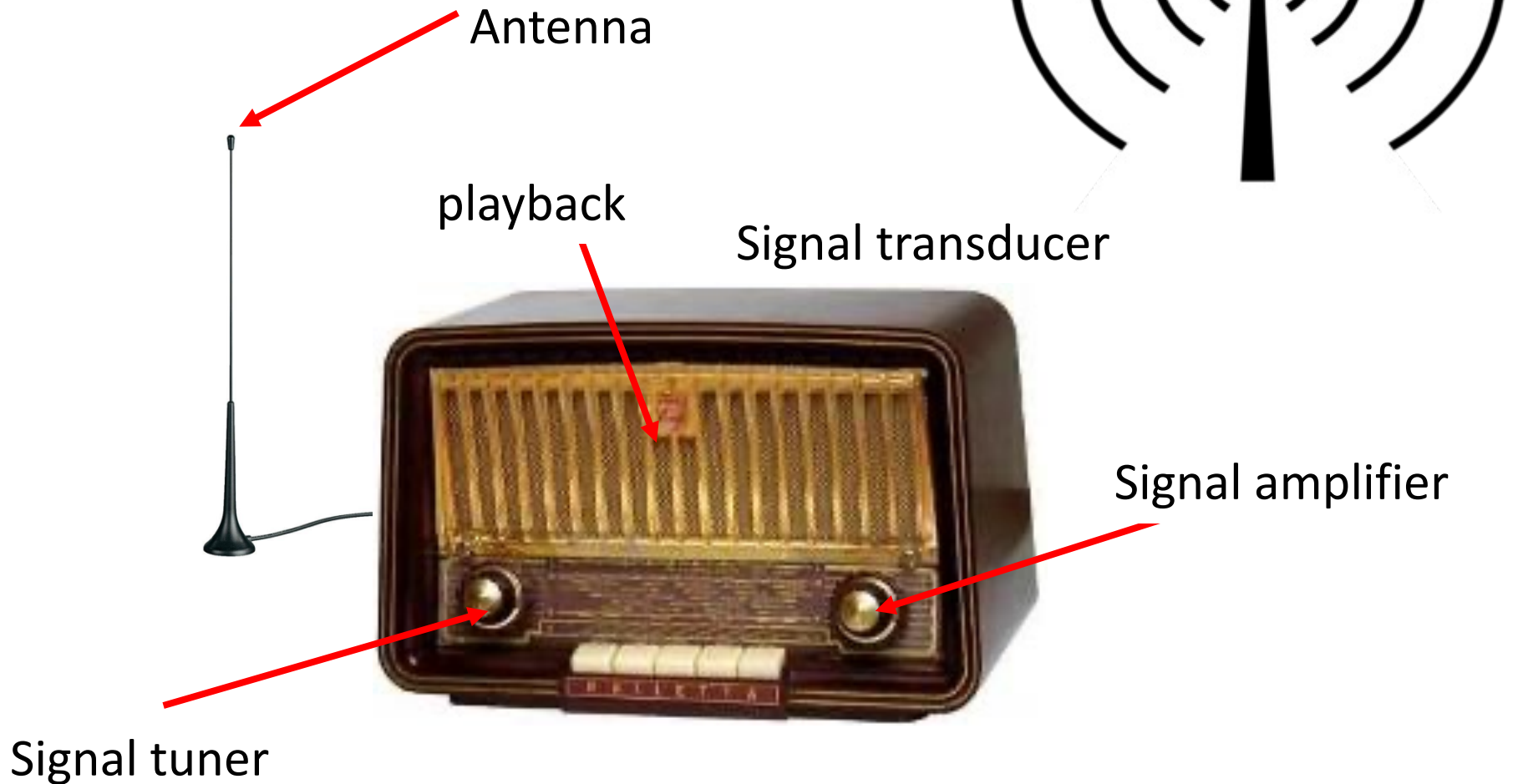


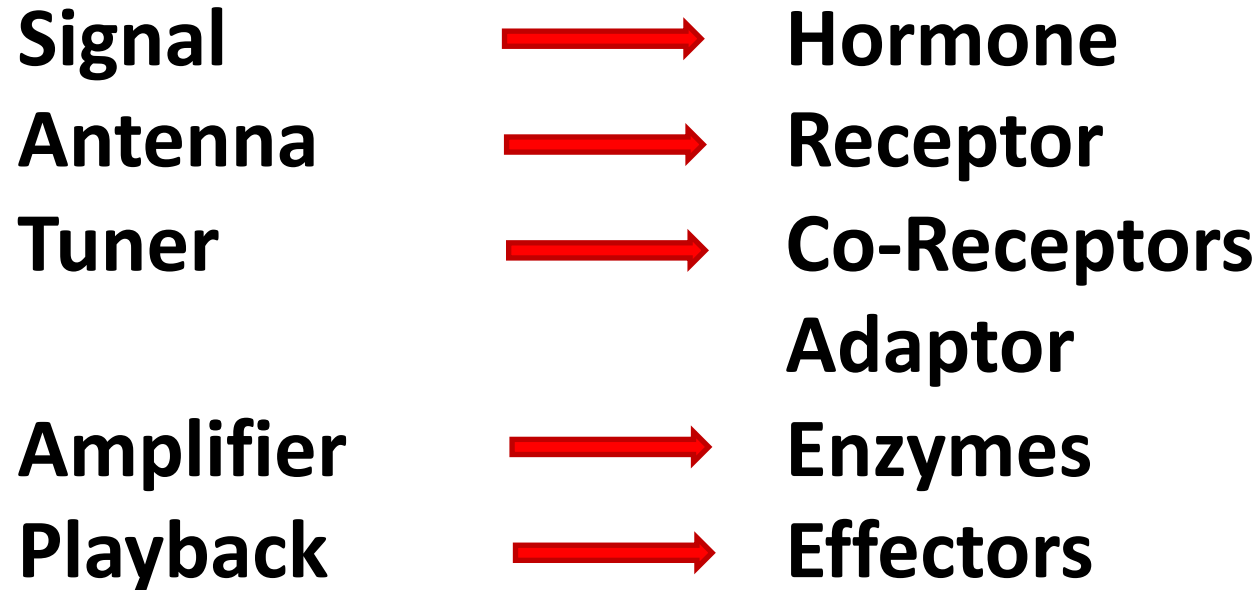
# Signal transduction



# Signal transduktion



# Signal transduction

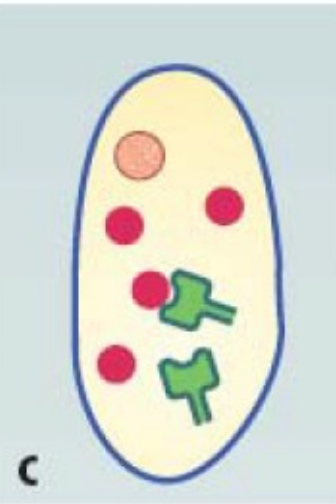
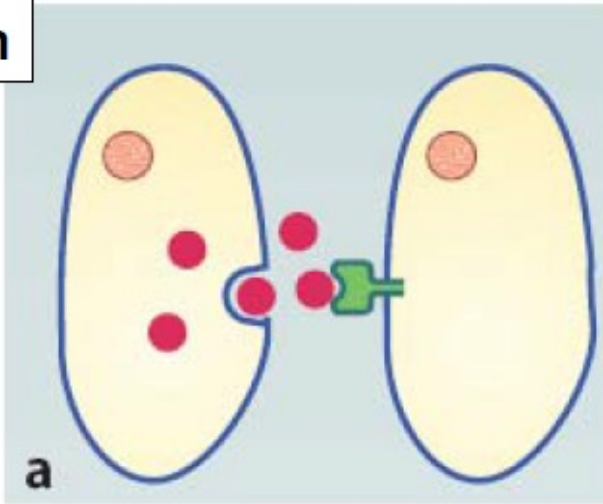


