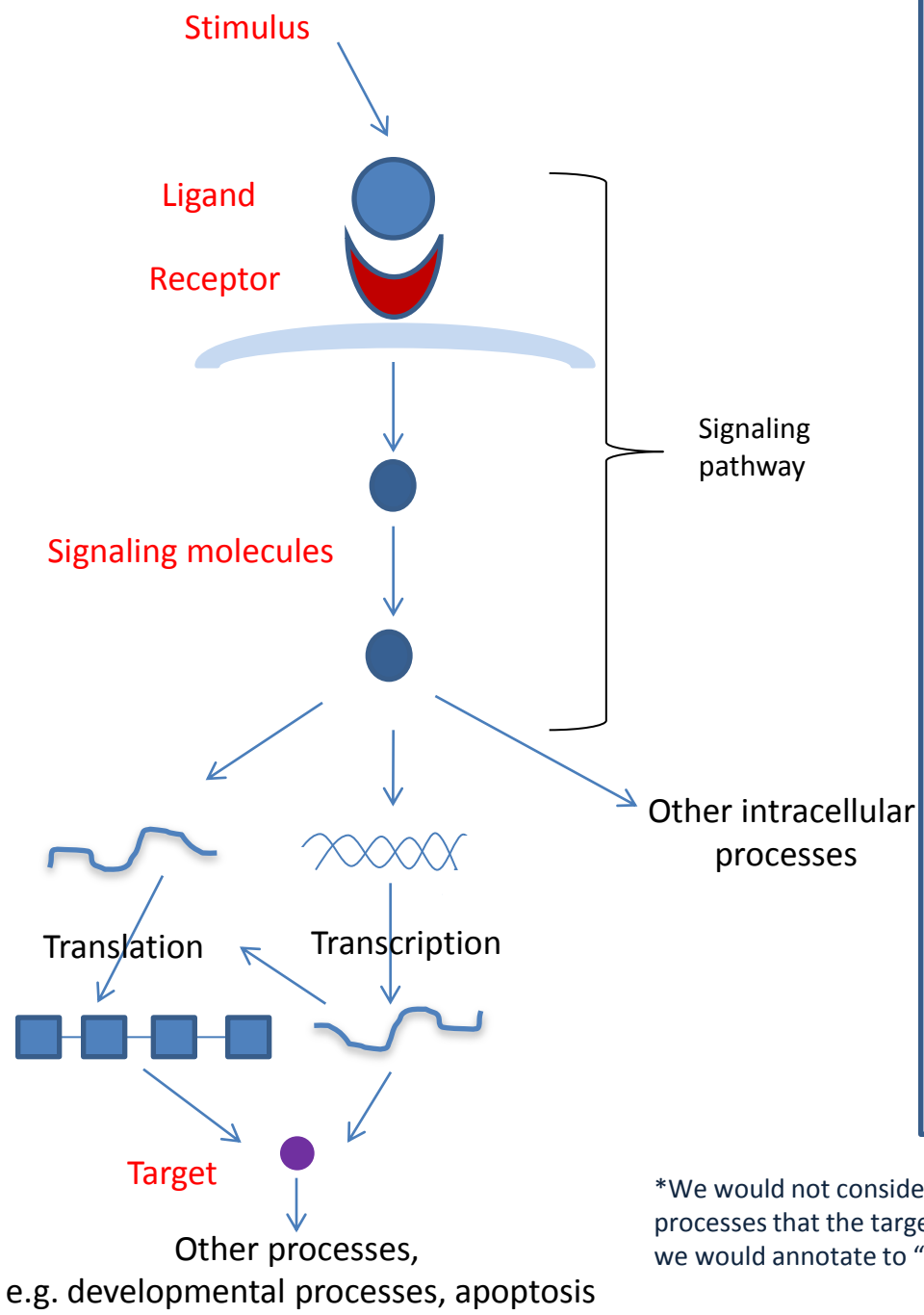
General ligand-receptor pathway



Suggested biological process annotations

Stimulus:
Regulation of signaling pathway

Ligand:
Signaling pathway
Regulation of <other cellular> process(es)

Receptor:
Signaling pathway
Regulation of <other cellular> process(es)

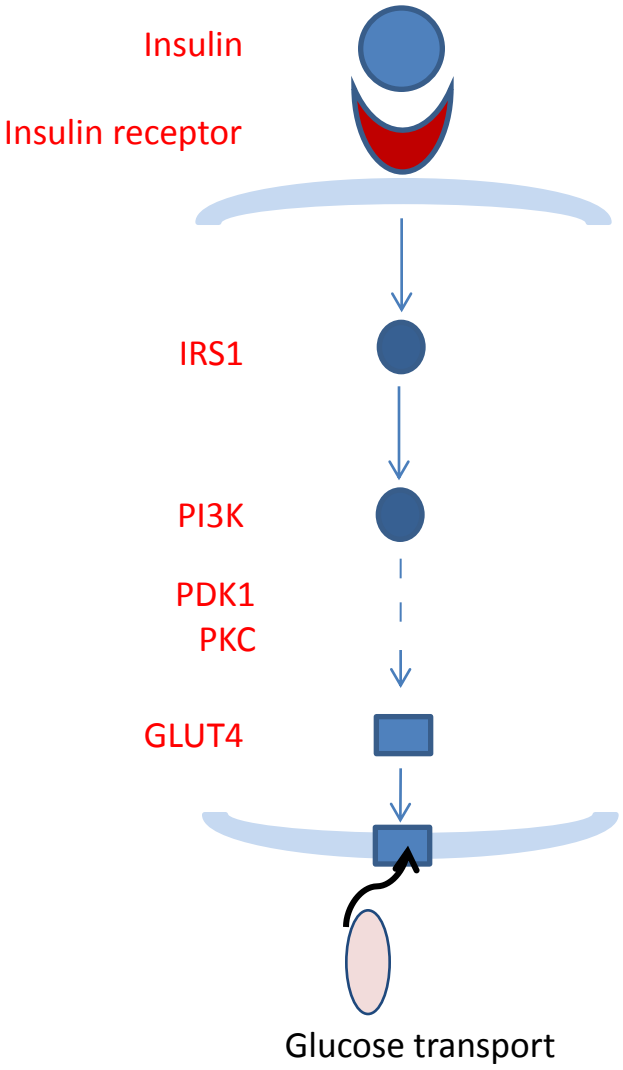
Signaling molecules:
Signaling pathway
Regulation of gene-specific transcription
Regulation of translation
(Regulation of) transcription in response to <stimulus/ligand>
(Regulation of) transcription involved in <other> process(es)
(Regulation of) <other cellular> process(es)

