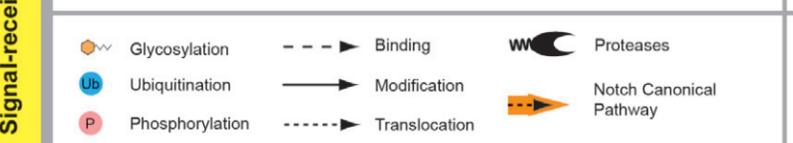
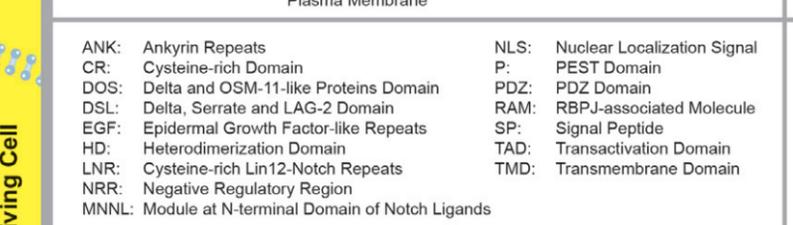
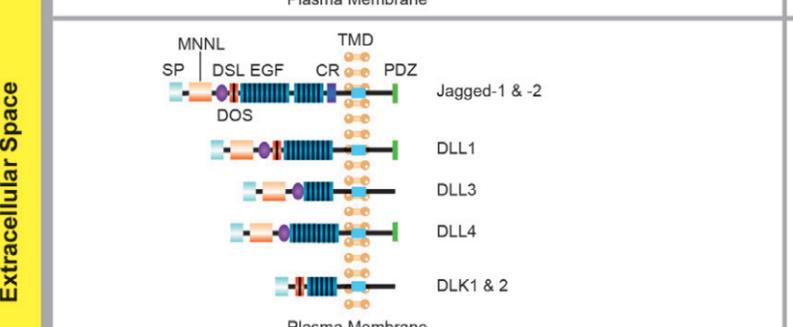
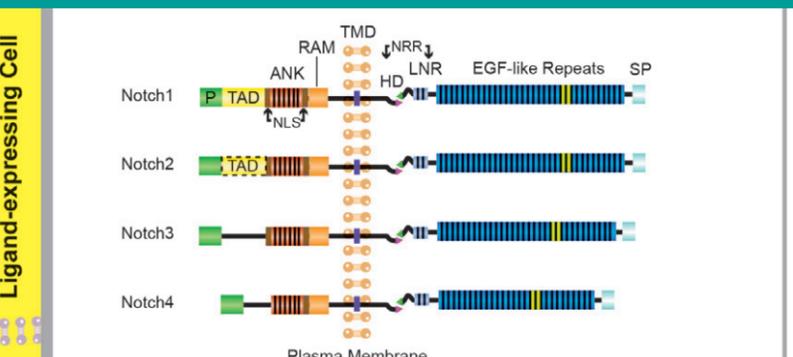
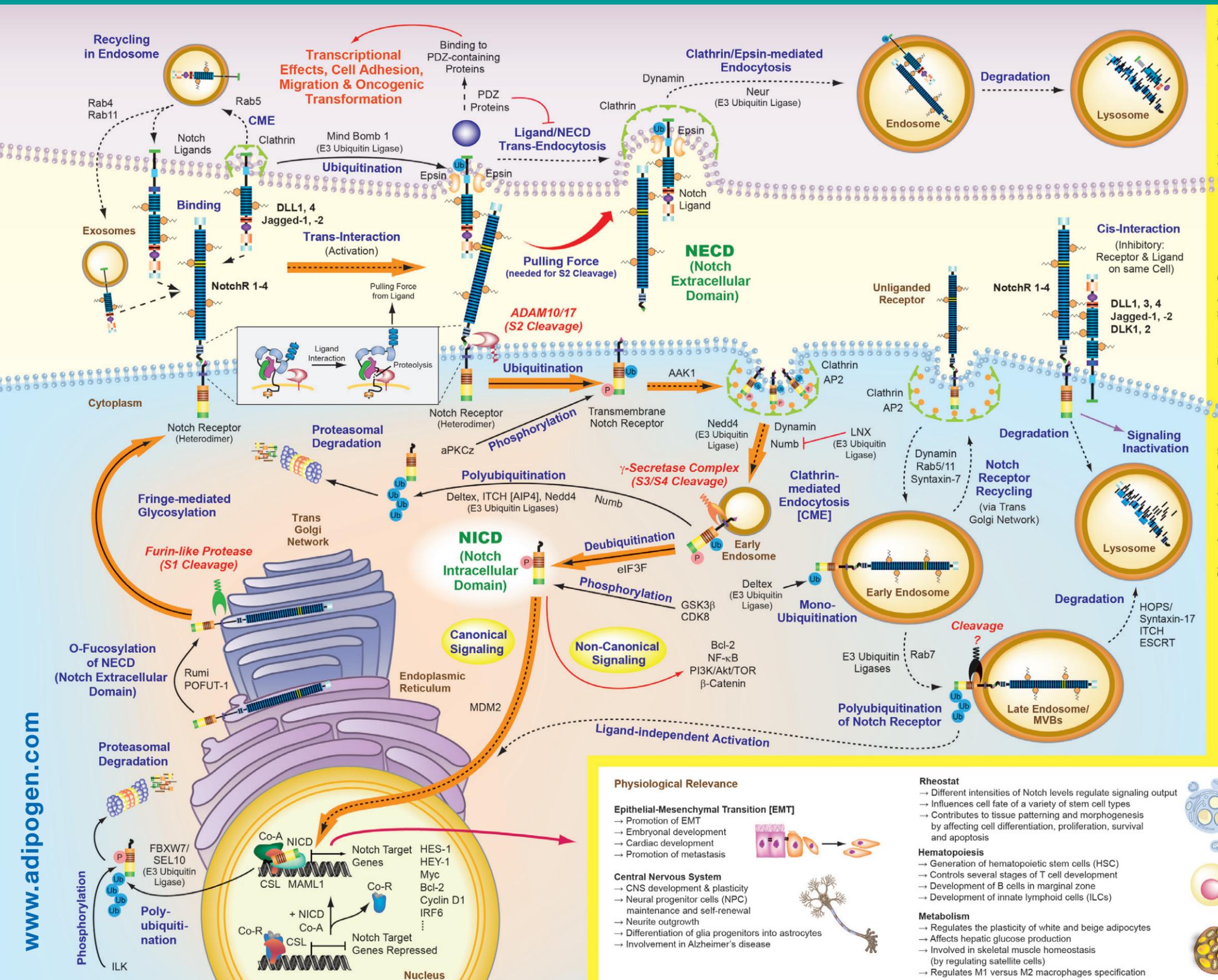