# Signals

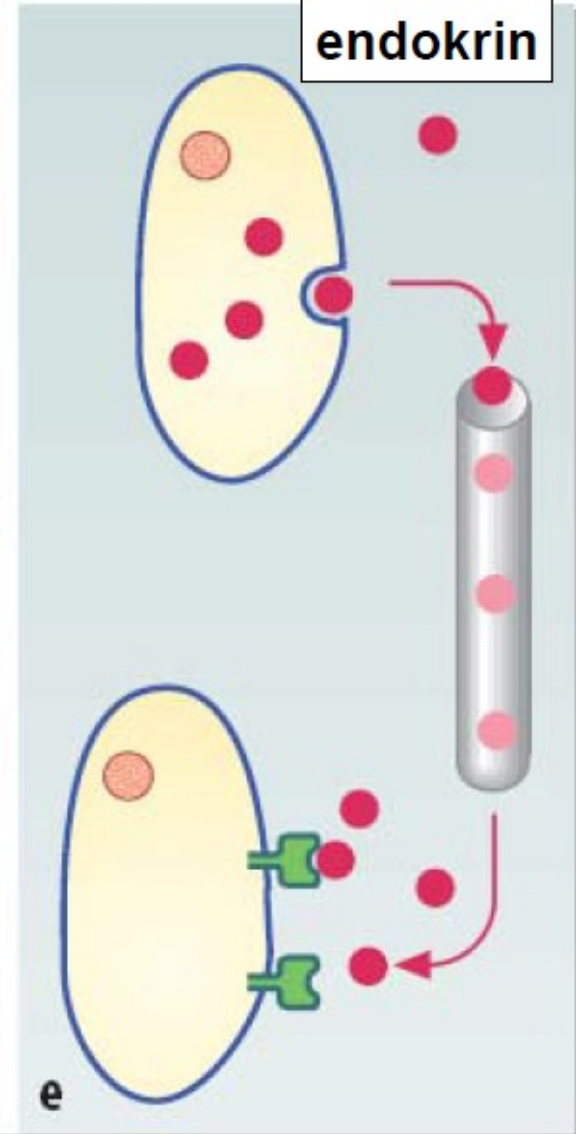
- heat
- Light
- mechanical and acoustic signals
- odors
- taste substances
- Pheromones
- extracellular Matrix
- cell surface – glycoproteins
- Antigens
- Hormones
- Cytokines
- Chemokines

