Abdulreda et al., (2013)

What Does Insulin Do?

Supports healthy growth and development

Lowers blood sugar

Anabolic (driving carbohydrates, fats, and proteins into tissues)



Isolated islets of Langerhans

“Detect”



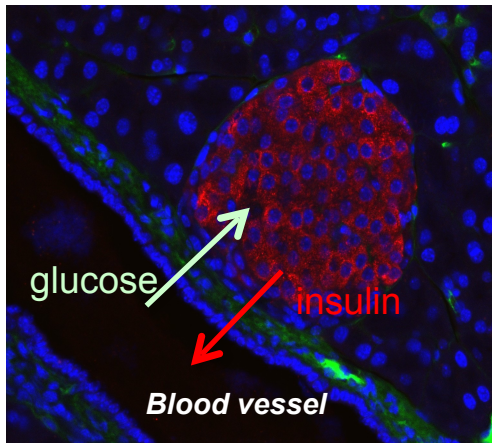
“Respond”

What Does Insulin Do?

Supports healthy growth and development

Lowers blood sugar

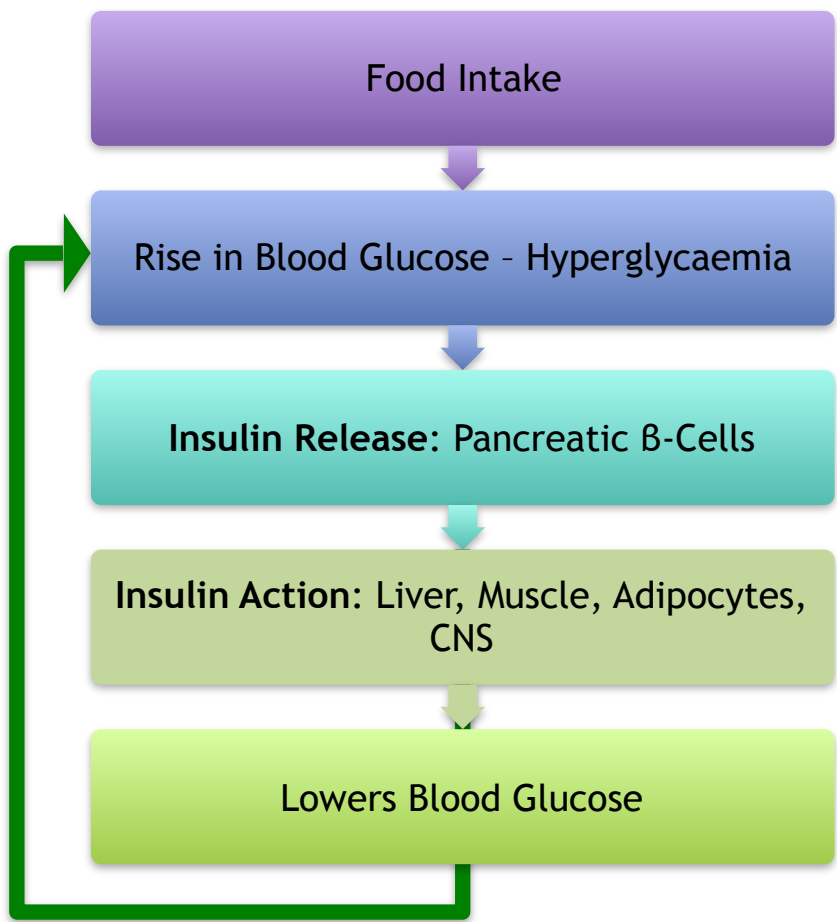
Anabolic (driving carbohydrates, fat, and protein into tissues)



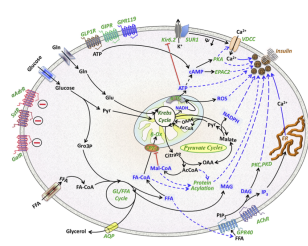
What Does Insulin Do?



