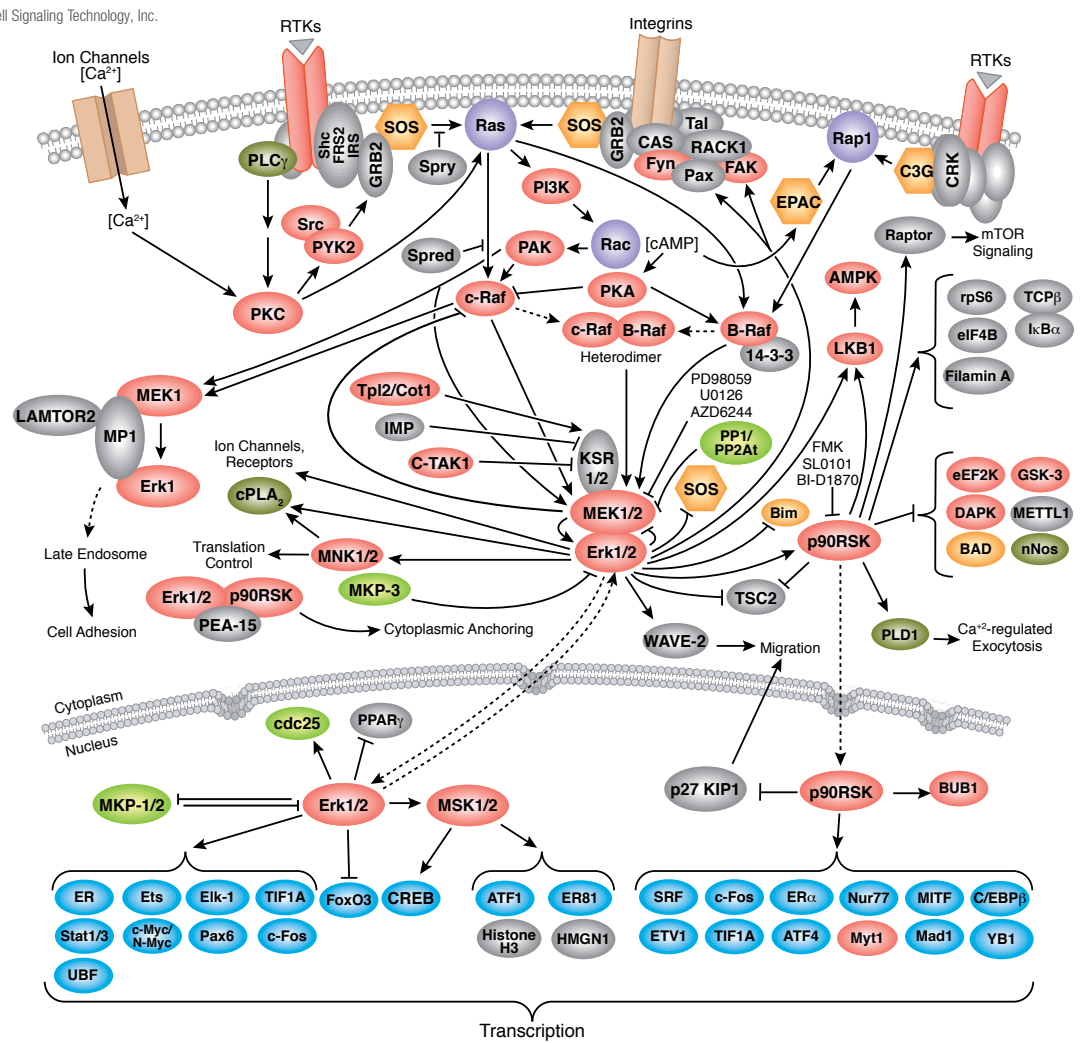


# Signaling

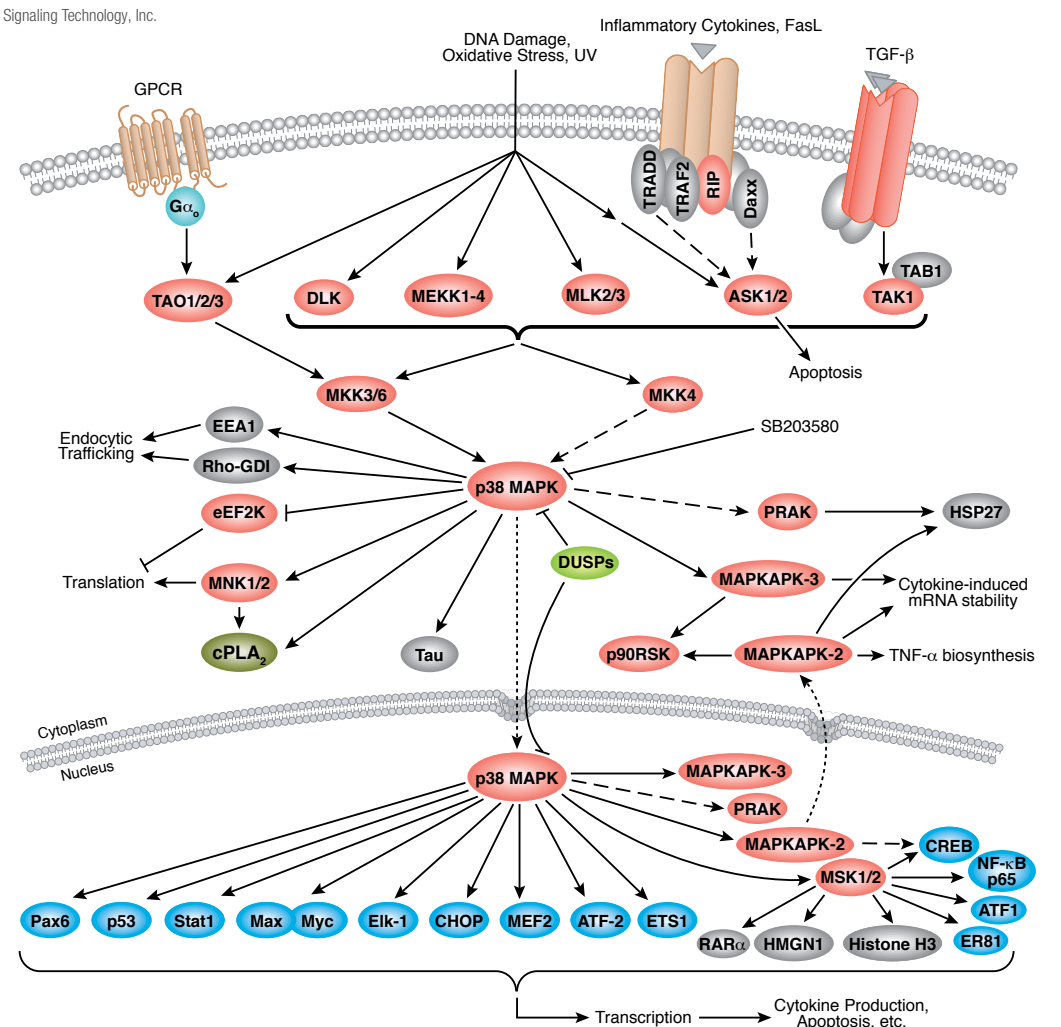
## MAPK/Erk in Growth and Differentiation

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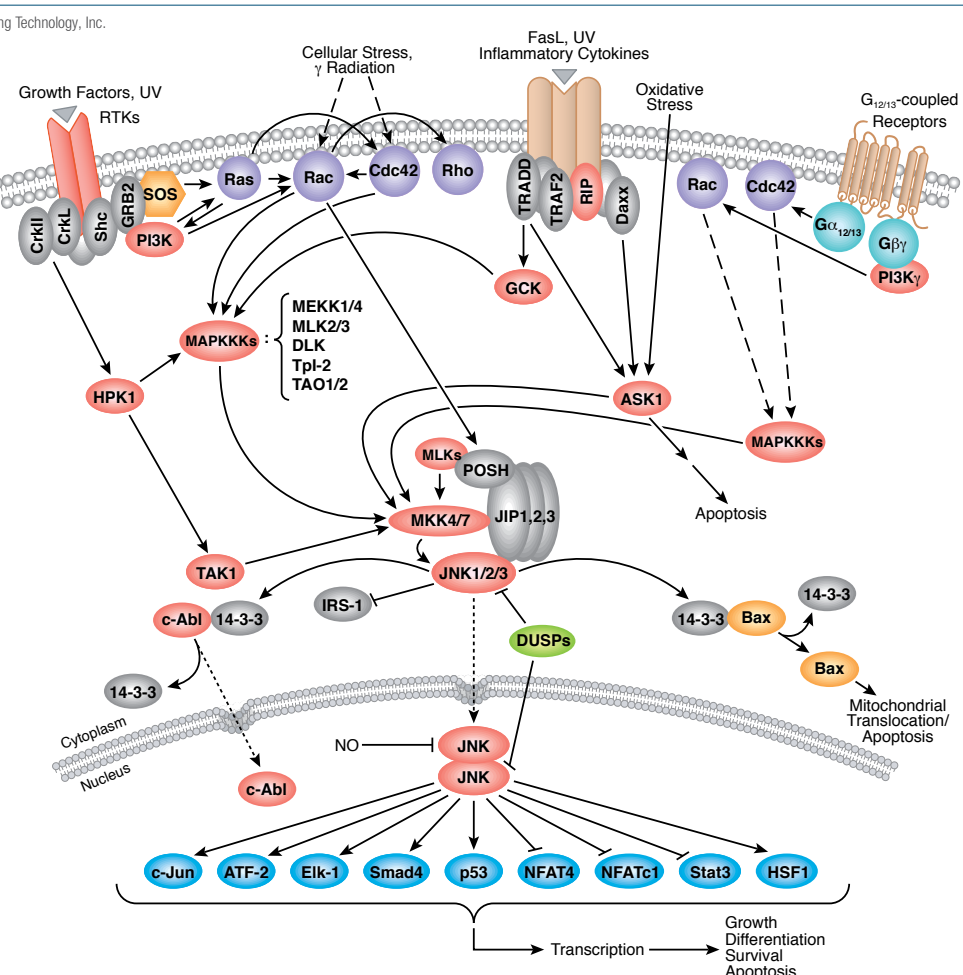
