

# One size does not fit all: examining lytic/lysogenic decision-making in commensal *Escherichia coli* prophages



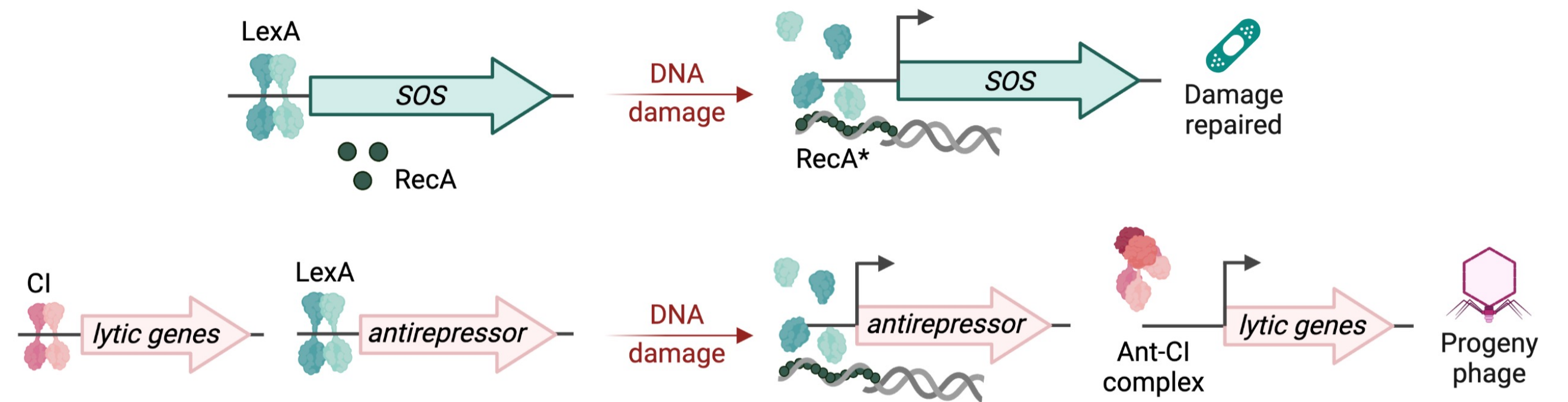