# Signals

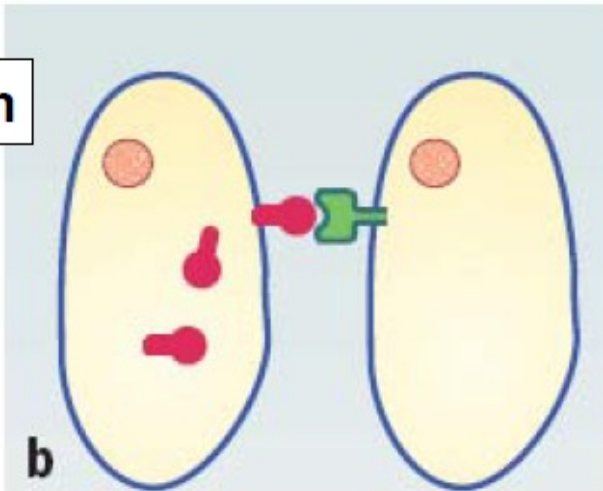
parakrin



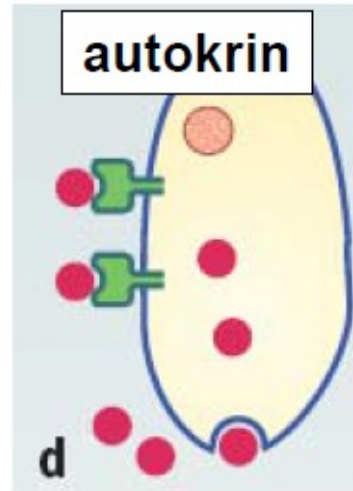
endokrin



juxtakrin



autokrin



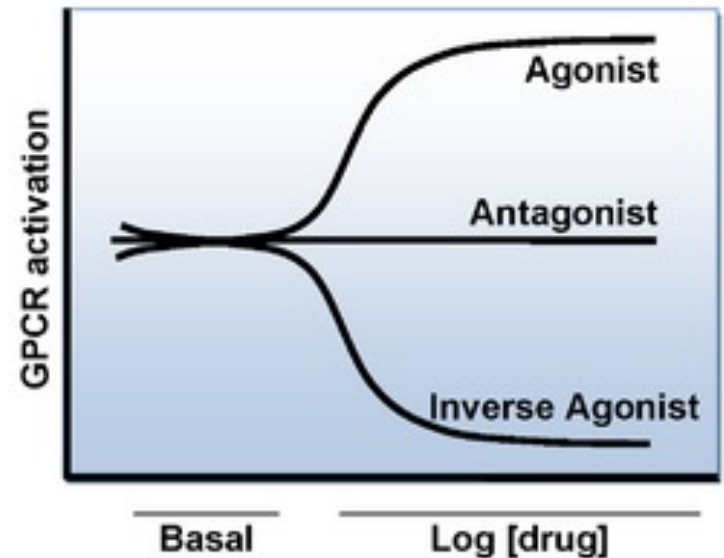
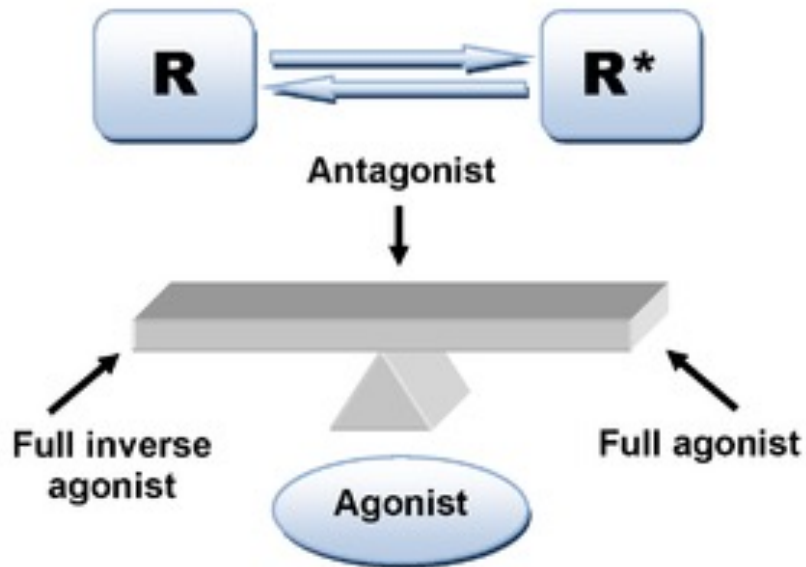
● Hormon bzw. Signalstoff

—●— Rezeptor

# Rezeptor definition (biochemical)

Biomolecule or Biomolecule complex,

- Signal molecule binds
- Structural changes
- Activation of one or more signal transduction cascades



