

Molecular Recognition in Signaling Cascades

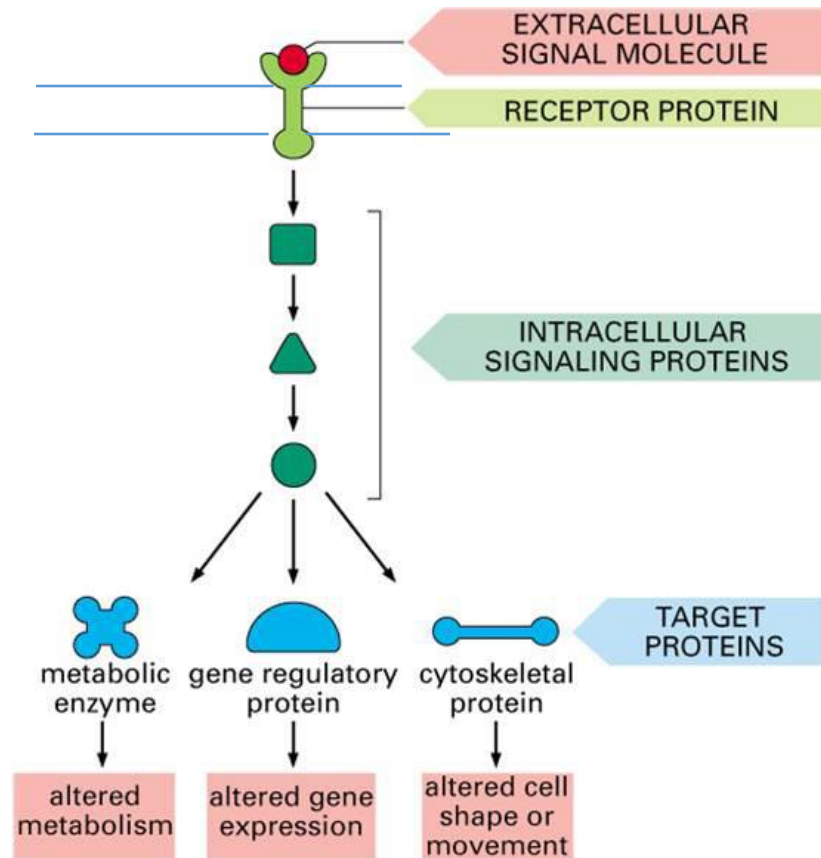
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08-29-2019

