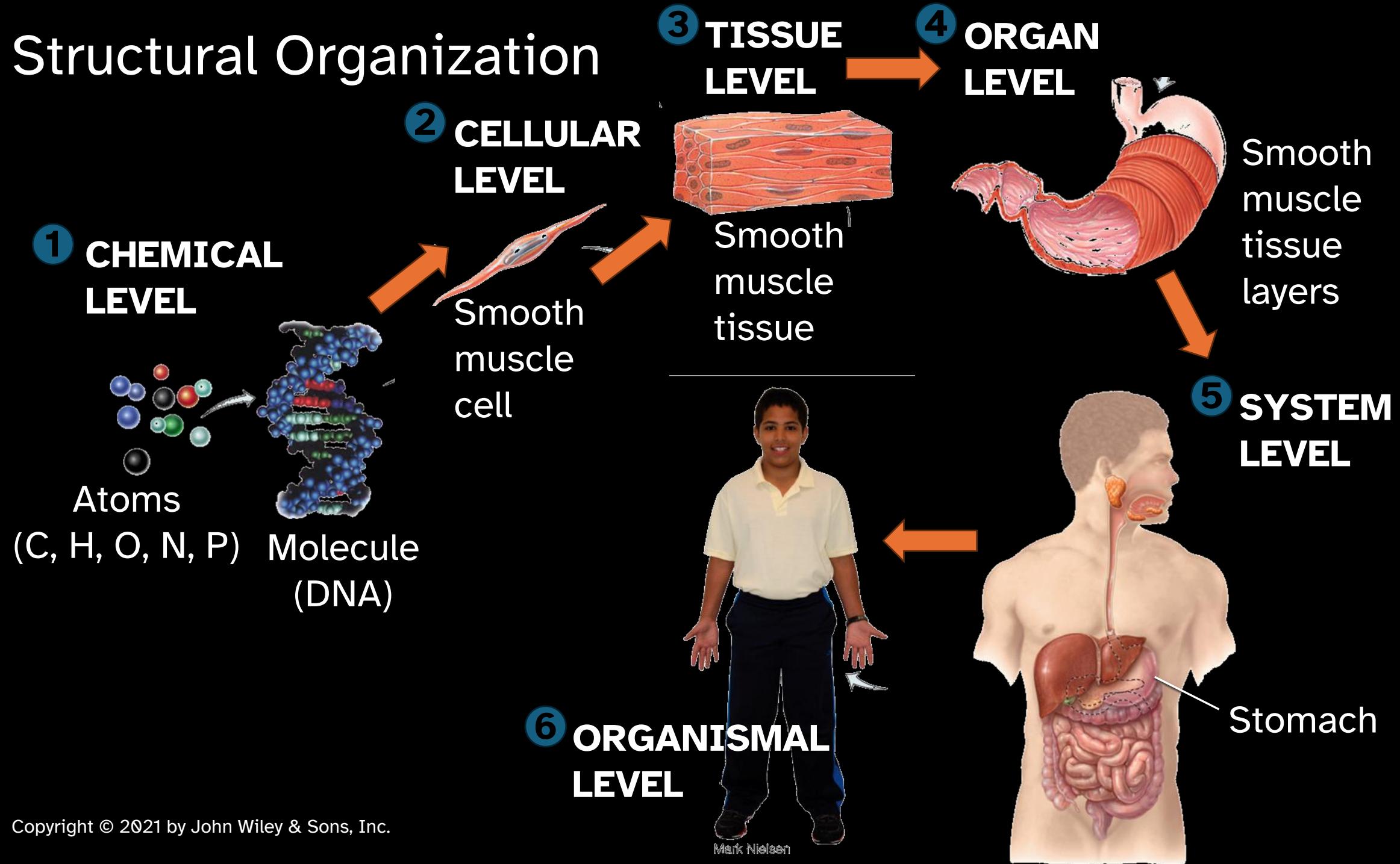
