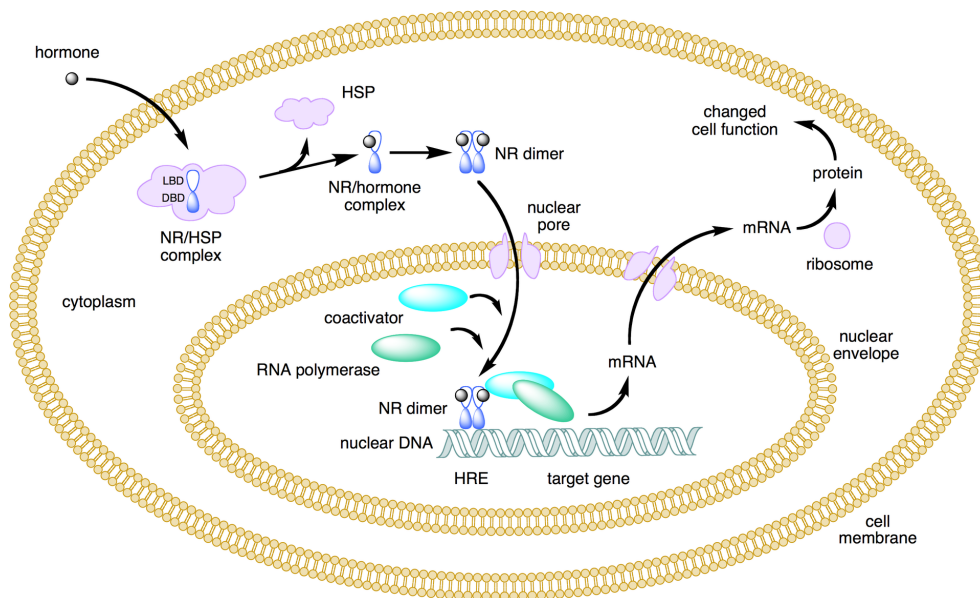


## CONCEPT: INTRACELLULAR MESSENGERS: HORMONES AND NITRIC OXIDE

- Hormones cross the plasma membrane and bind to intracellular \_\_\_\_\_
  - **Steroid hormones** bind to nuclear receptors (in cytosol or nucleus) which act as transcriptional regulators
    - If the nuclear receptor is in the cytosol, upon hormone binding it is transferred into the nucleus
  - Hormones activate receptors bind triggering a conformational change
  - Each hormone binds to a \_\_\_\_\_ nuclear receptor
    - Each nuclear receptor recognizes different DNA regulatory sites

### **EXAMPLE:** Nuclear receptor activation via a hormone



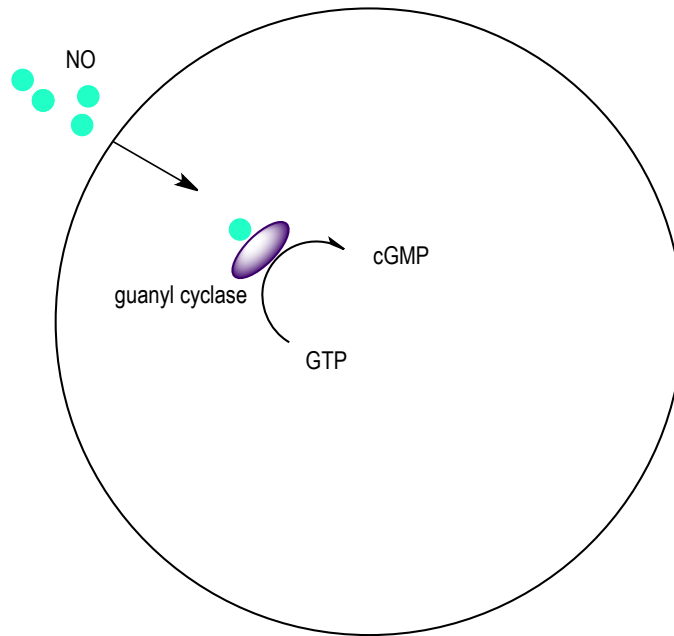
● **Nitric oxide (NO)** can dissolve across the plasma membrane and bind to intracellular signaling \_\_\_\_\_

□ NO regulates a variety of different pathways

- NO can be released into blood vessels in response to neurotransmitters to cause muscle relaxation

- NO binds **guanylyl cyclase** to stimulate the formation of cyclic GMP from GTP (ex: viagra)

**EXAMPLE:** NO signaling in cells



### PRACTICE:

1. Steroid hormones signaling through binding....
  - a. GTPases
  - b. Nuclear receptors
  - c. Kinases
  - d. Phosphatases
2. Nitric Oxide signals by binding to which of the following molecules?
  - a. GTPases
  - b. Nuclear Receptors
  - c. Adenyl cyclase
  - d. Guanyl cyclase