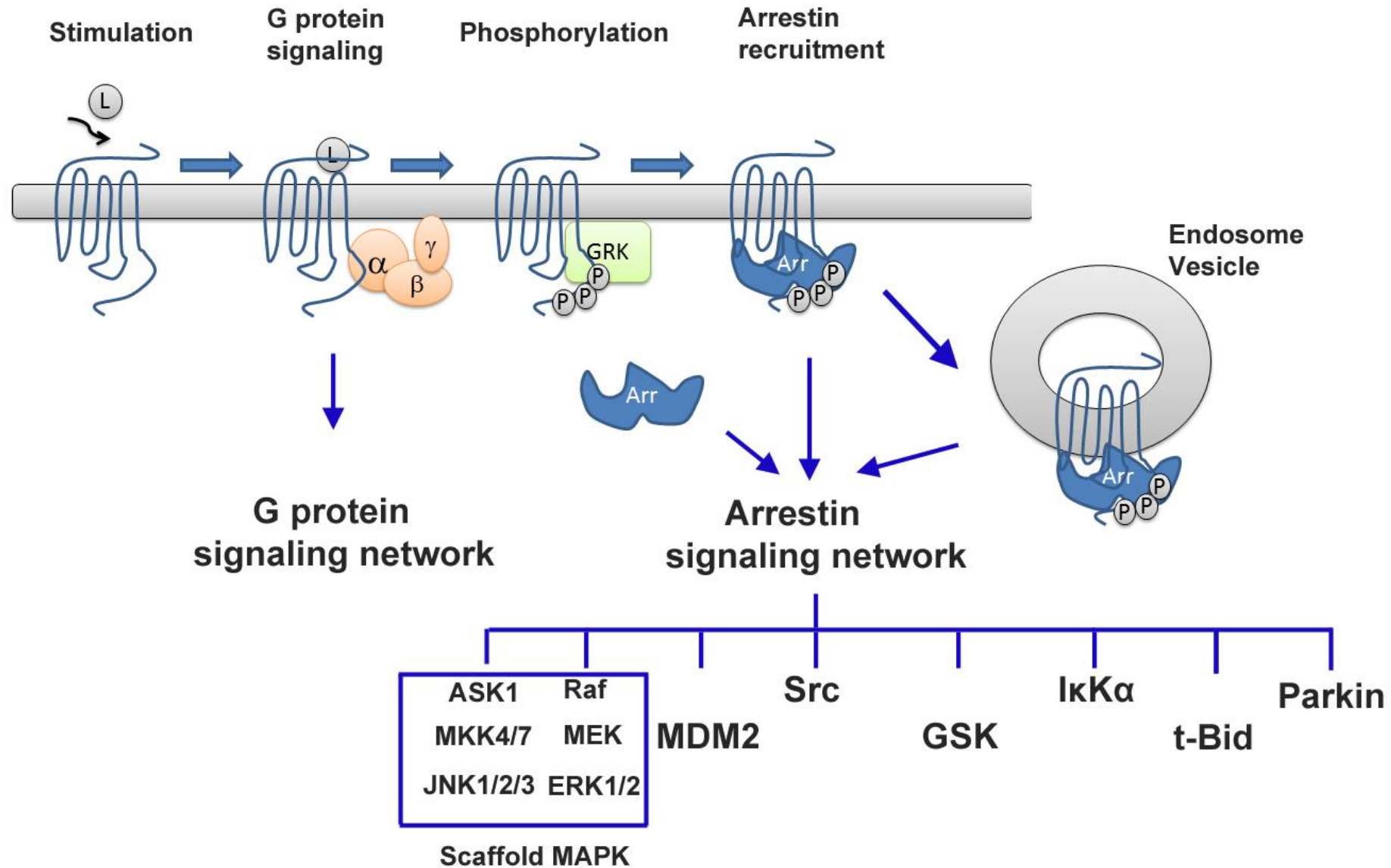
Cell signaling: a complex system of communication



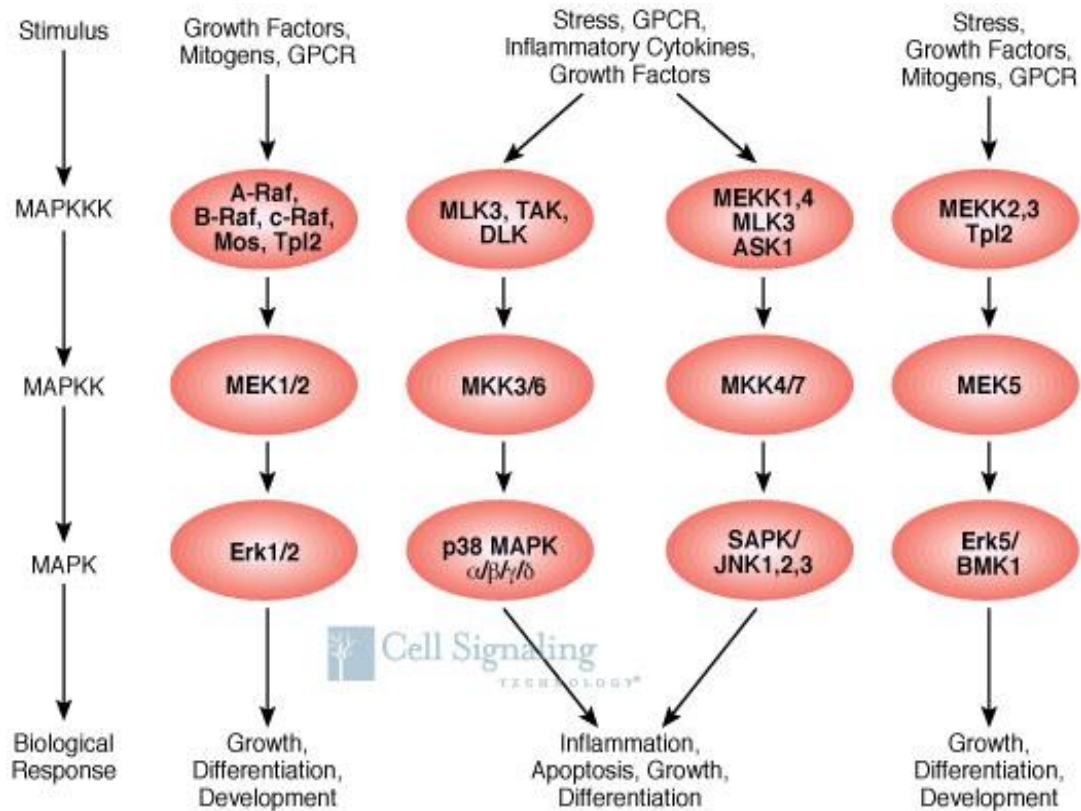
Molecular Biology of the Cell, 4th edition

