Does RX have a good leaving group?

Yes

No Reaction

What kind of α-carbon?

sp²

allylic or benzylic

Strong base with an anti-periplaner β proton?

Y

E₂

No

Perhaps E₂
Never: E, Sₐ₁ or Sₐ₂

1°

Hindered Base?

N

Y

Hindered Electrophile?

N

Y

Good Nucleophile?

N

Y

Strong base with β protons?

Sₐ₂

Fast Sₐ₂

Slow Sₐ₂

Rearrangement, Elim. and Subst. in Polar Protic Solvents

2°

Strong Base?

Y

anti-periplaner β proton?

N

E₂

3°

Heat?

Y

N

Polar Protic solvent?

Sₐ₁

NR

Heat?

Y

N

Very good Nucleophile that's not basic?

Fast Sₐ₂

E₂

(NY)

Helpful Things To Remember

Elimination requires the presence of a β-hydrogen.

High temperature favours elimination because it allows equilibration to occur. (High temp > 100°C)

E₁ only dominates when it is not possible to form an anti-periplanar transition state.

Sₐ₁ and E₁ require neutral or acidic conditions

Steric hinderance near the L.G. can dramatically slow down an Sₐ₂ reaction