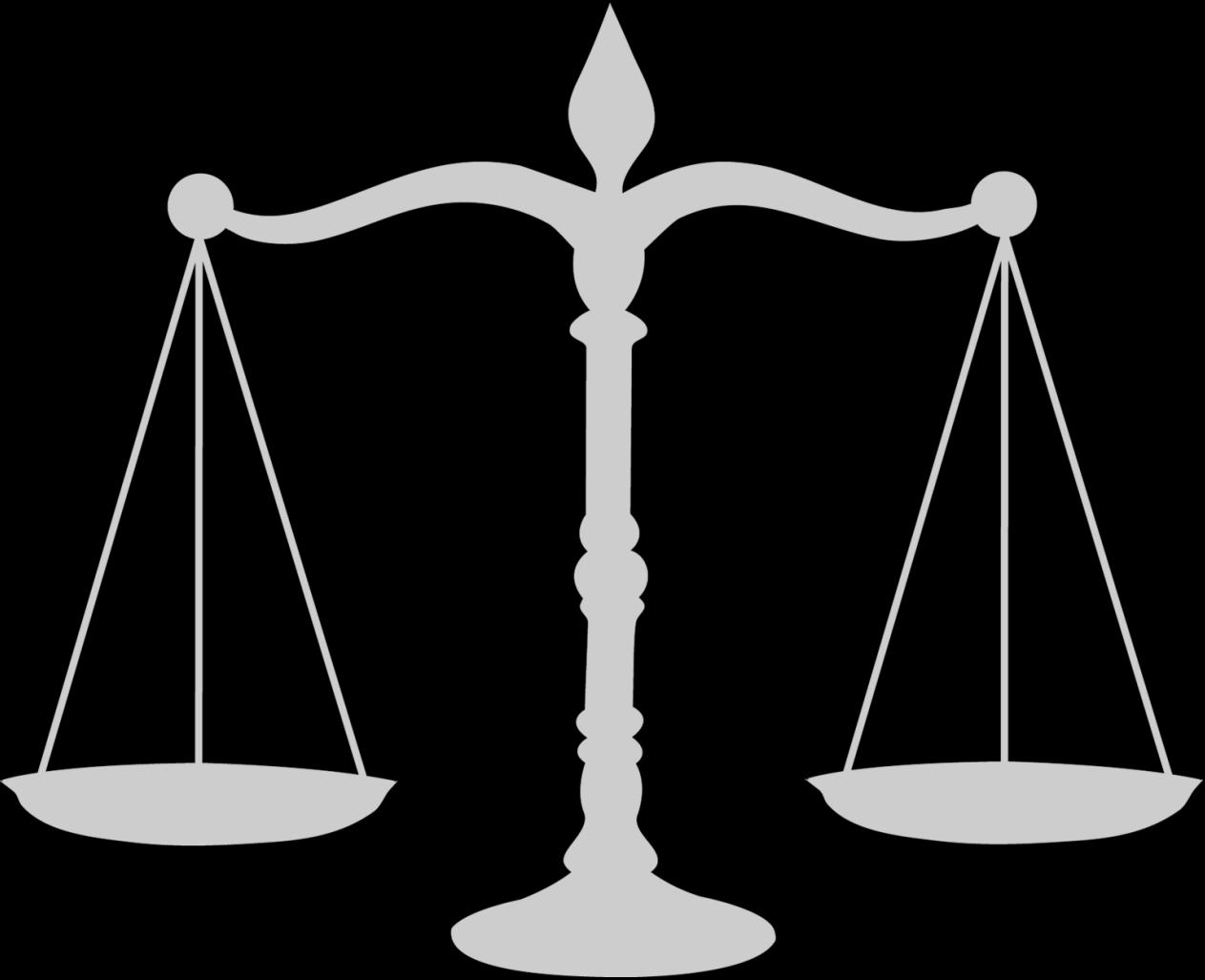