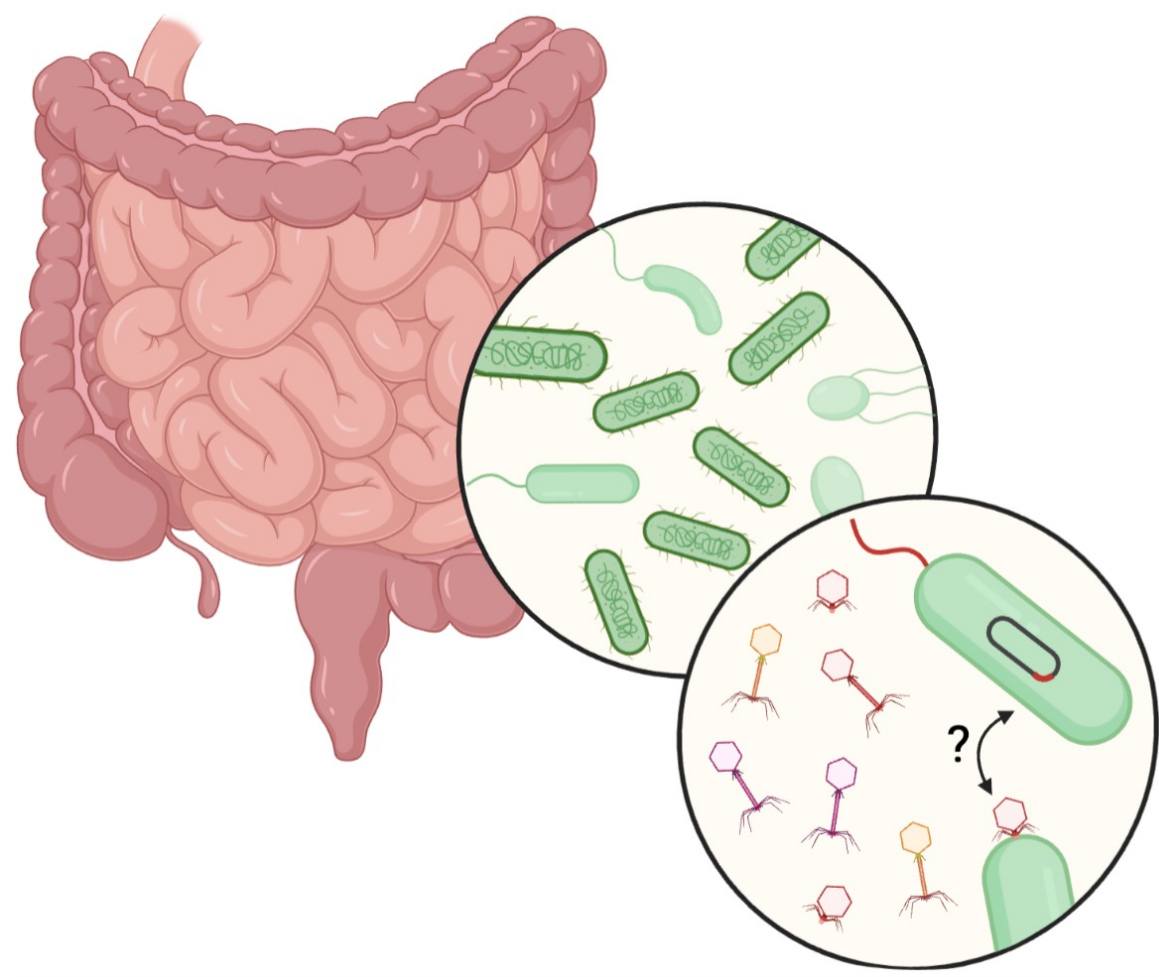
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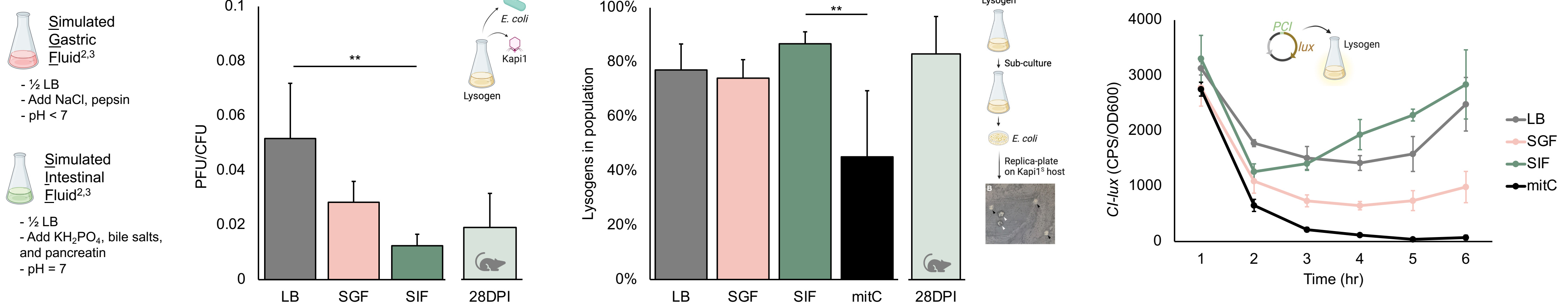
## Research objectives:

