A5. Reactions of Lysine

- reacts with anhydride in a nucleophilic substitution reaction (acylation).
- reacts reversibly with methylmaleic anhydride (also called citraconic anhydride) in a nucleophilic substitution reaction.
- reacts with high specificity and yield toward ethylacetimidate in a nucleophilic substitution reaction (ethylacetimidate is like ethylacetate only with a imido group replacing the carbonyl oxygen). Ethanol leaves as the amidino group forms. (has two N -i.e. din - attached to the C)
• reacts with O-methylisourea in a nucleophilic substitution reaction, with the expulsion of methanol to form a guanidino group (has 3 N attached to C, nidi)

• reacts with fluorodinitrobenzene (FDNB or Sanger’s reagent) or trinitrobenzenesulfonate (TNBS, as we saw with the reaction with phosphatidylethanolamine) in a nucleophilic aromatic substitution reaction to form 2,4-DNP-lysine or TNB-lysine.

• reacts with Dimethylaminonapthelenesulfonylchloride (Dansyl Chloride) in a nucleophilic substitution reaction.
• reacts with high specificity toward aldehydes to form imines (Schiff bases), which can be reduced with sodium borohydride or cyanoborohydride to form a secondary amine.
Contributors and Attributions

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