# Receptor types

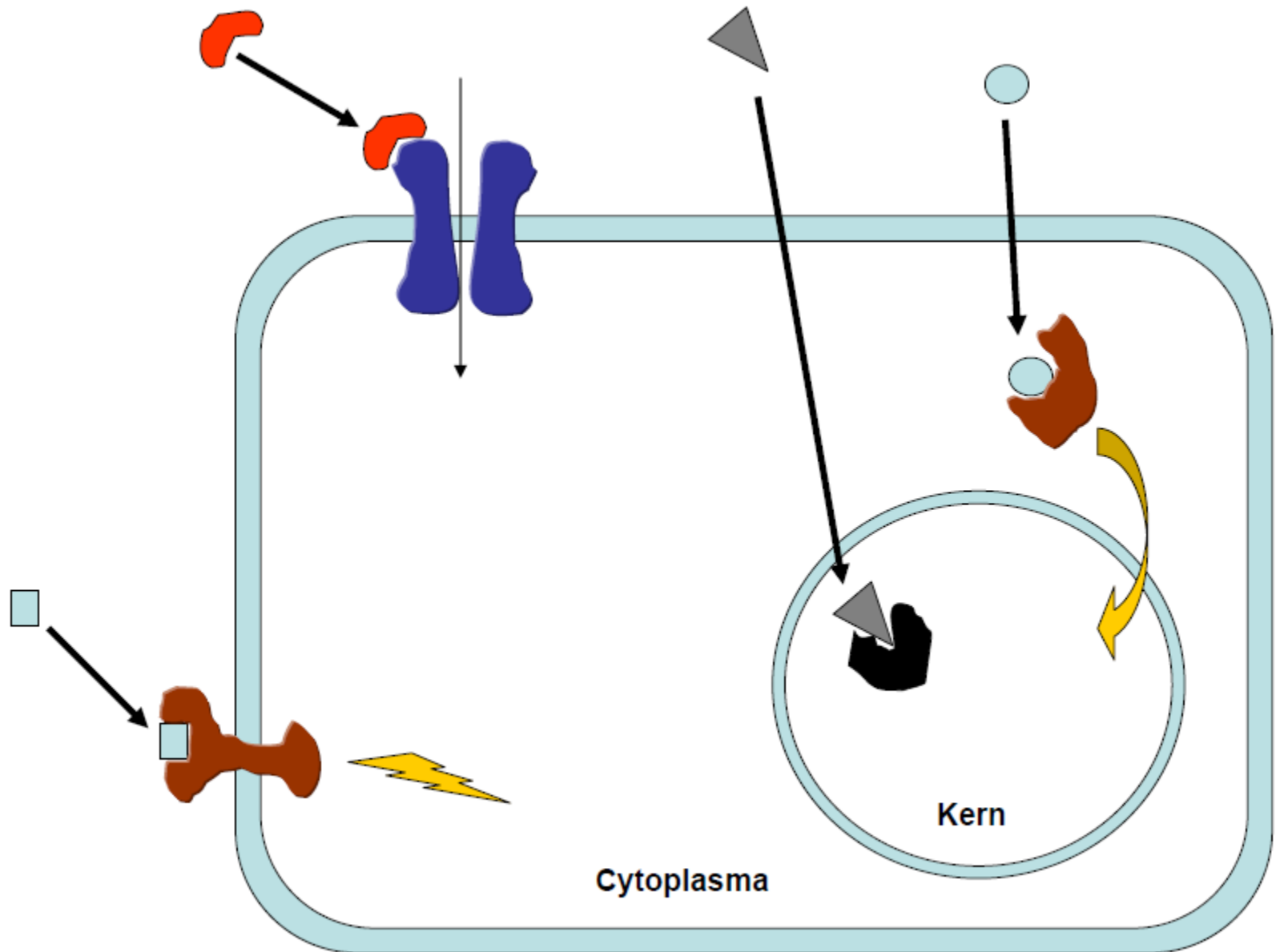
- metabotropic vs ionotropic
- nuclear receptors (Steroid hormones;  
thyroid hormones)
- Membrane receptors (Peptides / Proteo-Hormones)
- Ligand-regulated Ion channels (Neurotransmitters;  
Ligands)

# Receptor types

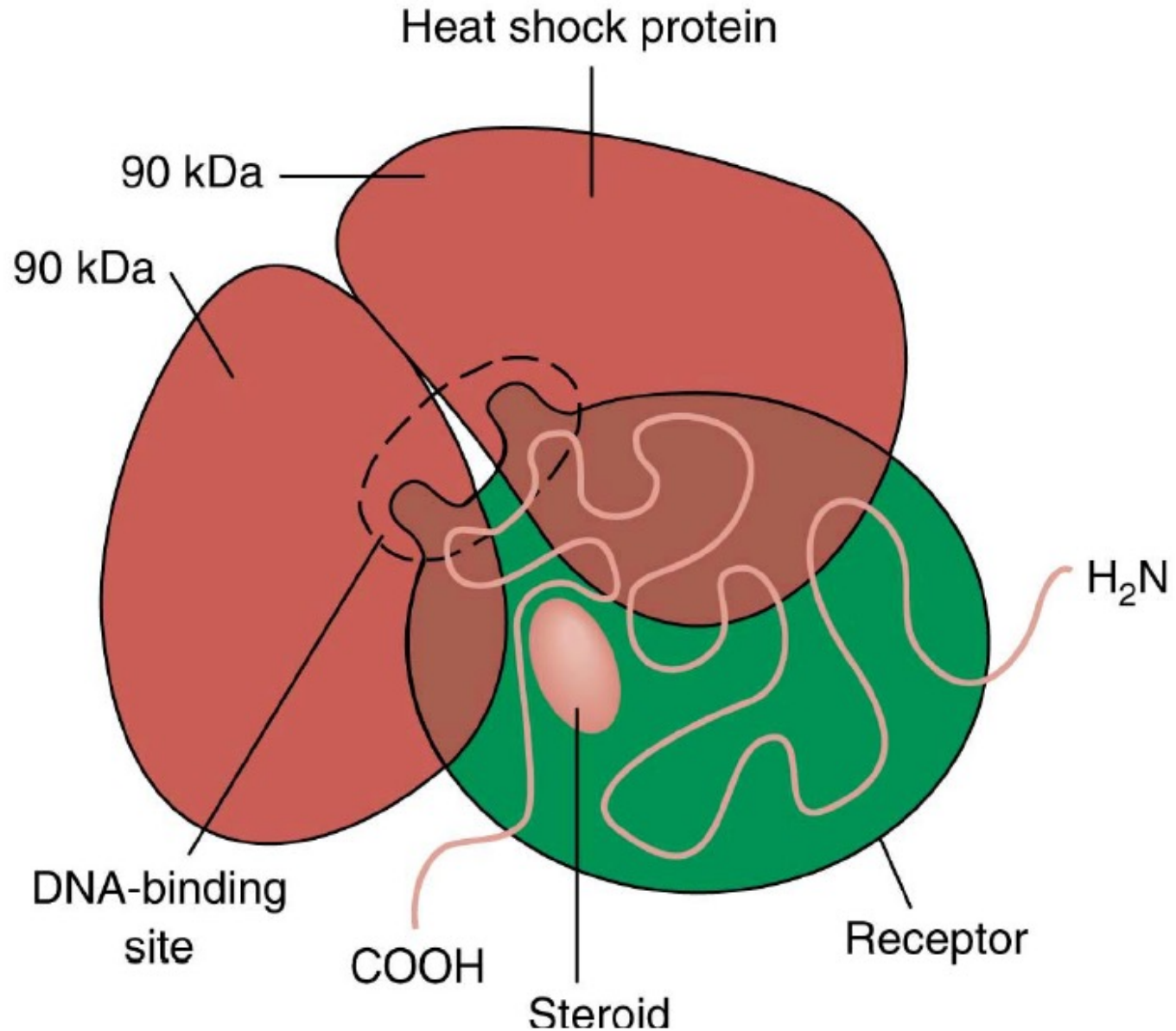
1. Nuclear receptors
2. G protein-coupled receptors
3. Receptor Tyrosine kinases (RTK)
4. Receptors with associated kinases