1. Are temperate phages undergoing lytic or lysogenic life cycles in the gut?
2. What are the molecular mechanisms underlying this decision?

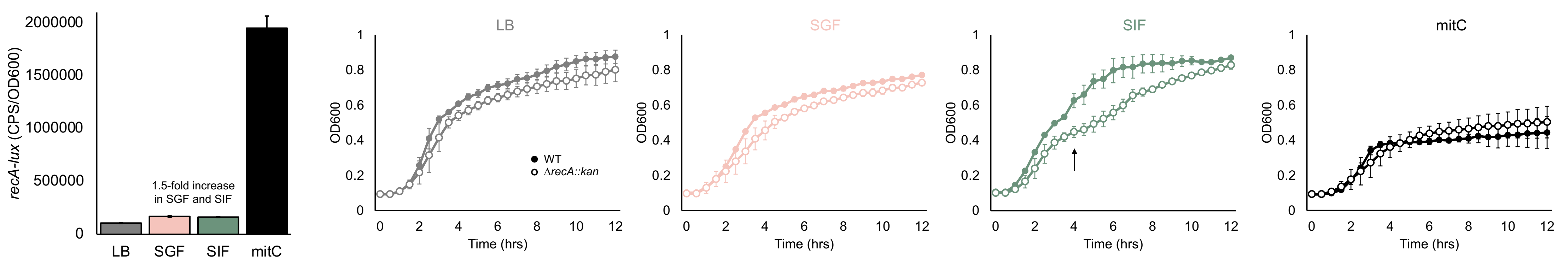


Model system: host-adapted commensal *Escherichia coli* MP11 lysogenized by Kapi1<sup>2</sup>

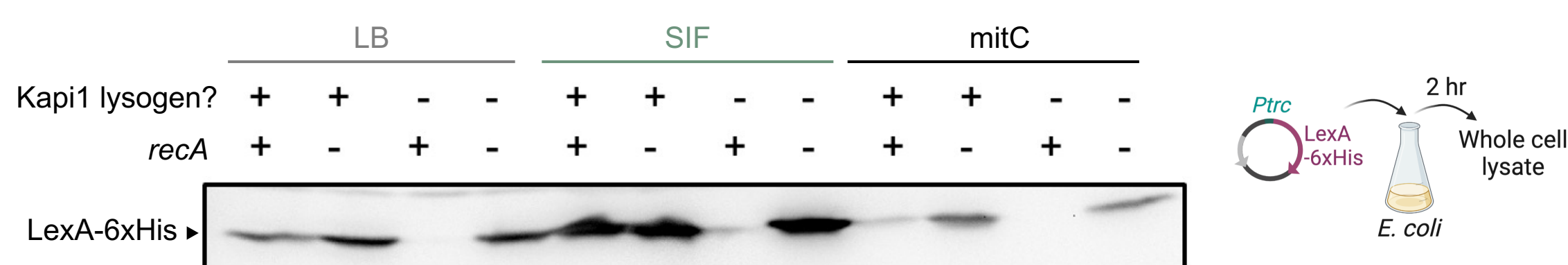
## Kapi1 prophage adopts a lysogenic life cycle in simulated intestinal fluid (SIF)



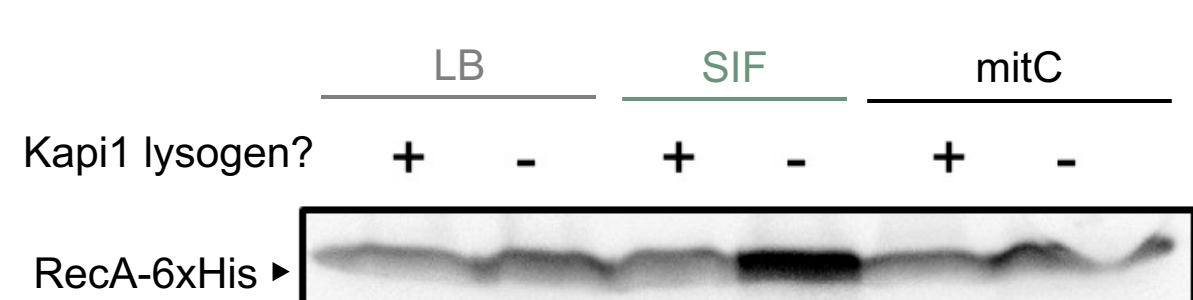
## *Escherichia coli* experiences low-level DNA damage during growth in SIF



