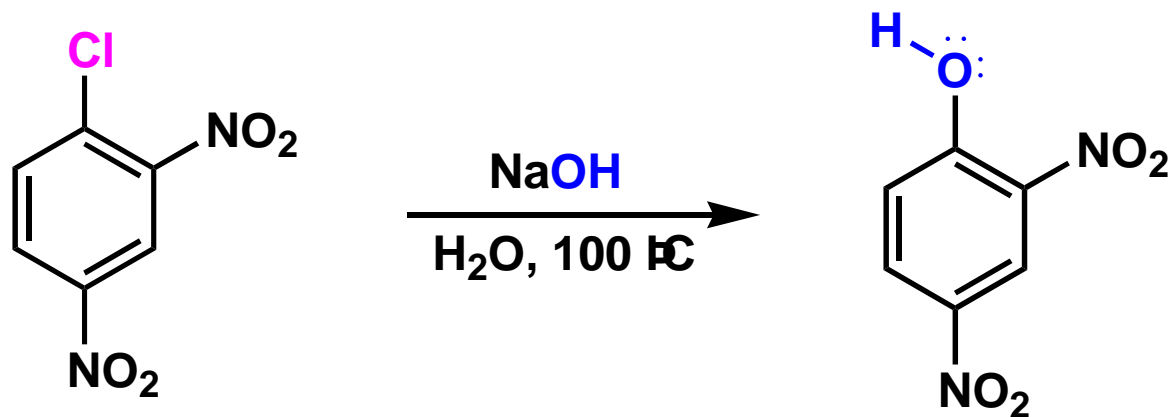
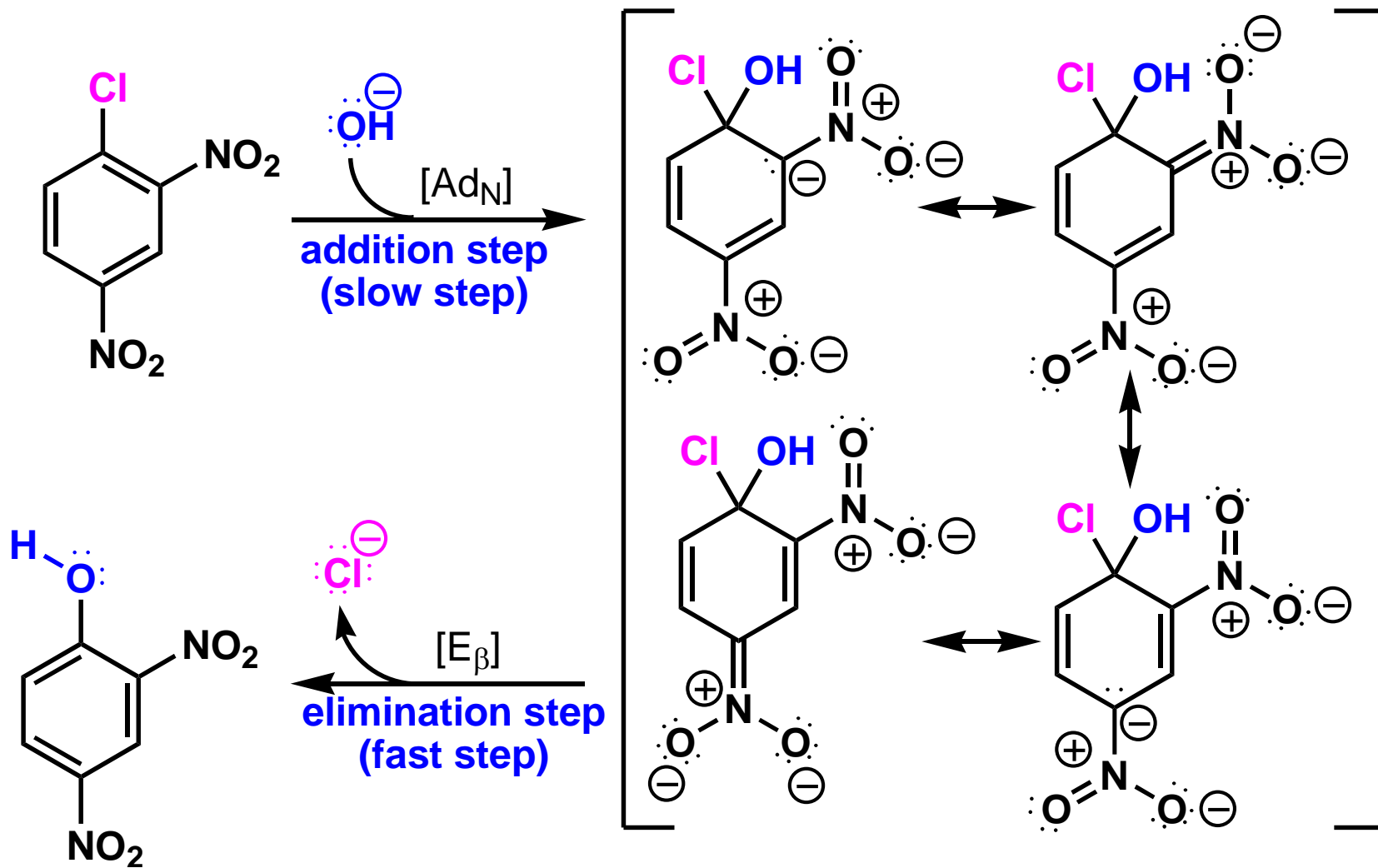


Benzene as an Electrophile: Nucleophilic Aromatic Substitution



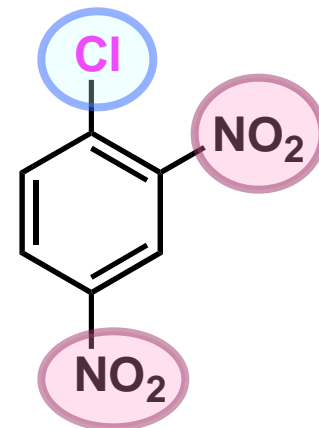
This reaction goes by an addition / elimination pathway, analogous to nucleophilic acyl substitution (recall that substitution reactions at sp² carbon do not follow the [S_N2] pathway).

Mechanism of Nucleophilic Aromatic Substitution



Substrate Requirements for Nucleophilic Aromatic Substitution

- EWG to activate ring (lower LUMO energy)
- Good leaving group (–F best in these reactions)



The EWG must be located ortho or para positions. A variety of nucleophiles can be used. The incoming group must be a stronger base than the outgoing leaving group.