## Signaling Pathways Activating p38 MAP Kinase

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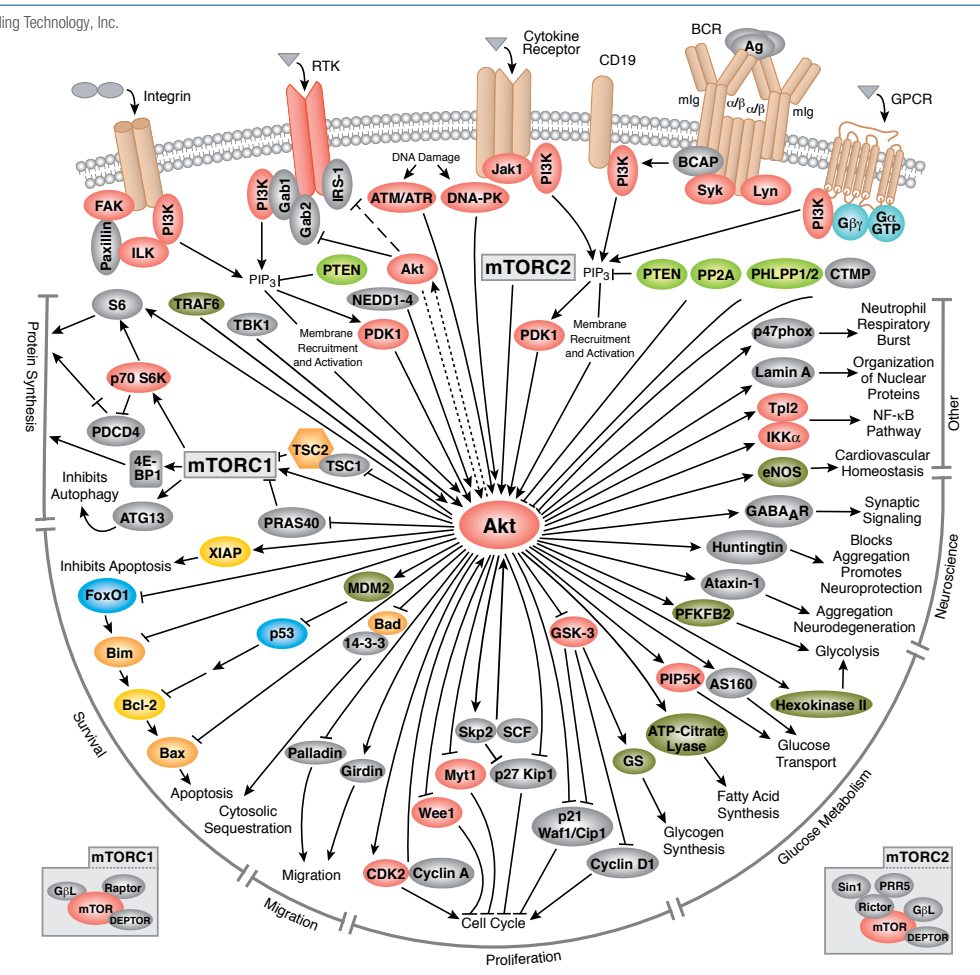
## SAPK/JNK Signaling

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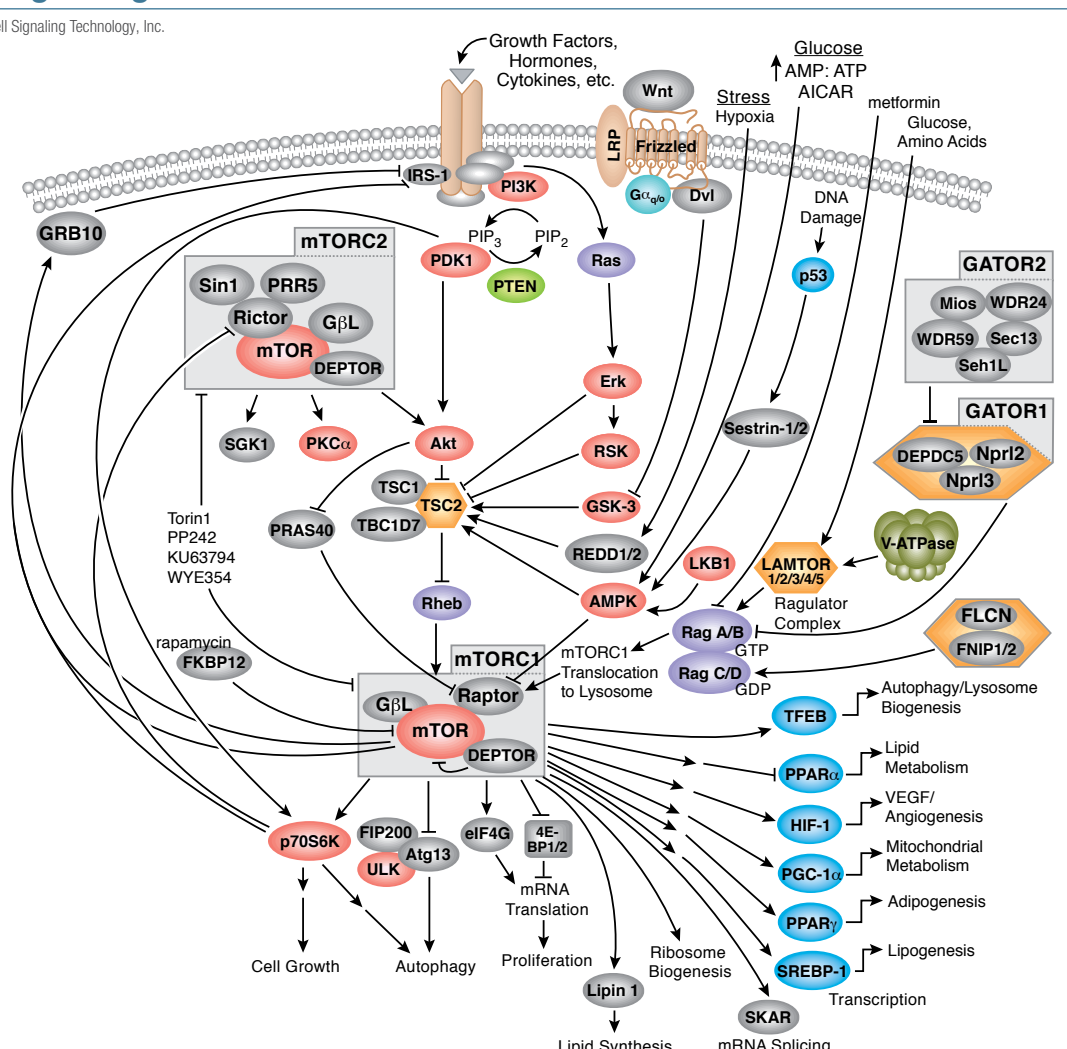