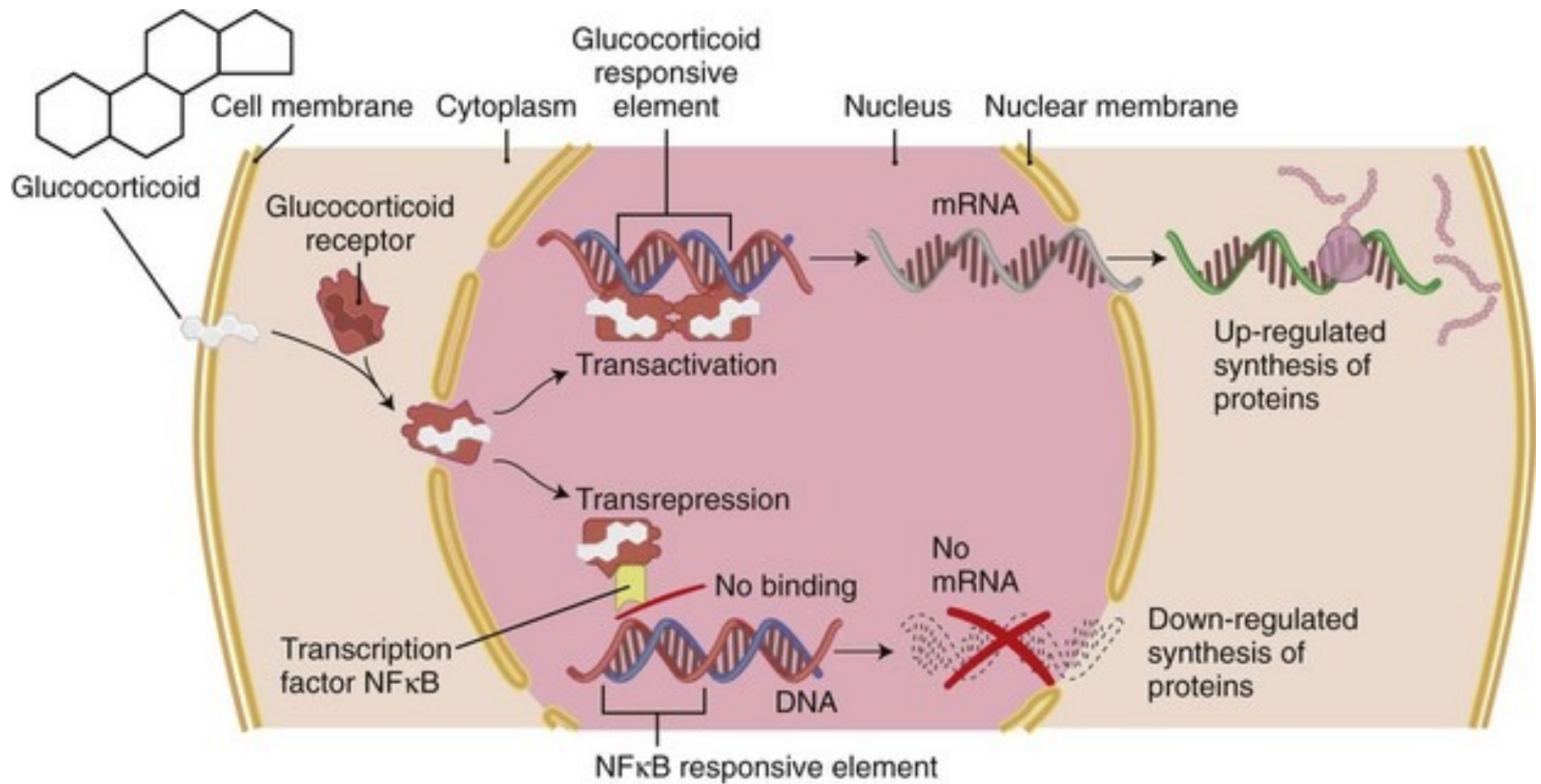
# Receptor types



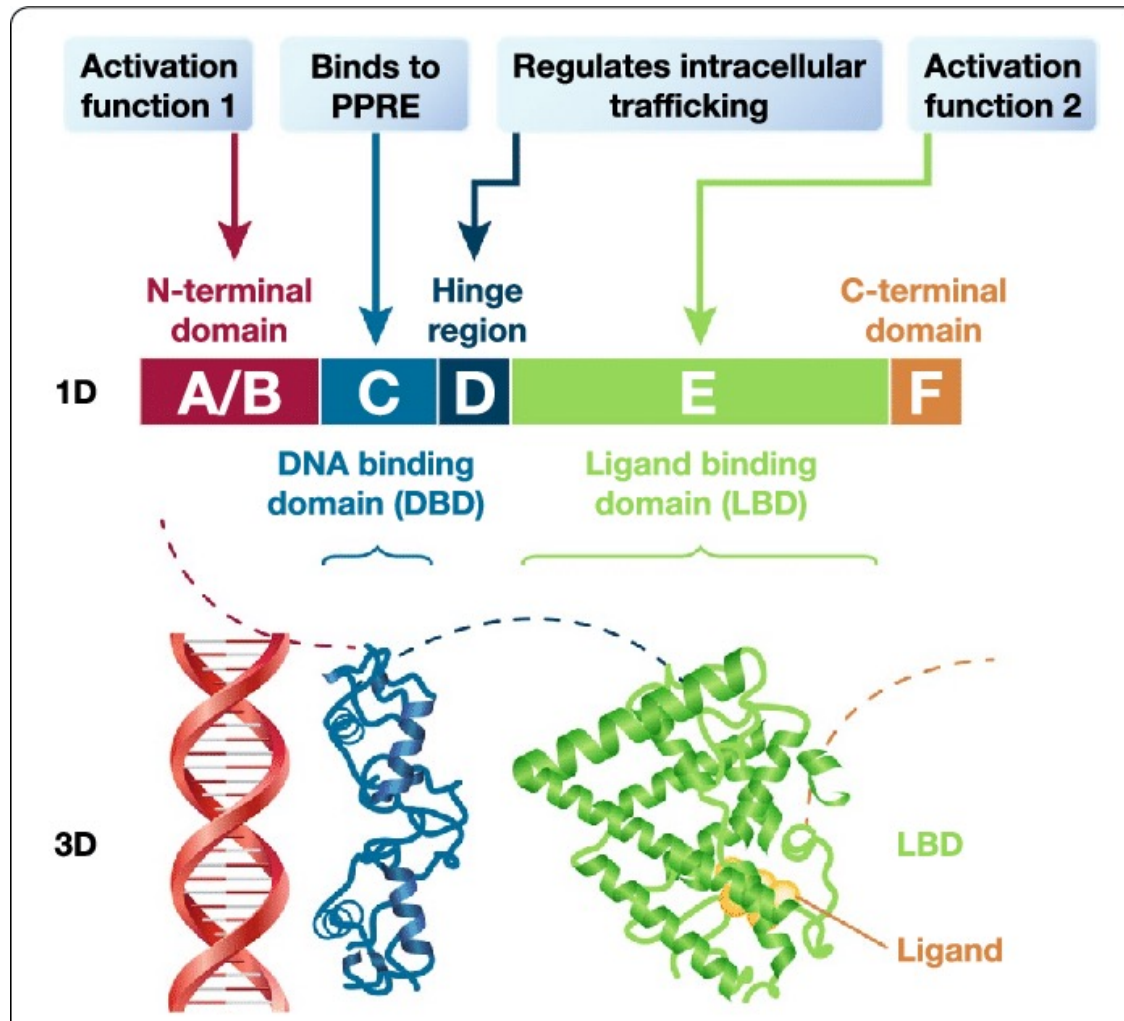
# Steroid Receptor - Structure



