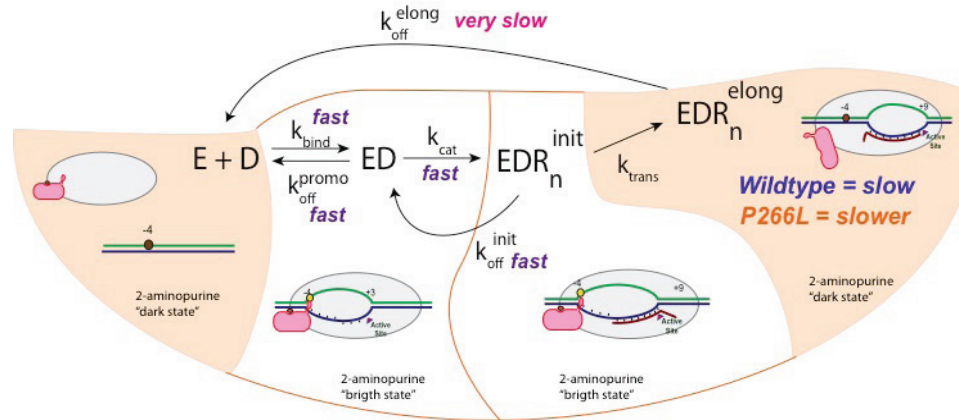


Kinetic Model of the Transcription Process from Initiation to Elongation



As with any story, the tale of transcription has a start (initiation), a middle (elongation) and an end (termination). But as with any really good story, each stage is complex and rich with detail, often involving heroes struggling to overcome barriers. Indeed, the transition of RNA polymerase from initiation to elongation is itself a complex process, with studies suggesting a “struggle” in overcoming the barriers to the transition.

During unstable initial transcription, the enzyme must straddle two worlds: retaining initial promoter contacts, while simultaneously “walking away” from those contacts. The current model implies that this inherent conflict destabilizes the complex, leading to the release of abortive transcripts, until the promoter is released in the transition to elongation stability.

Enter our protagonist: the mutant P266L, who “escapes” this process with fewer abortive transcripts. Current models suggest that this mutant releases promoter contacts sooner, transitioning to stable elongation sooner. But the real story is not so simple...