Transcription factors*:
Signaling pathway
Regulation of transcription involved in <other> process(es)

Target:
Cellular response to stimulus
<Other> process(es)
Regulation of <other> process(es)

*We would not consider annotating the core transcription machinery to the downstream (other) processes that the target is involved in unless the transcription factor is gene-specific, in which case we would annotate to "regulation of transcription involved in <other> process(es)".

Regulation of glucose transport



Suggested biological process annotations

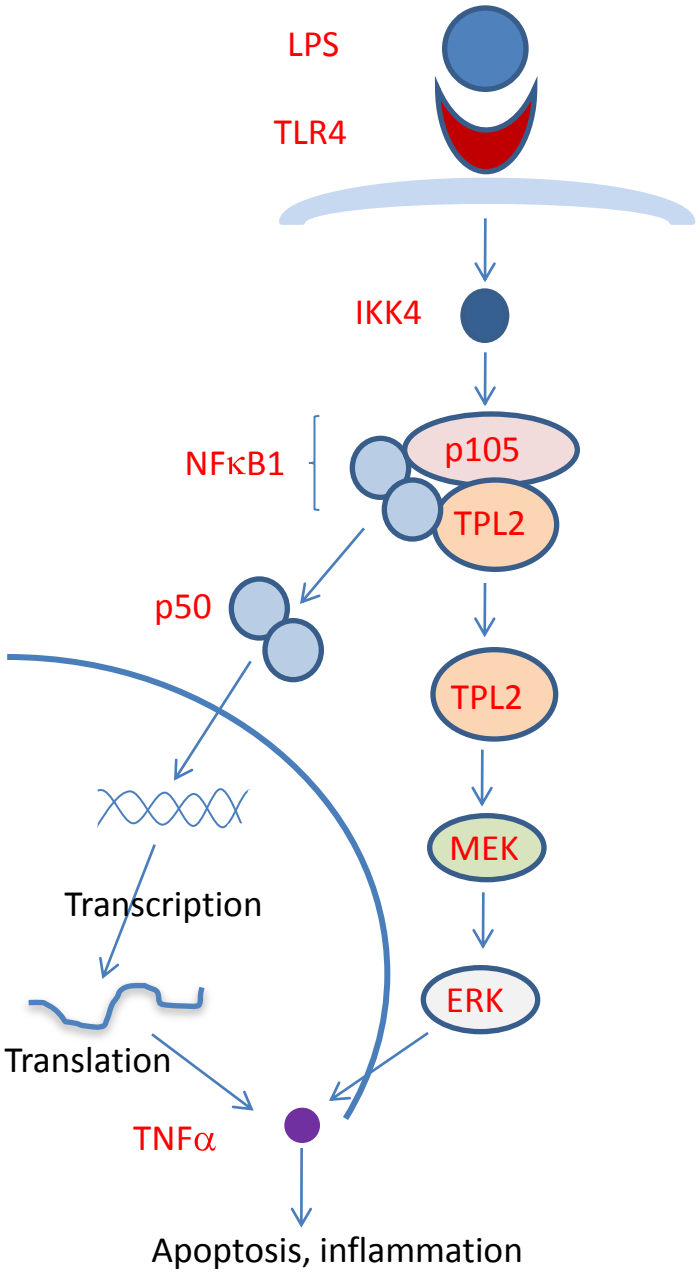
Insulin (ligand):
Insulin receptor signaling pathway
Regulation of glucose transport/homeostasis

Insulin receptor (receptor):
Insulin receptor signaling pathway
Regulation of glucose transport/homeostasis

IRS1, PI3K, PDK1, PKC (signaling molecules):
Insulin receptor signaling pathway
Regulation of glucose transport/homeostasis
Protein localization at cell surface (NTR: involved in response to insulin)

GLUT4 (target):
Cellular response to insulin
Glucose transport/homeostasis

Simplified NFκB pathway



Suggested biological process annotations

LPS (Ligand):
No annotation (not a gene product)

TLR4 (Receptor):
TLR4 signaling pathway
Regulation of apoptosis
Regulation of inflammatory response

IKK4, TPL2, MEK, ERK (signaling molecules):
TLR4 signaling pathway
Cellular response to lipopolysaccharide
Regulation of apoptosis
Regulation of inflammatory response

NFκB (p50/p105):
TLR4 signaling pathway
NTR: Regulation of transcription involved in apoptosis
NTR: Regulation of transcription involved in inflammation

TNFα (Target):
Induction of apoptosis
Inflammatory response
Cellular response to lipopolysaccharide

Diagram adapted from Beinke and Ley 2004. PMID: 15214841