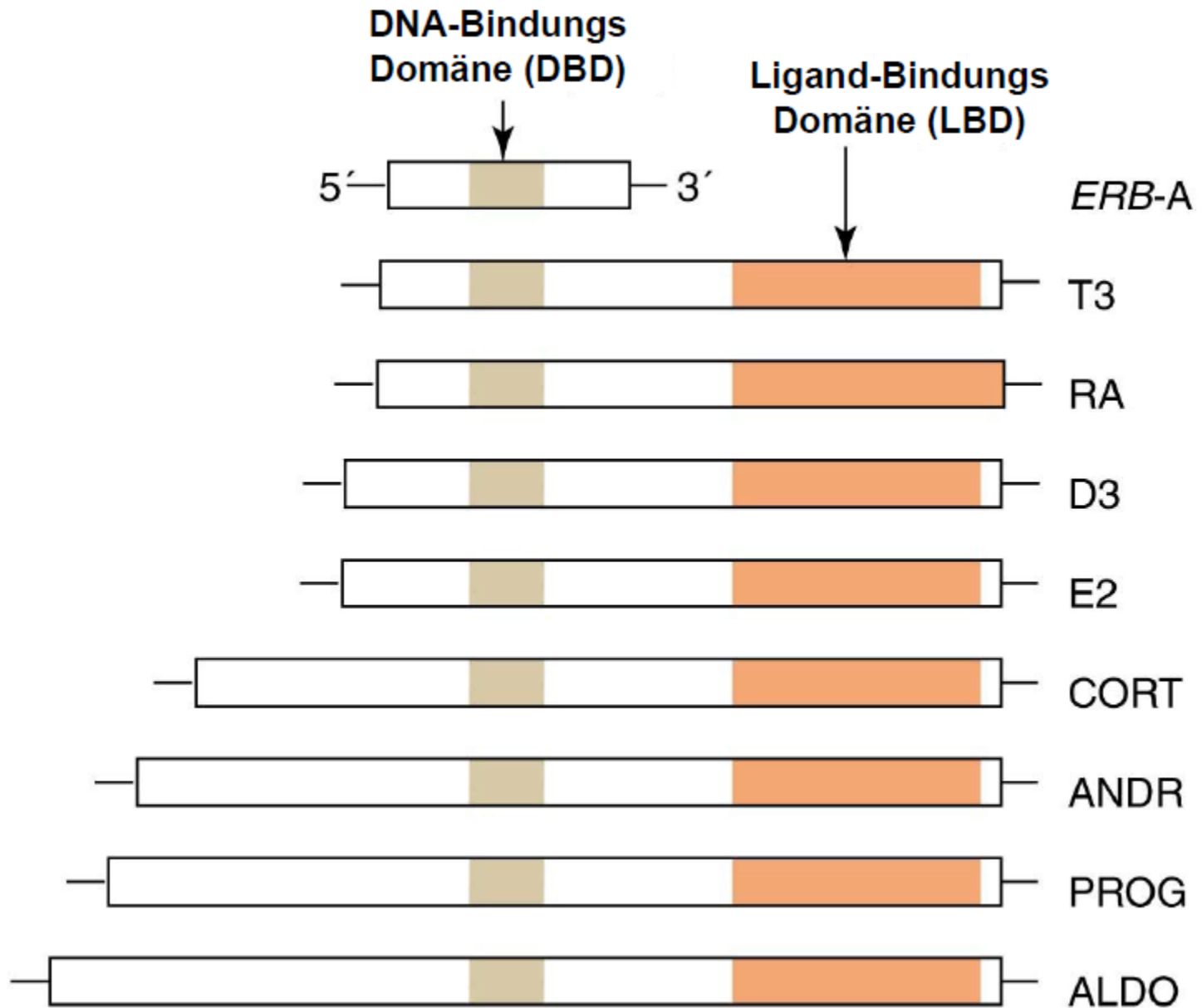
# Steroid Receptor – Activation prozess



# Steroid Receptors - Structure



# Nuclear Receptors - Structure



# Nuclear Receptors - Dimerization

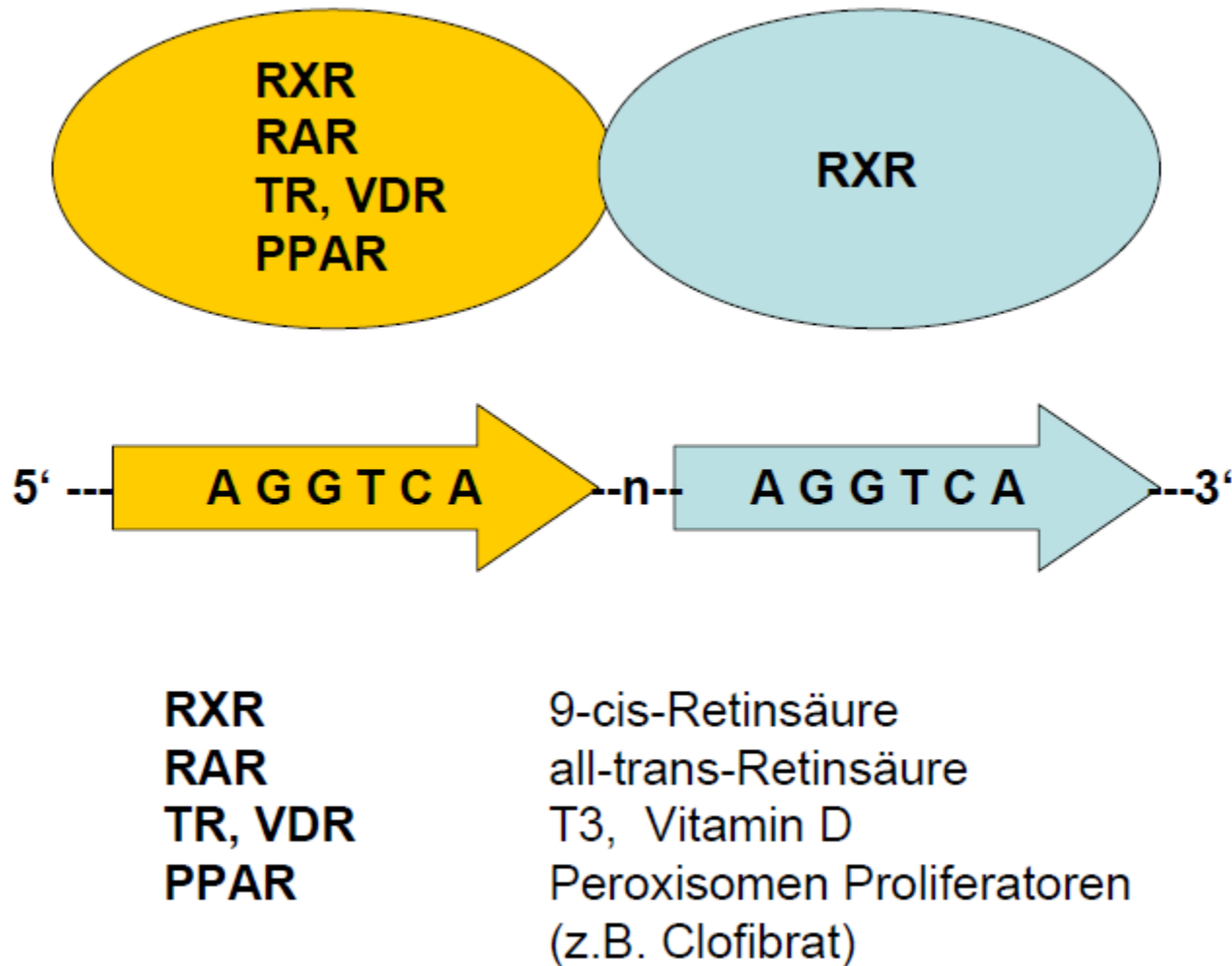
- **Steroid receptors: Homodimers (in Cytoplasm)**

