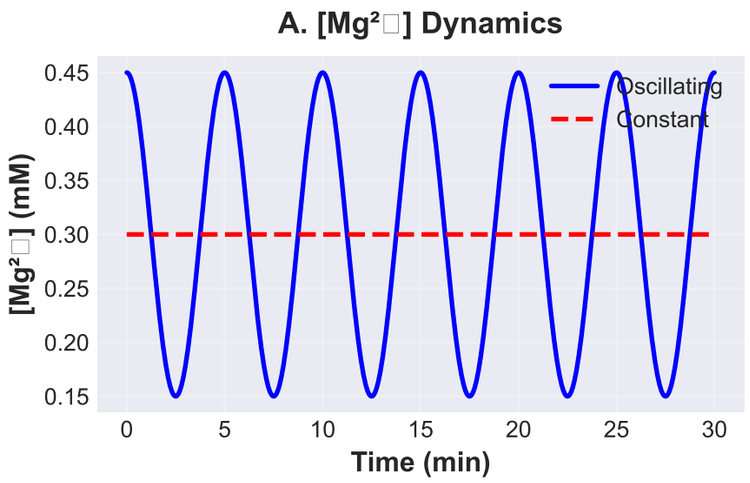
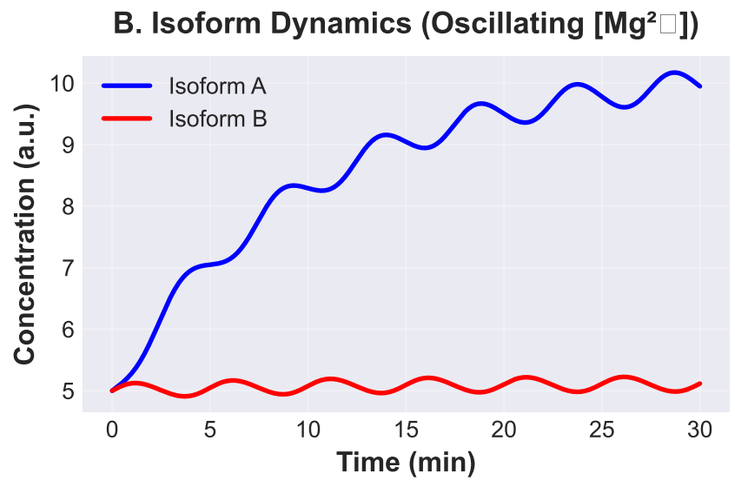
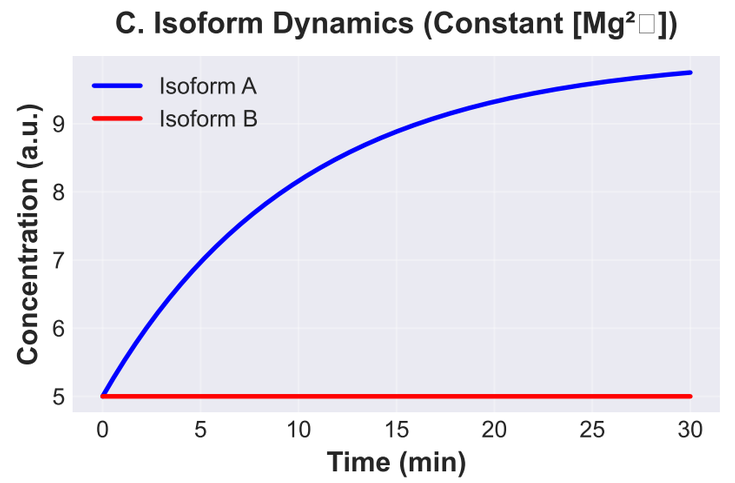
