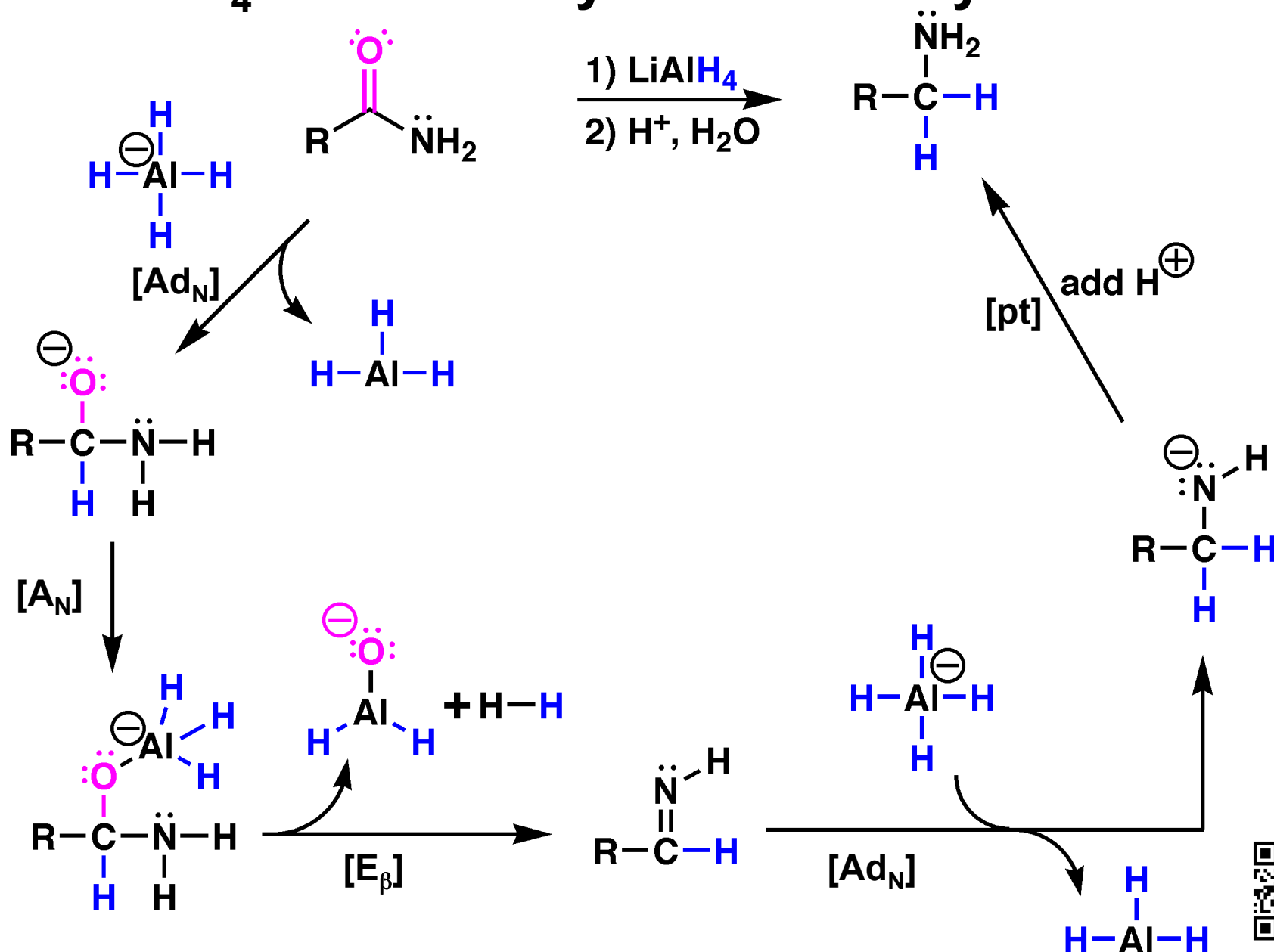
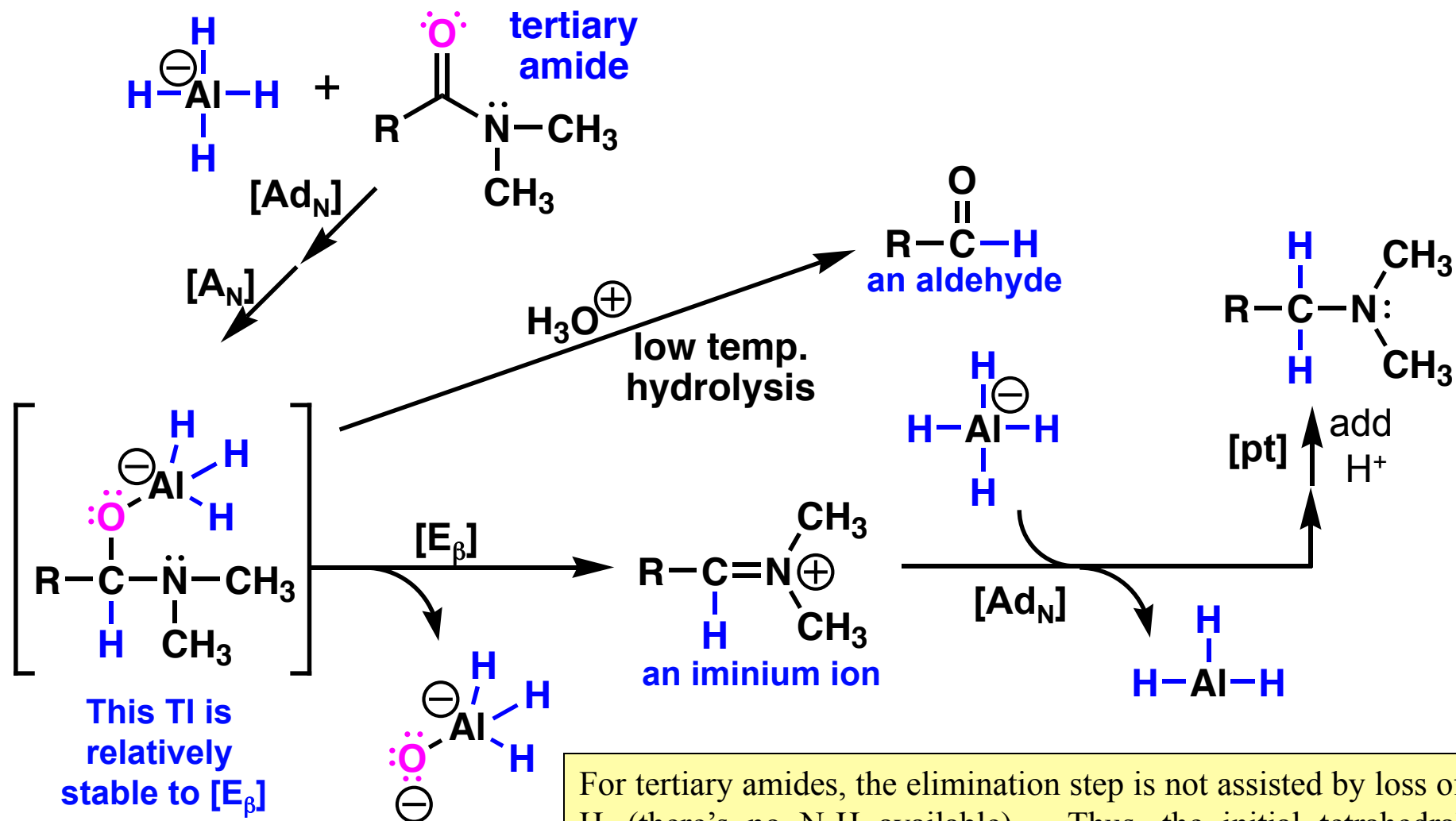


Substitution-Addition Mechanism: LiAlH₄ with Primary or Secondary Amides



Substitution-Addition Mechanism: LiAlH₄ with Tertiary Amides



For tertiary amides, the elimination step is not assisted by loss of H₂ (there's no N-H available). Thus, the initial tetrahedral intermediate is fairly stable. If kept cold, hydrolysis of this TI yields aldehydes. At higher temperature, elimination takes place to the iminium ion which undergoes further hydride addition.