Structural Organization



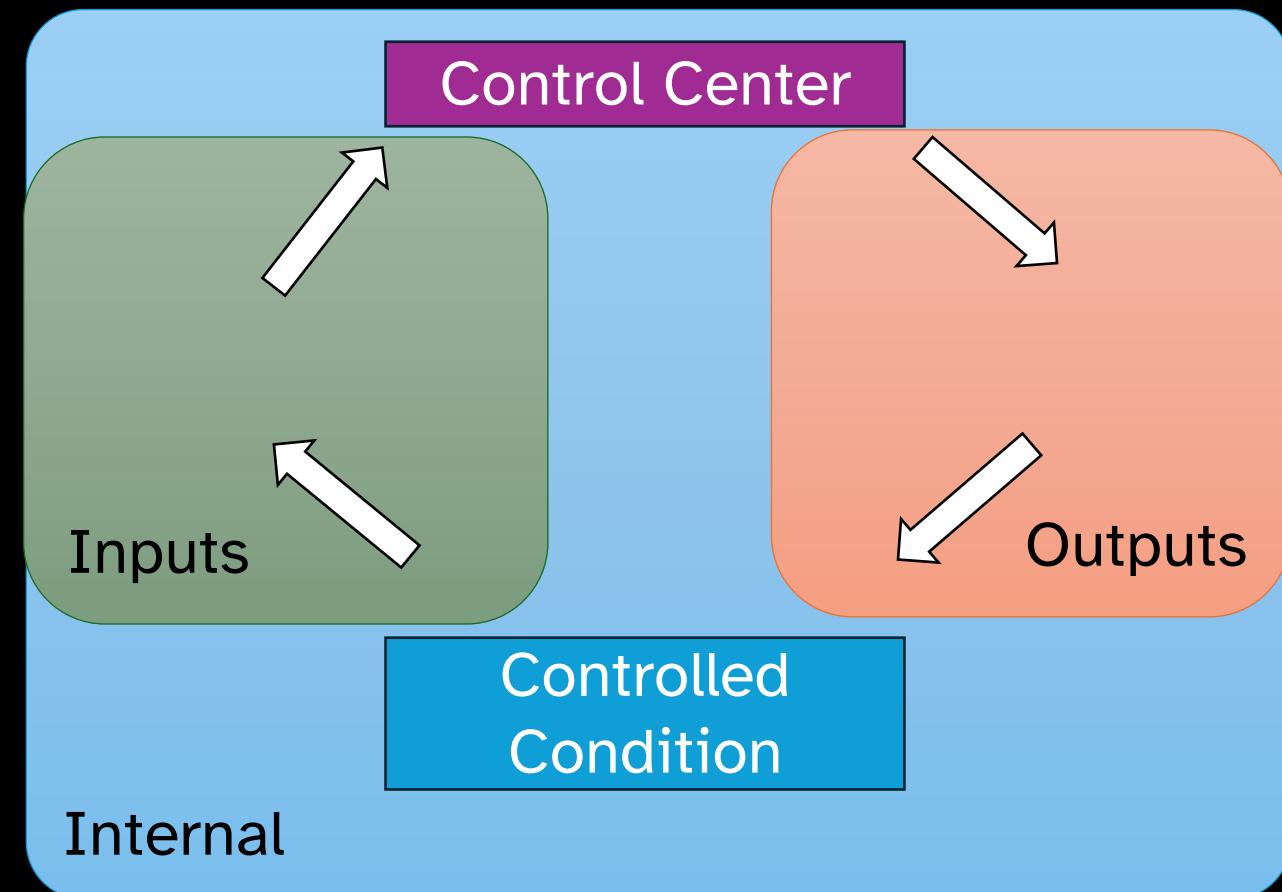
Homeostasis

- **Homeostasis**: the condition of equilibrium in the body's internal environment due to constant interaction of the body's regulatory processes
- The survival of the body is dependent on the precise regulation of the chemical composition at the organelle, cellular, tissue, organ, system, and organism levels.



