TECHNOTE 105
EDC 的介绍及其使用

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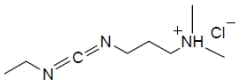
中文名：（1-（3-二甲氨基丙基）-3-乙基碳二亚胺盐酸盐）
英文名： (1-ethyl-3-[3-dimethylaminopropyl]carbodiimide hydrochloride)
简称：EDC
CAS: 25952-53-8
分子量: 191.7



描述：可溶于水的碳二亚胺，在酰胺合成中作羧基的活化机，也用于活化磷酸酯基团、蛋白质与核算的交联和免疫偶联生物样本，使用的 pH 范围为 4.0~6.0，常和 N-羟基琥珀酰亚胺（NHS）或 N-羟基硫代琥珀酰亚胺连用，以提高偶联效率。做为羧基和氨基反应的交联剂（carboxyl and amine-reactive zero-length crosslinker），它首先与羧基反应形成一个不稳定的中间态然后再与氨基基团进行下一步反应形成稳定的酰胺键，若用两步法进行反应，则需要 NHS 作为稳定剂。
形状：白色结晶粉末，极易吸潮。
溶解度：水中溶解度＞20g/100mL，溶于乙醇
保存温度：-4~-20℃

Procedure for Using EDC for Coupling Peptide or Haptens to a Carrier Protein
Materials Required
□□Carrier protein: 2 mg keyhole limpet hemocyanin (KLH)
□□Conjugation Buffer: 0.1 M MES (2-[*N*-morpholino] ethane sulfonic acid), pH 5.0
□□EDC: 10 mg
□Hapten or peptide: 1mg
Procedure
1. Equilibrate EDC to room temperature.
2. Add 2 mg of KLH to 200 µl Conjugation Buffer.
3. Dissolve up to 1 mg of the peptide or hapten in 500 µl of Conjugation Buffer and add it to the 200 µl carrier protein solution.
4. For KLH conjugation, dissolve 10 mg of EDC in 1 ml of ultrapure water and immediately add 100 µl of this solution to the carrier-peptide solution.
5. React for 2~3 hours at room temperature.
6. Purify the conjugate using a desalting column, sterile filter the conjugate and store in

a sterile container at 4°C or -20°C.

Schematic diagram

EDC reacts with a carboxyl group first and forms an amine-reactive O-acylisourea intermediate that quickly reacts with anamino group to form an amide bond and release of an isourea by-product.