e.g.: Glucocorticoids, Progesterone

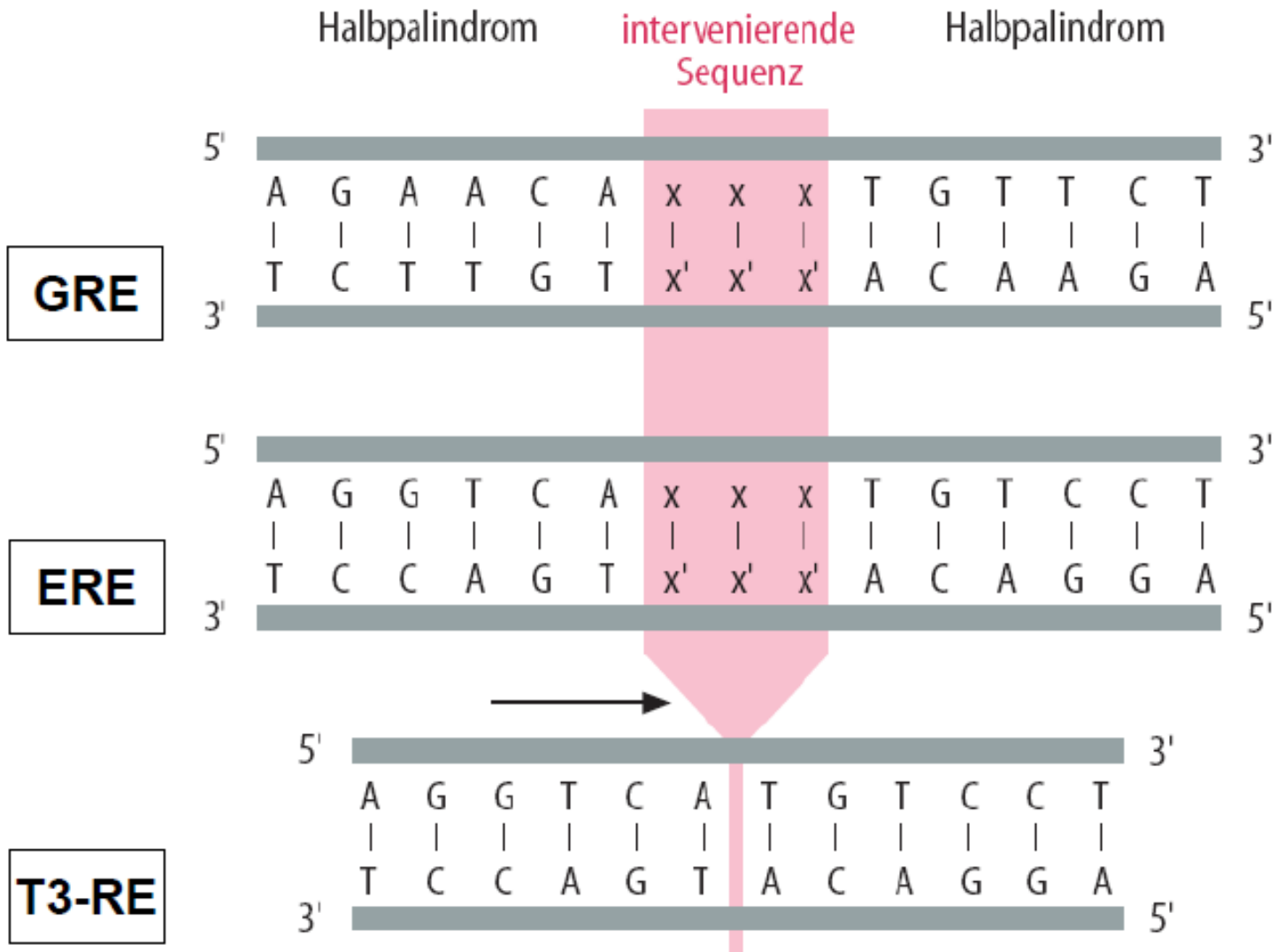
- **non-steroidal Receptors: Homodimers or Heterodimers  
(most are in the nucleus)**

e.g.: Retinoic acid (RAR, RXR)  
bile acid (LXR)  
Vitamin D (VDR)  
thyroid hormone (TR)

# Nuclear Receptors – DNA Binding



# Nuclear Receptors – DNA Binding





# Nuclear Receptors – DNA Binding