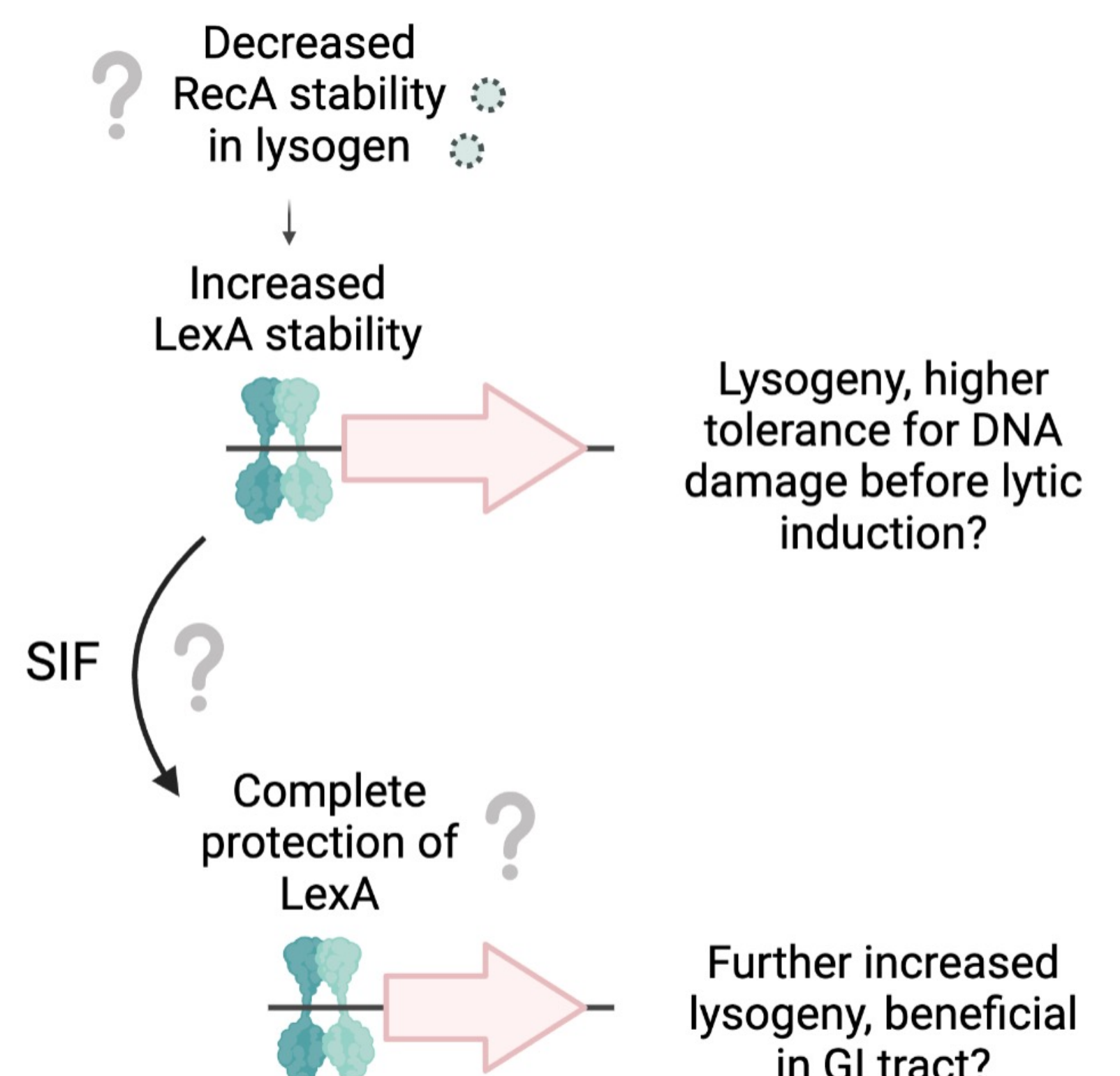
## RecA-mediated proteolysis of LexA is abolished during lysogenic growth in SIF



## An additional layer of regulation: reduced RecA stability in Kapi1 lysogens



## Hypothesis & Future Directions



1. Lasaro et al. (2014) *J Bacteriol*  
 2. Pick et al. (2022) *mBio*  
 3. Millette et al. (2013) *Int J Probiotics Prebiotics*