## PI3 Kinase/Akt Signaling

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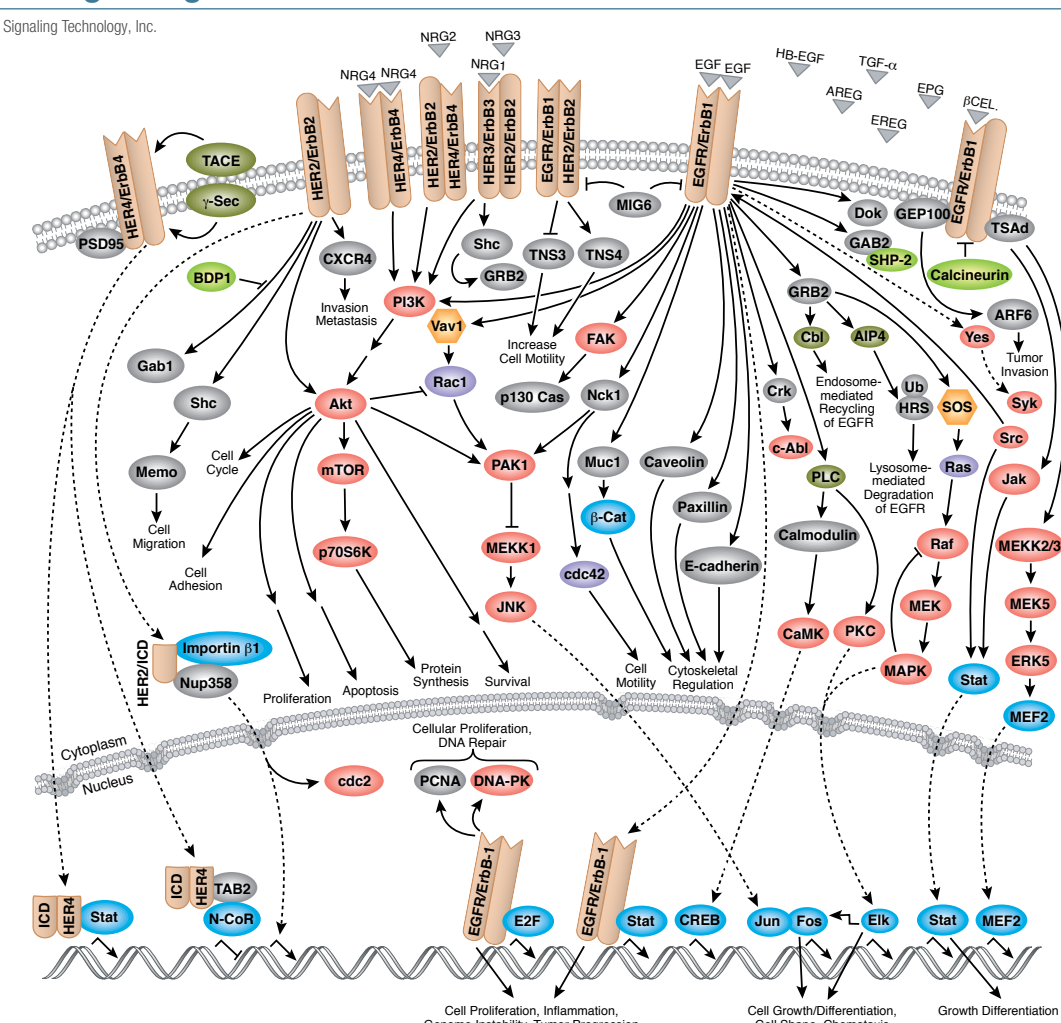
## mTOR Signaling

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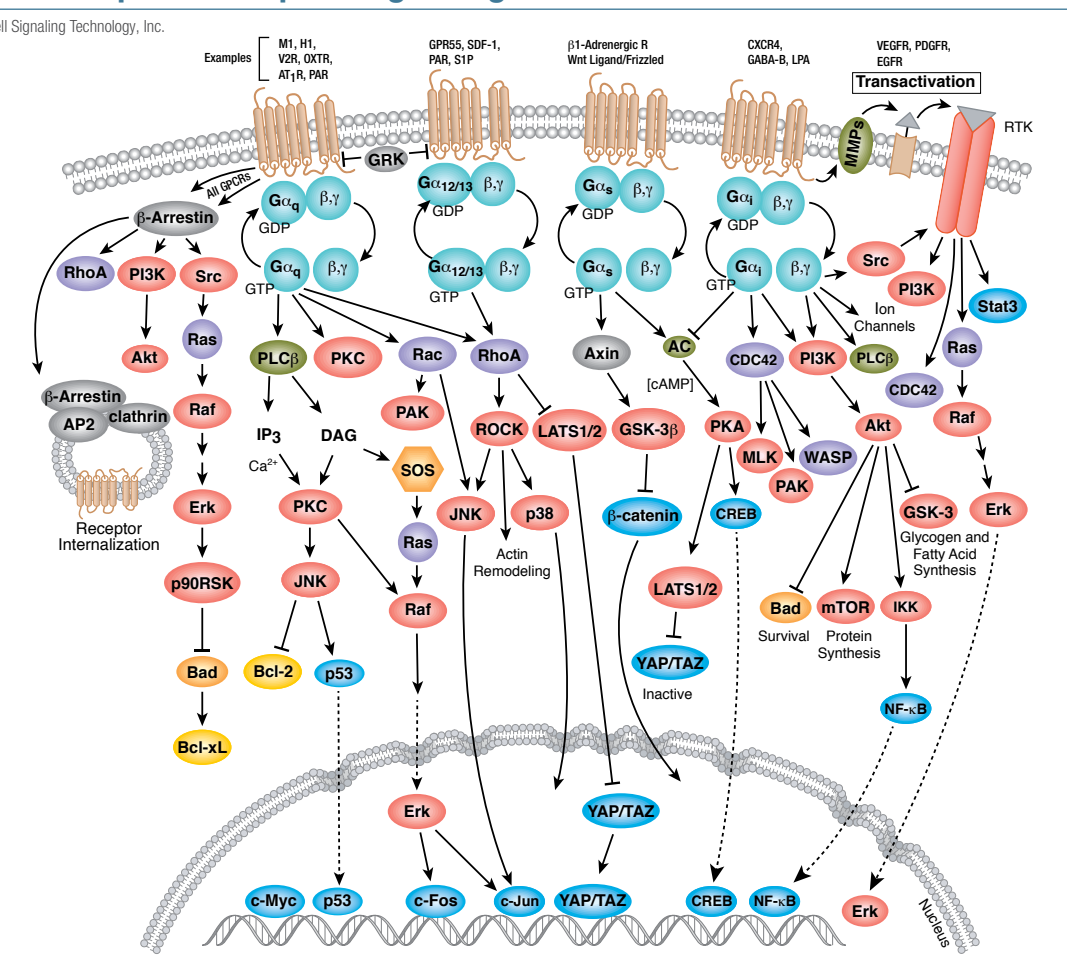