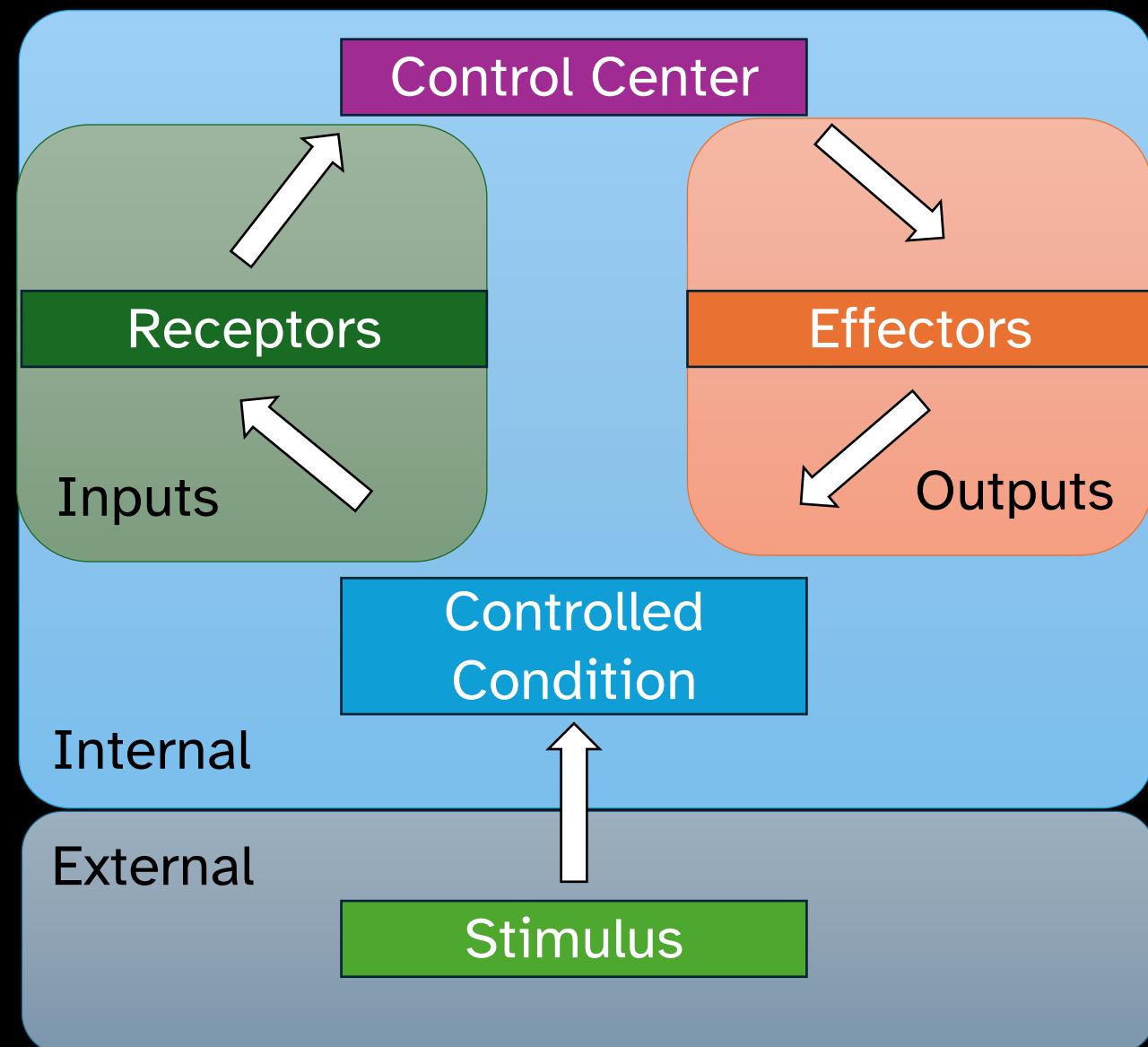
Parts of a Feedback System

- **Controlled condition:** a body condition that changes
- **Control center:** sets a range of values within which a controlled condition should be maintained by monitoring inputs and outputs



Parts of a Feedback System

- **Sensor/Receptor:** a body structure that monitors changes in a controlled condition and sends input to the control center
- **Effector:** a body structure that receives output from the control center and produces a response or effect that changes the control condition
- **Stimulus:** some external situation that disrupts the body's homeostasis



Feedback System/Loop

- Feedback system: the end product of a metabolic pathway regulates the initiation of the pathway
- Negative feedback: the end product turns down/inhibits/downregulates the pathway
 - Most physiological pathways use negative feedback
- Positive feedback: the end product turns up/stimulates/upregulates the pathway
 - Only a few physiological examples
 - Can only be “reset” when there is a dramatic ending event

