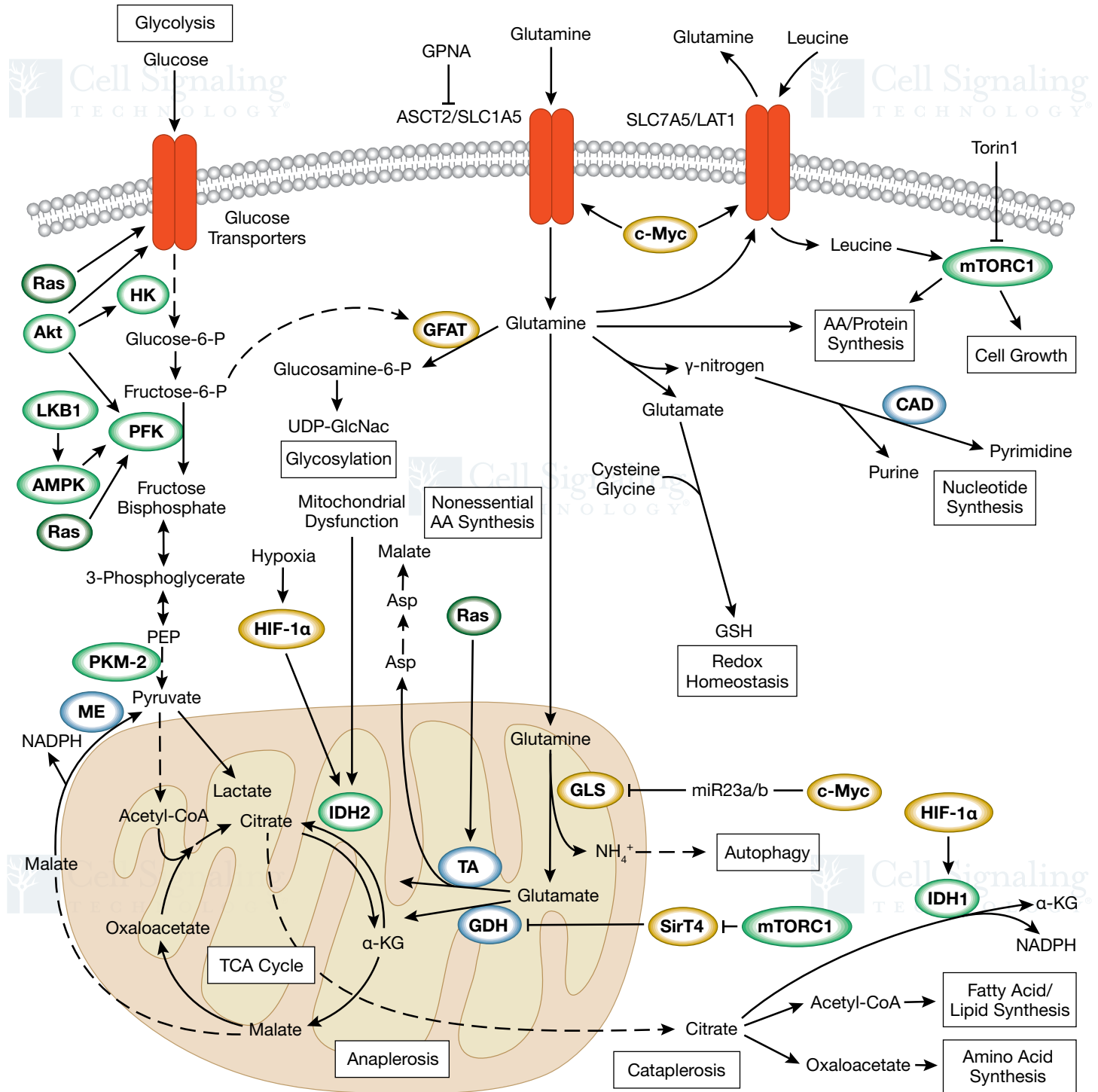




# Glutamine Metabolism



rev. 12/16/19

## Pathway Diagram Key

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- |           |                               |  |                |                                |                 |  |          |
|-----------|-------------------------------|--|----------------|--------------------------------|-----------------|--|----------|
| Acetylase | Apoptosis/Autophagy Regulator | Deacetylase or Cytoskeletal Protein        | GTPase/GAP/GEF | Metabolic Enzyme               | Phosphatase     | Ubiquitin/SUMO Ligase or Deubiquitinase    | Receptor |
| Adaptor   | Cell Cycle Regulator          | Growth Factor/Cytokine/Development Protein | Kinase         | Methyltransferase or G-protein | Protein Complex | Transcription Factor or Translation Factor | Other    |
- Direct Process    
 Tentative Process    
 Translocation Process    
 Stimulatory Modification    
 Inhibitory Modification    
 Transcriptional Modification