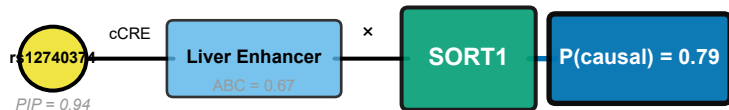


# Mechanism Graph Framework



**Path:**  $P_{path} = PIP \times P(cCRE) \times P(E \rightarrow G|ABC)$

**Gene:**  $P(G) = 1 - \prod_i (1 - P_{path_i})$  (Noisy-OR)

**Calibrated** ECE = 0.012

**Interpretable** Full path visible

**Uncertainty** 95% CI quantified

**Tissue-specific** Specific pathways

**vs. Traditional (L2G):**

Single opaque score

No calibration (ECE=0.18)

No mechanism insight

## Five-Stage Pipeline

