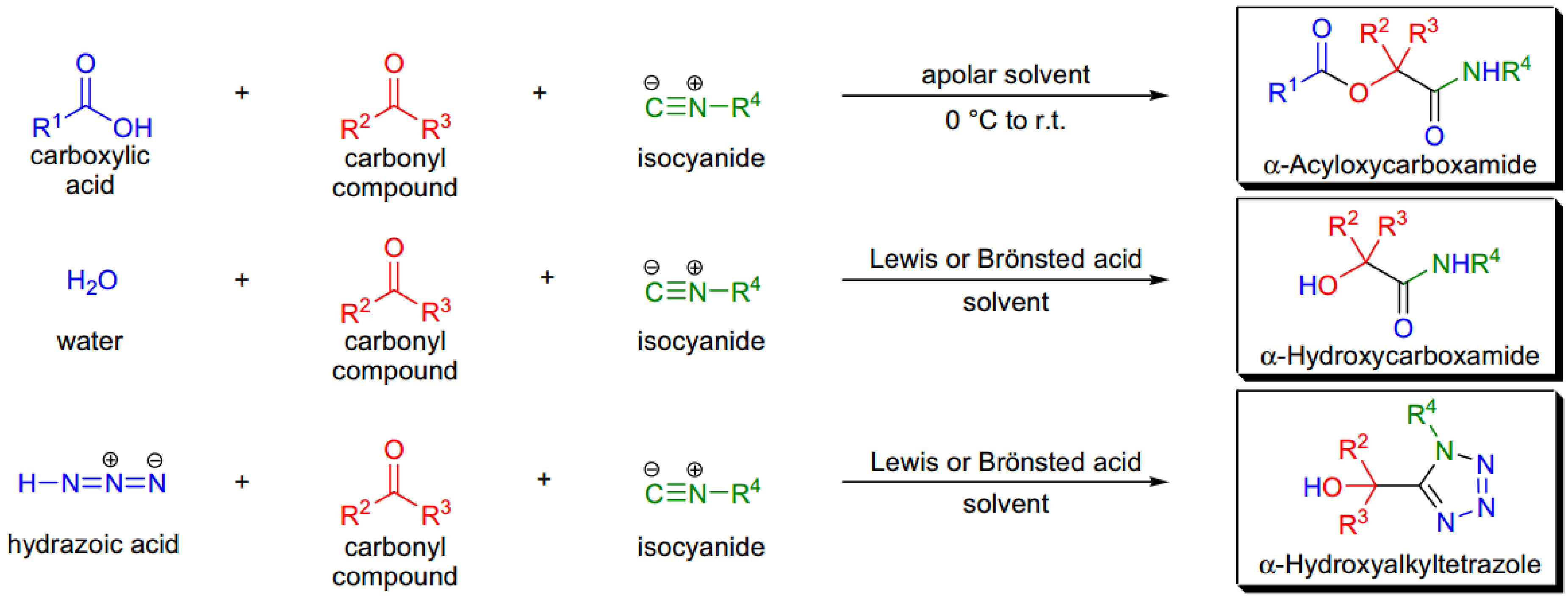
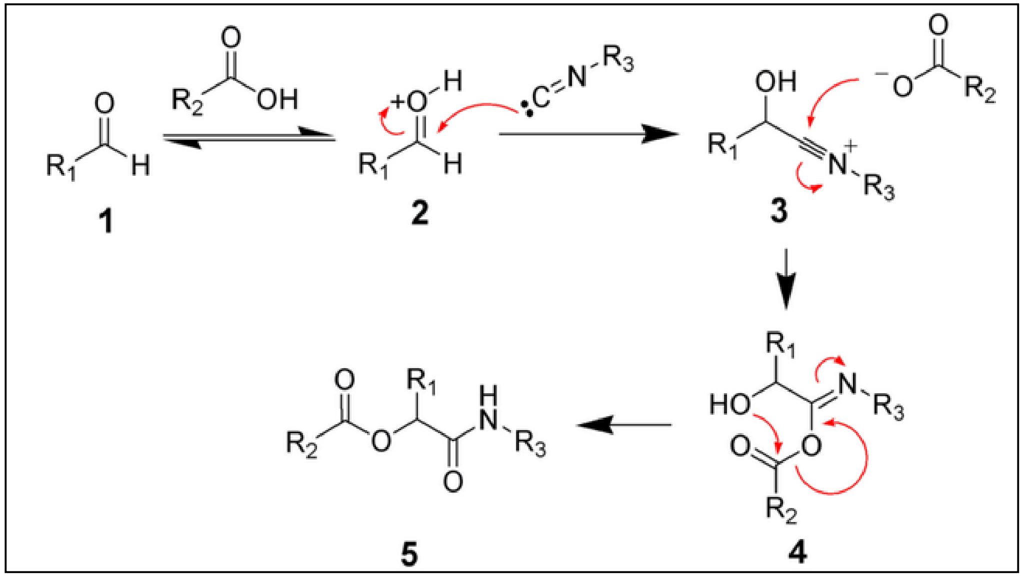
PASSERINI MULTICOMPONENT REACTION



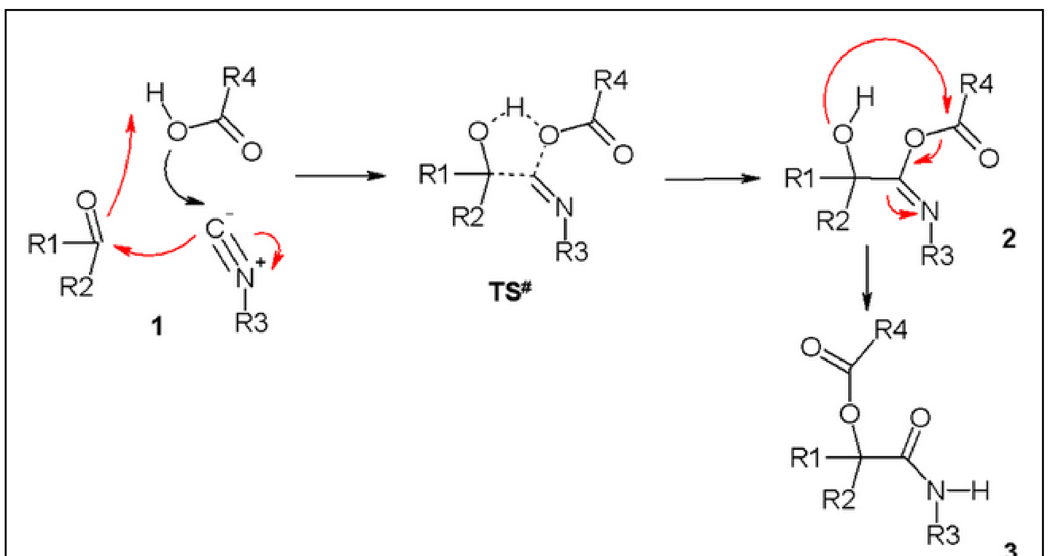