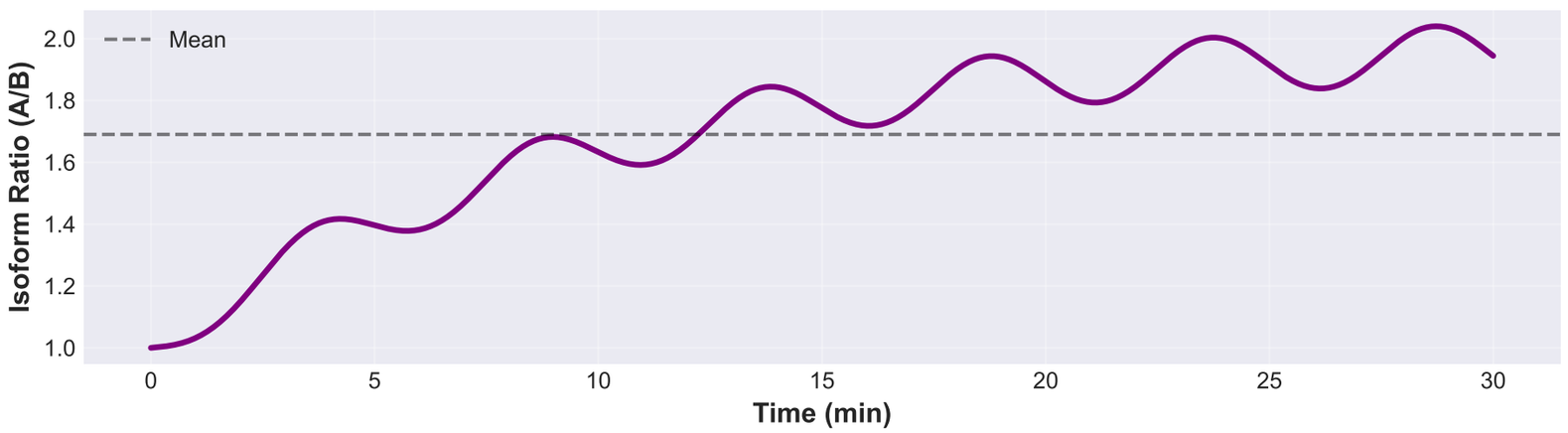
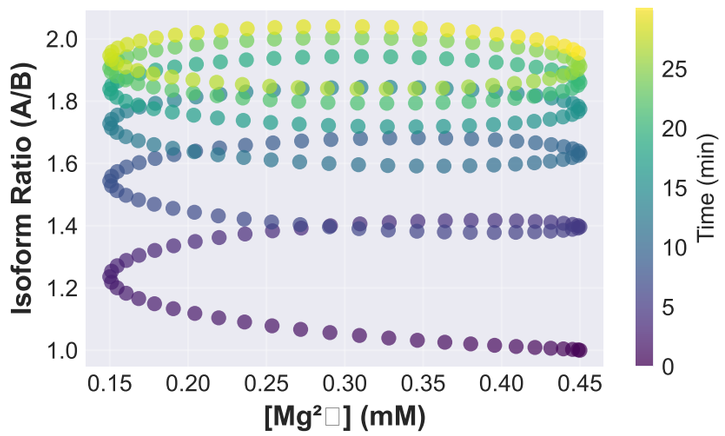
Alternative Splicing Dynamics: Charge-Dependent Isoform Selection