Notch Signaling Pathway

Activation, Signaling & Regulation



Physiological Relevance

Epithelial-Mesenchymal Transition [EMT]
 → Promotion of EMT
 → Embryonal development
 → Cardiac development
 → Promotion of metastasis

Central Nervous System
 → CNS development & plasticity
 → Neural progenitor cells (NPC) maintenance and self-renewal
 → Neurite outgrowth
 → Differentiation of glia progenitors into astrocytes
 → Involvement in Alzheimer's disease

Rheostat

→ Different intensities of Notch levels regulate signaling output
 → Influences cell fate of a variety of stem cell types
 → Contributes to tissue patterning and morphogenesis by affecting cell differentiation, proliferation, survival and apoptosis

Hematopoiesis
 → Generation of hematopoietic stem cells (HSC)
 → Controls several stages of T cell development
 → Development of B cells in marginal zone
 → Development of innate lymphoid cells (ILCs)

Metabolism
 → Regulates the plasticity of white and beige adipocytes
 → Affects hepatic glucose production
 → Involved in skeletal muscle homeostasis (by regulating satellite cells)
 → Regulates M1 versus M2 macrophages specification

Cancers

→ T cell acute lymphoblastic leukemia (T-ALL)
 → B cell lymphoproliferative disorders
 → Other hematological malignancies
 → Brain tumors including gliomas and medulloblastomas
 → Solid tumors in liver, breast, bladder, lung, prostate and other organs
 → Melanomas
 → Colorectal tumors
 → Regulates survival and renewal of cancer stem cells

Angiogenesis/Heart
 → Control of the sprouting pattern of blood vessels
 → Pivotal regulator of tumor angiogenesis and vascular development
 → Crucial in heart development
 → Congenital heart defects such as bicuspid aortic valve diseases
 → Cerebral autosomal dominant arteriopathy with subcortical infarct and leukoencephalopathy