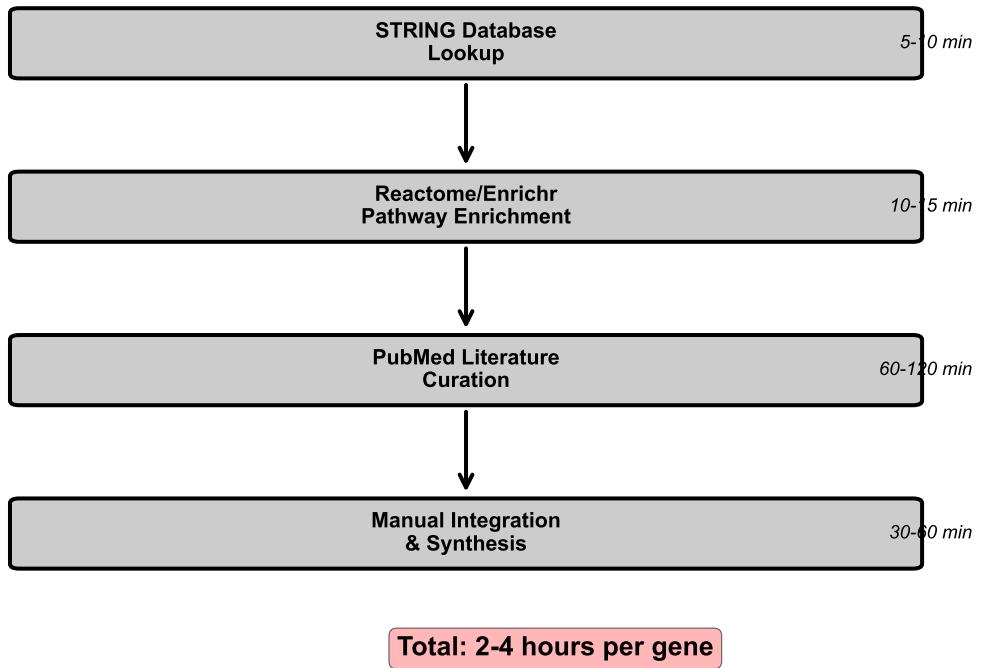
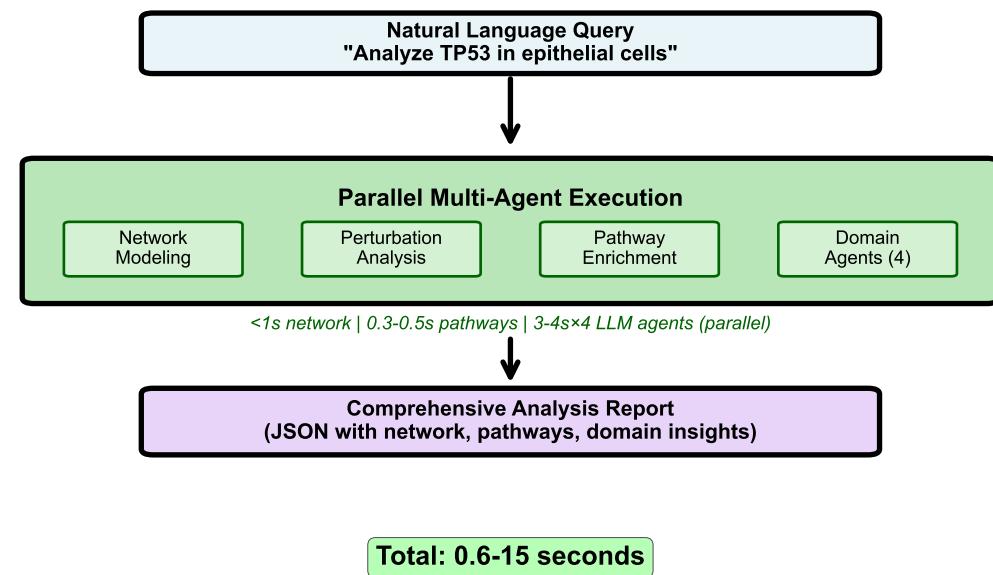