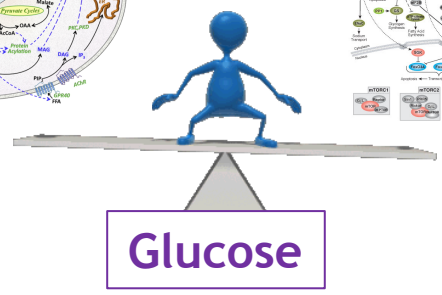
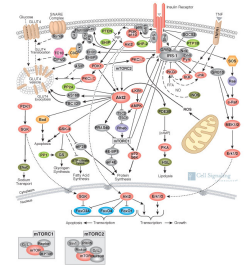
Glucose Homeostasis



Insulin Release



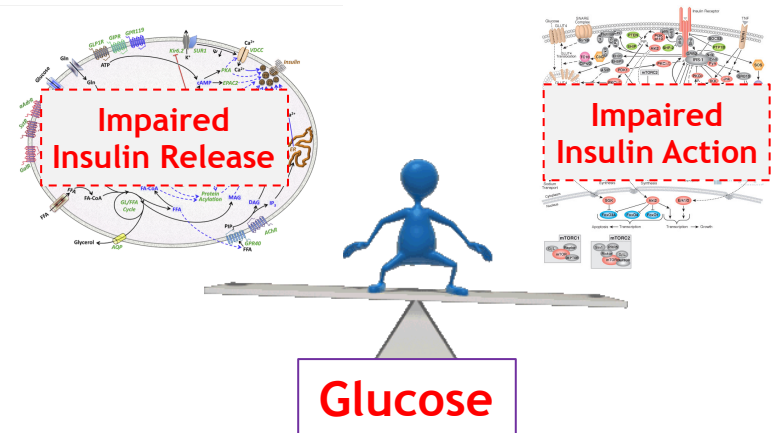
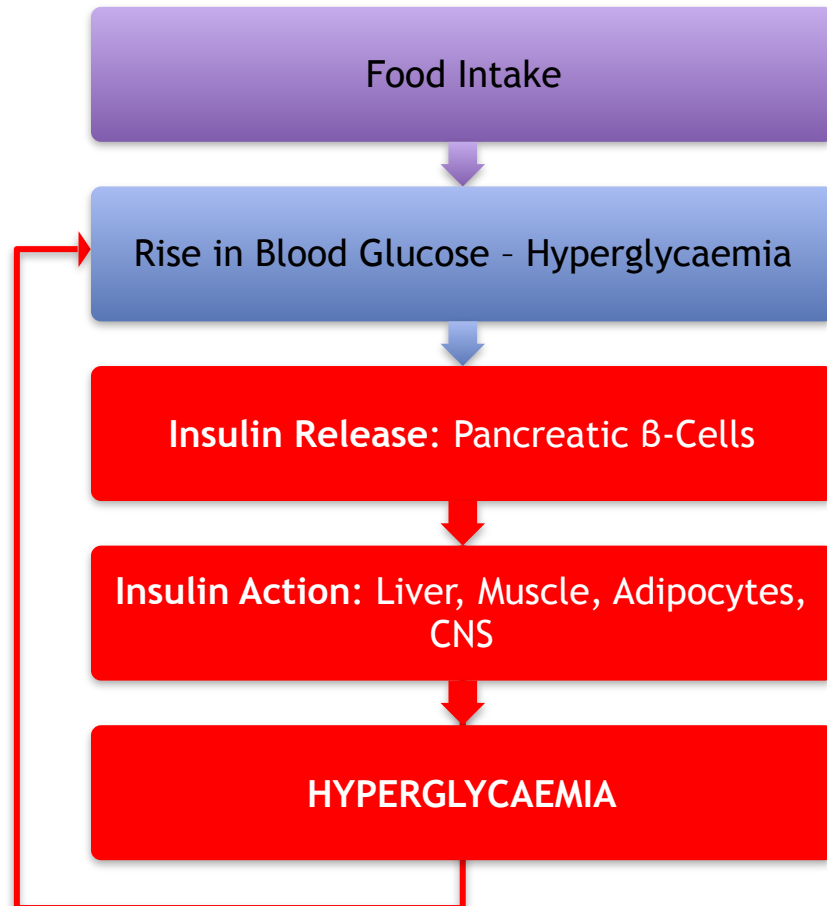
Insulin Action



What Happens When Insulin Doesn't Work Normally?