## ErbB/HER Signaling

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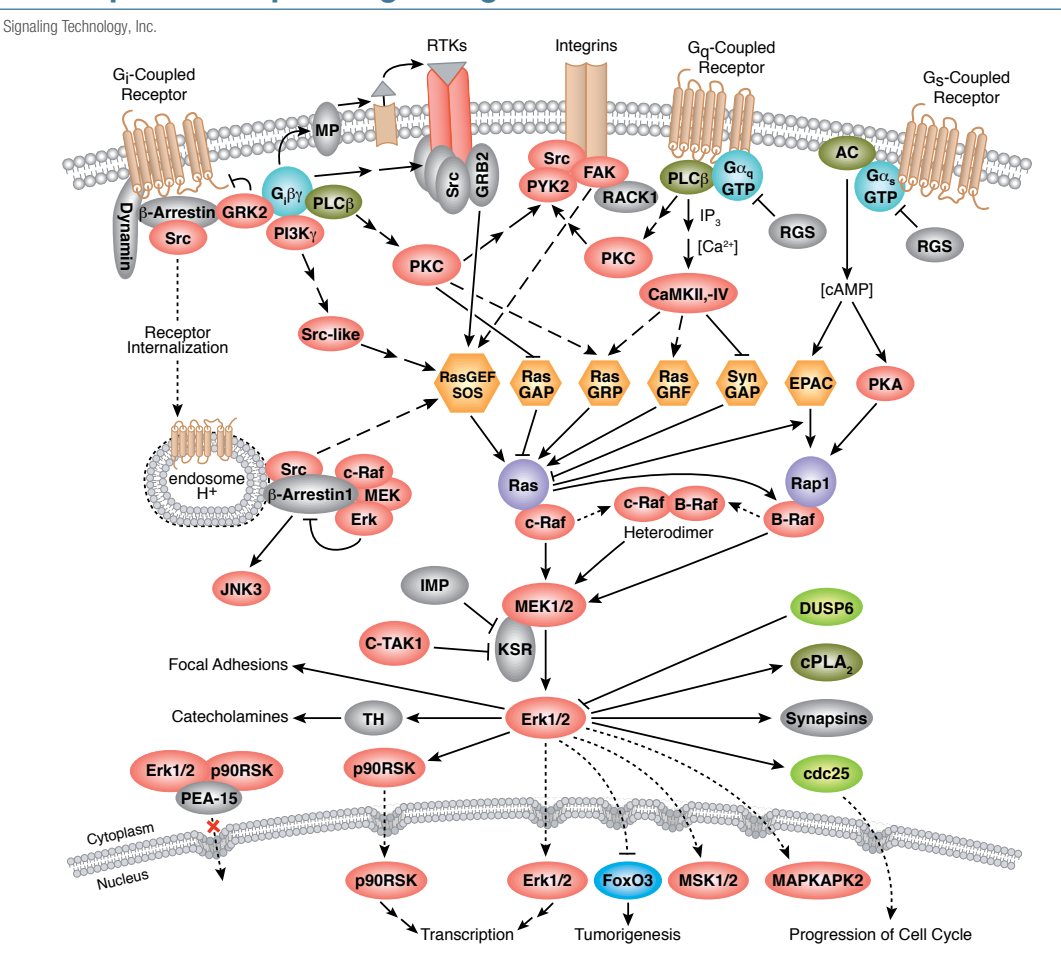
## G Protein-Coupled Receptor Signaling: Overview

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## G Protein-Coupled Receptor Signaling to MAP Kinase/Erk

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→ Direct Stimulatory Modification	→  Multistep Inhibitory Modification	→  Separation of Subunits or Cleavage Products	→  Transcriptional Stimulatory Modification	● Kinase	● Transcription Factor	● Receptor	● pro-survival	● GTPase	● Deacetylase
→  Direct Inhibitory Modification	→  Tentative Stimulatory Modification	→  Joining of Subunits	→  Transcriptional Inhibitory Modification	● Phosphatase	● Caspase	● Enzyme	● GAP/GEF	● G-protein	● Ribosomal subunit
→  Multistep Stimulatory Modification	→  Tentative Inhibitory Modification	→  Translocation						● Acetylase	