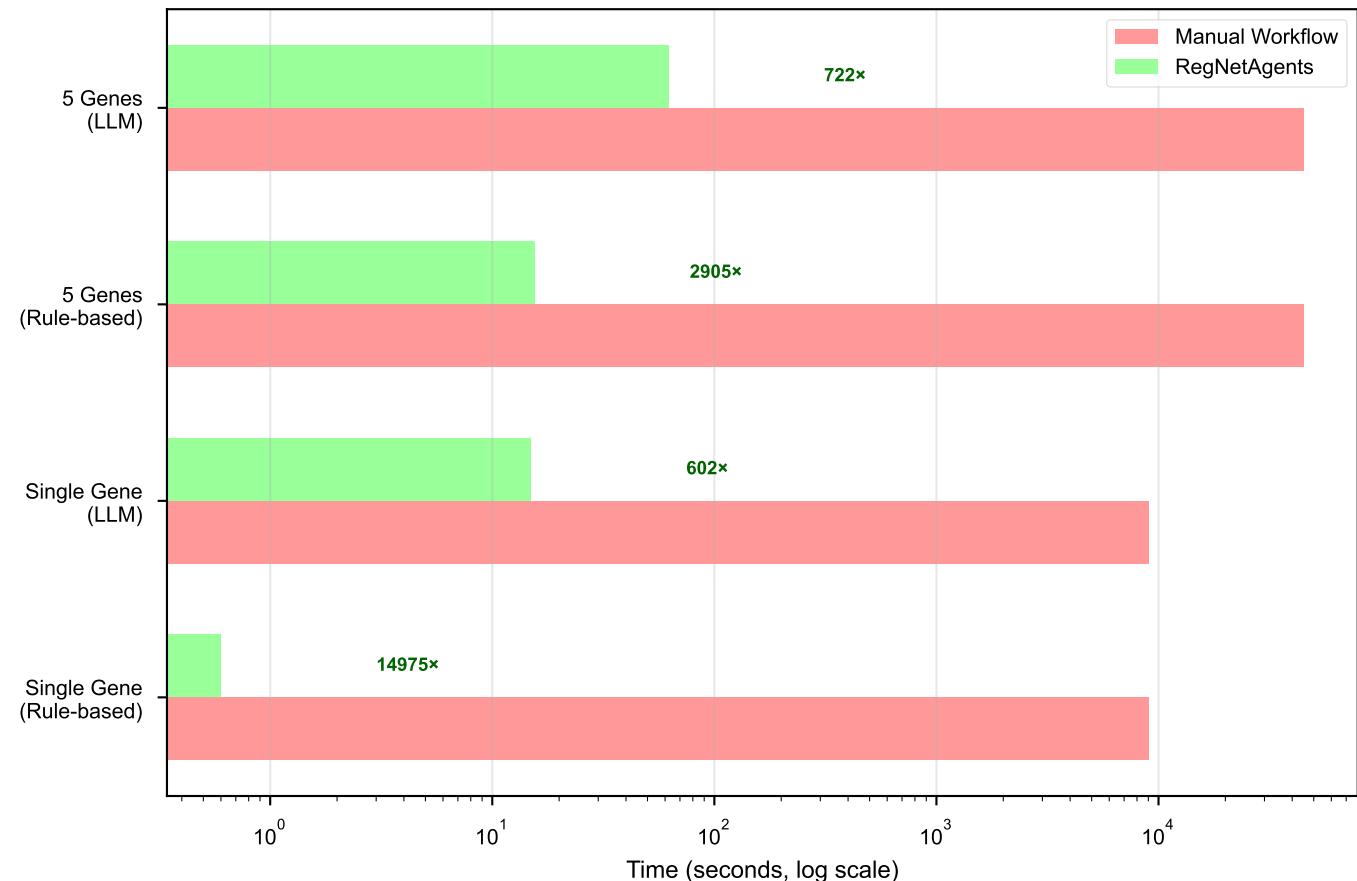
A) Traditional Manual Workflow



B) RegNetAgents Automated Workflow



C) Performance Comparison



D) LLM-Powered Scientific Context

Rule-Based Mode (0.6s)

- Oncogenic: HIGH
 - Hub regulator
 - 163 targets, 7 regulators

Network metrics of
no rationales

LLM-Powered Mode (15s)

- Oncogenic: HIGH
 - Hub regulator
 - 163 targets, 7 regulators

+ *Scientific rationales & interpretations*

"TP53 functions as hub regulator (163 targets) consistent with tumor suppressor role. High regulatory input suggests multiple control checkpoints."

+14 seconds for scientific context & biological interpretation

LLM agents integrate gene function data (NCBI/UniProt) with network topology

*Trade-off: Speed vs Scientific Context
(System gracefully falls back to rule-based if LLM unavailable)*