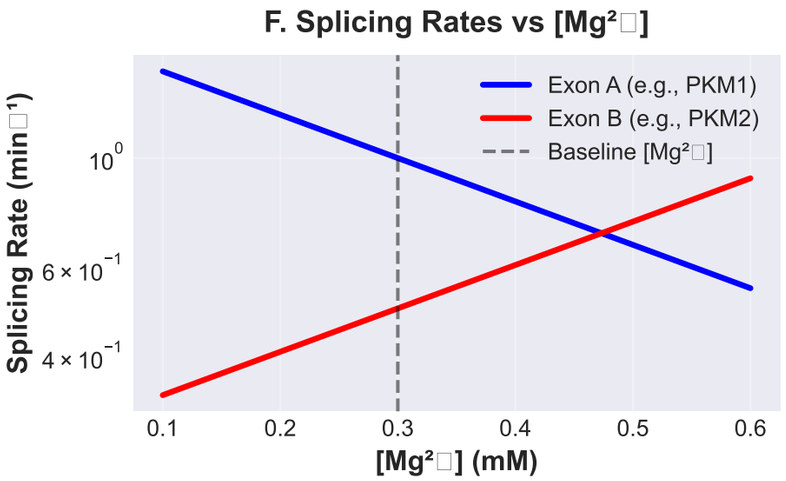


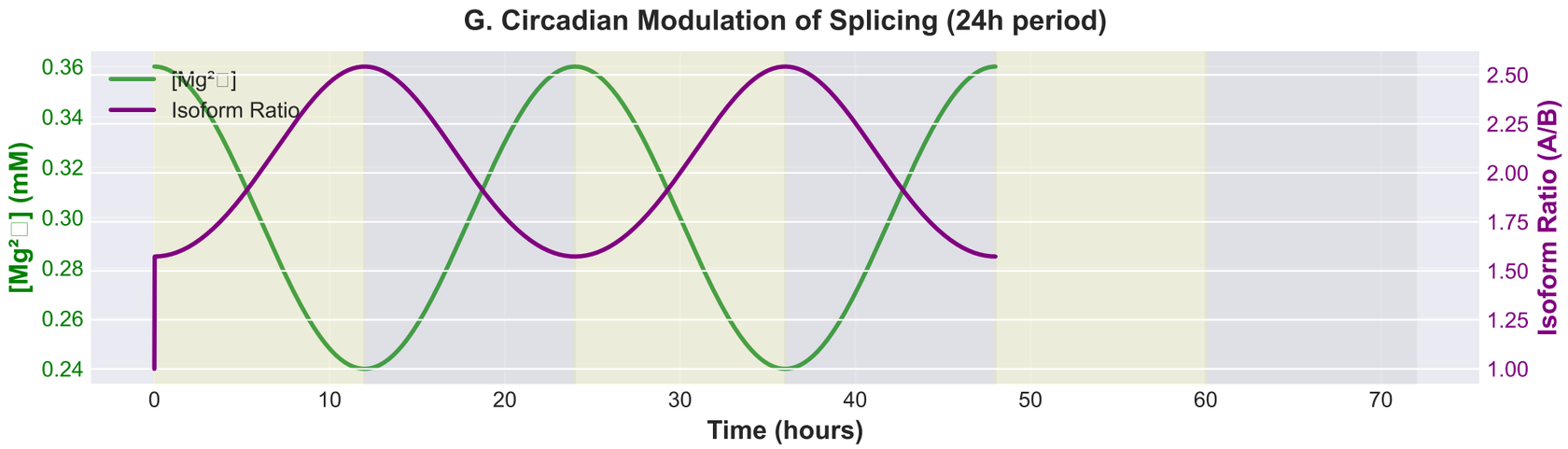


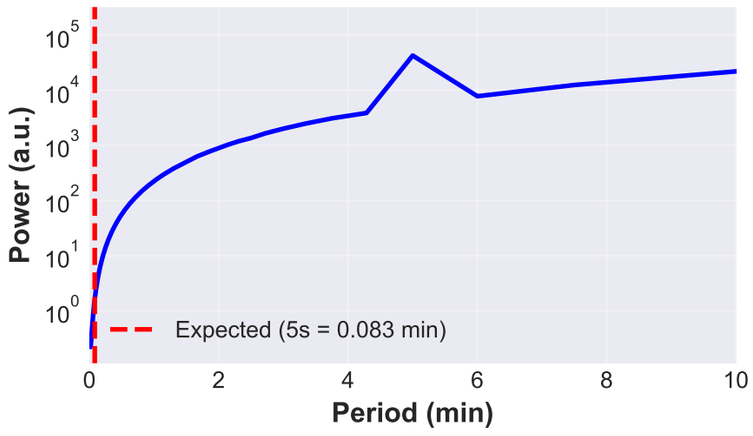


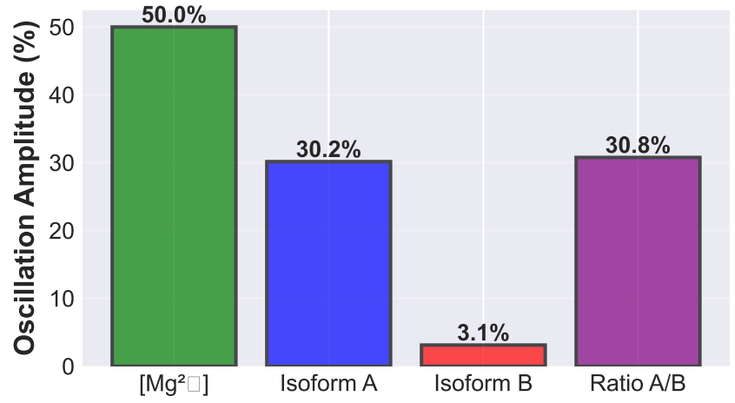










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SPLICING DYNAMICS STATISTICS

Oscillating [Mg²⁺] (5s period):
• Mean ratio: 1.69
• Std ratio: 0.27
• Amplitude: 30.8%
• IsoA amplitude: 30.2%
• IsoB amplitude: 3.1%

Constant [Mg²⁺]:
• Mean ratio: 1.68
• Std ratio: 0.26
• Amplitude: 28.2%

Circadian (24h period):
• Mean ratio: 2.03
• Amplitude: 38.0%

Charge Mechanism:
• Low [Mg²⁺] → long λ_D
• Long λ_D → weak screening
• Weak screening → Isoform A
• High [Mg²⁺] → short λ_D
• Short λ_D → strong screening
• Strong screening → Isoform B

Predicted vs Observed:
• Oscillation period: 5s (ATP)
• Amplitude modulation: ~31%
• Circadian modulation: ~38%
```