- **Receptors:** Cell senses extra cellular signals:
Hormones, heat, cold, light, osmotic pressure, concentration change of glucose, ions.
- **Signaling proteins:**
Signal transduction involves molecular modifications: production and degradation of substances, phosphorylation, ubiquitination.....
- **Target proteins:**
Transcription factors, metabolic enzymes...

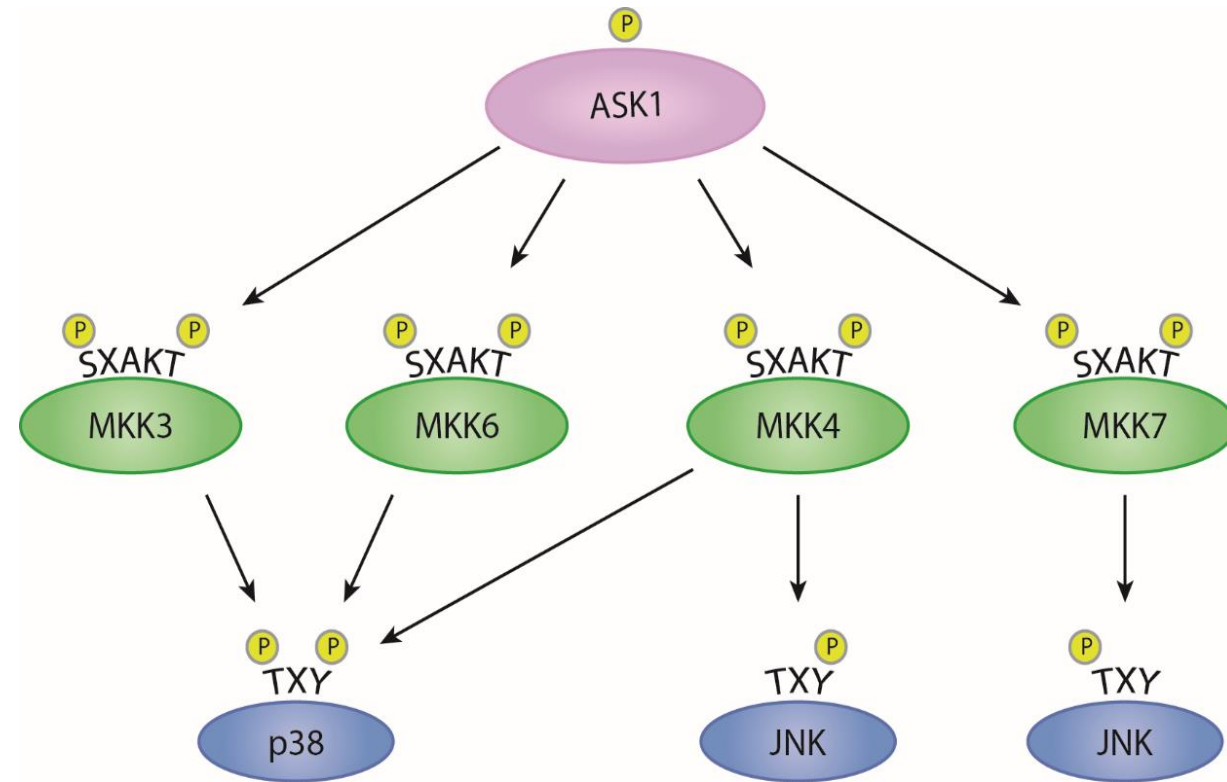
G protein coupled receptor (GPCR) and arrestin-mediated signaling