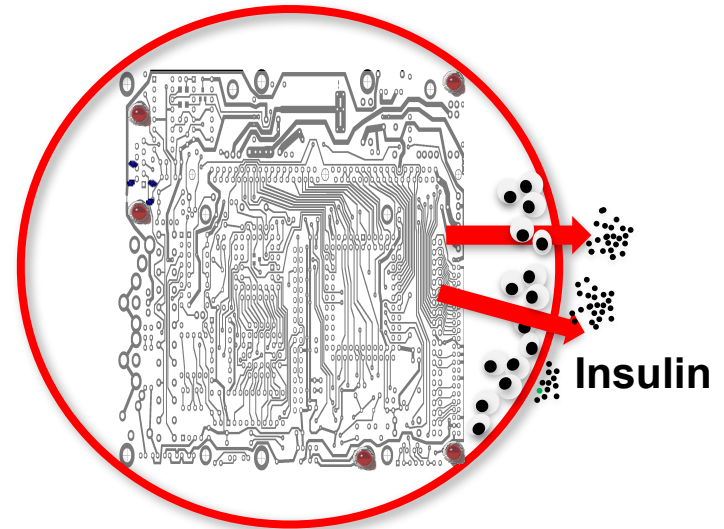
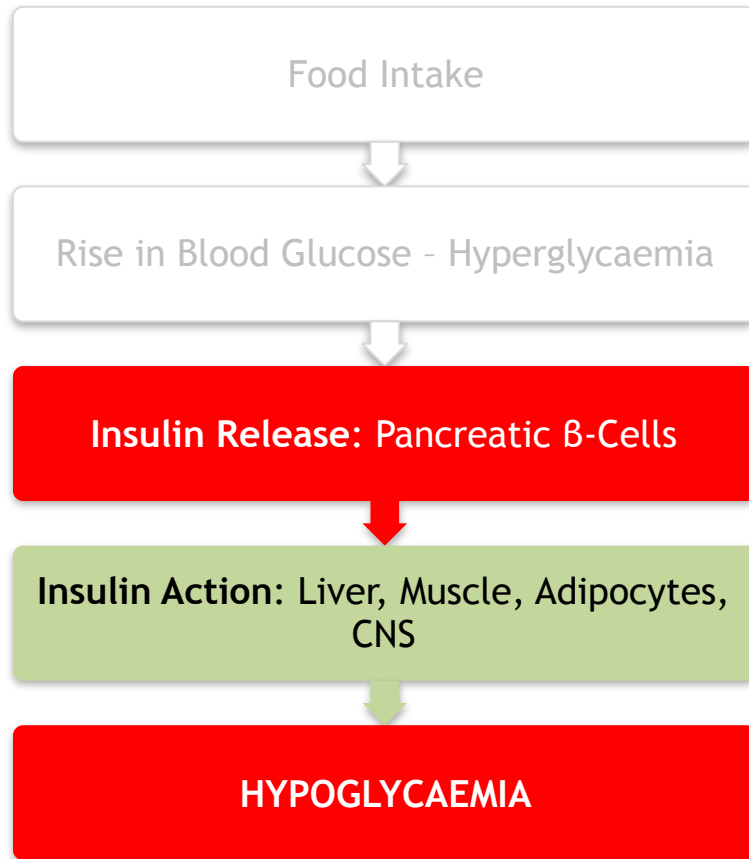
What Happens When Insulin Doesn't Work Normally?

Disturbed Glucose Homeostasis; Diabetes



What Happens When Insulin Doesn't Work Normally?

Glucose Homeostasis; Congenital Hyperinsulinism, CHI



**CHI Insulin-Secreting β -Cell:
“Cannot Switch-Off”**