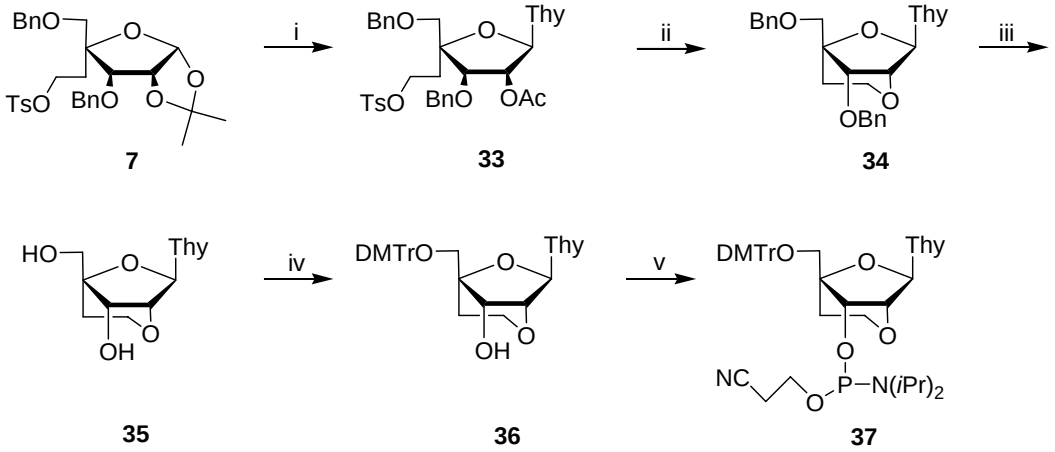
Procedure of ENA synthesis



7 **33** **34** **35** **36** **37**

Reagents and conditions: i) Ac_2O, AcOH, TfOH, 10°C, 1h; thymine, BSA, TMSOTf, MeCN, 70°C, 1h, 70% in two steps; ii) 1N NaOH in pyrine/MeOH/H_2O, rt, 1h, 91%; iii) 20% $Pd(OH)_2$/C, ammonium formate, methanol, reflux, 2.5h; iv) DMTr-Cl, pyridine, rt, overnight, 61% in two steps; v) 2-cyanoethyl *N,N*-diisopropylphosphoramidochloridite, DIPEA, CH_2Cl_2, rt, 2h, 81%.

3',5'-Di-*O*-benzyl-2'-*O*,4'-*C*-ethylene-thymidine (34). Compound **7** (782 mg, 1.376 mmol) was dissolved in acetic anhydride (0.78 mL, 8.257 mmol) and acetic acid (7.6 mL). This solution was cooled to 10°C, to which trifilic acid (12µL, 0.138 mmol) was added dropwise and obtained mixture was stirred at this temperature for 1h. The reaction was quenched with saturated aqueous $NaHCO_3$ and extracted with CH_2Cl_2. The organic layer was dried over $MgSO_4$ and evaporated to give crude product. The crude product, after coevaporation with toluene twice, was dissolved in anhydrous MeCN (17.8 mL), to which thymine (260 mg, 2.064 mmol) and *N*,*O*-bis(trimethylsilyl) acetaminde (0.92 mL, 3.715 mmol) was added under N_2 followed by reflux for 30 min till the suspension became a clear solution. Then the solution was cooled to room temperature and TMSOTf (0,31 mL, 1.72 mmol) was added dropwise. The obtained mixture was stirred for 1h at 70°C followed by quenching with saturated aqueous $NaHCO_3$ and extracted with CH_2Cl_2. The organic layer was dried over $MgSO_4$ and concentrated. The residue was purified by column chromatography on silica gel (21-33% acetone in petroleum ether, v/v) to obtain **33** (656 mg, 70.2 % in two steps) as white foam. 2N NaOH solution (7.7 mL), comprising pridine/ MeOH/H_2O = 65:30:5, was added dropwise to a solution of **33** (656 mg, 0.966 mmol) in pridine/MeOH/H_2O (7.7 mL) at 0°C. The mixture was stirred for 1h