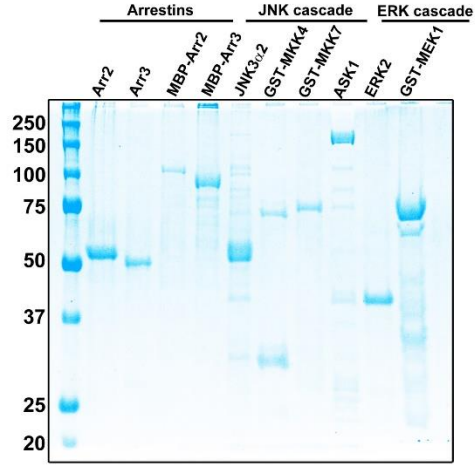
MAPK cascades (Mitogen-Activated Protein kinase) & ASK1-MAPK cascades



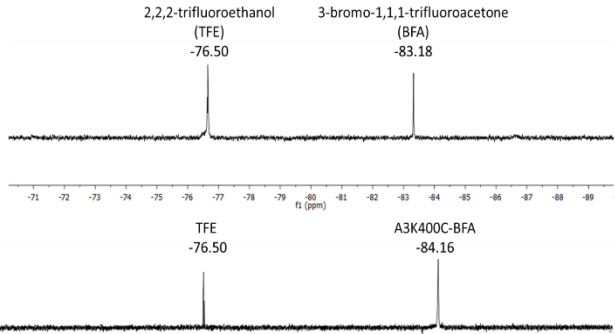
Scaffold proteins



Research focuses and expertise of our group



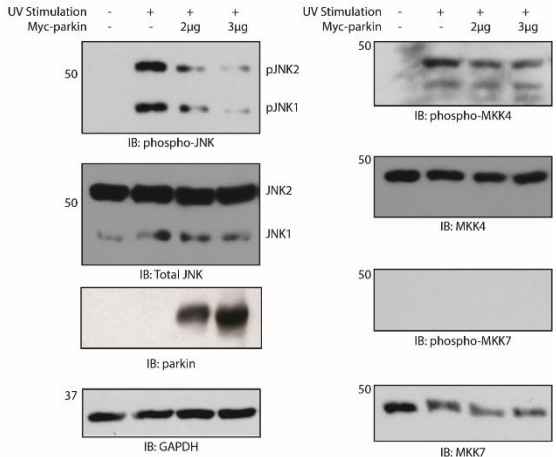
Reconstitution of MAPK cascades: protein purification and characterization



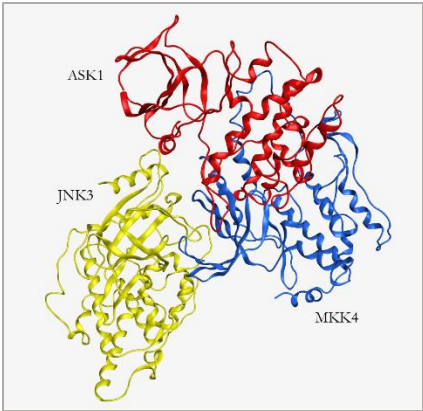
Cellular based assay

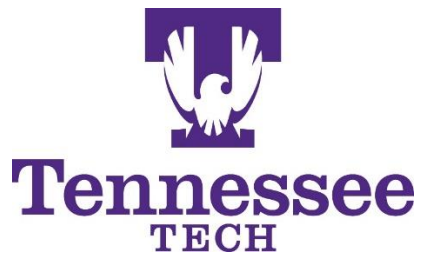
Structure and function of MAPK cascades

**Biophysical analysis
Collaborating with
Dr. William Carroll/Dr. Jeff Boles**

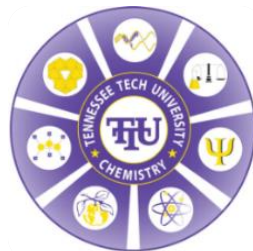


**Computational docking of protein complexes
Collaborating with Dr. Dereck Cashman**





Faculty Research Grant, Track II
CISE



Student Research Grant