R^1 = alkyl, aryl; R^2 = alkyl, aryl; R^4 = alkyl, aryl; R^3 = H, alkyl, aryl; Brönsted acid: HCl, HNO_3, H_3PO_4, H_2SO_4;
Lewis acids: $BF_3 \cdot OEt_2$, $TiCl_4$

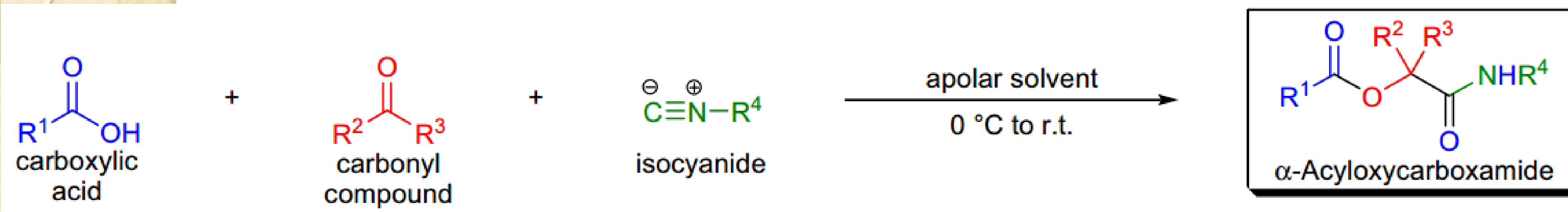
Reaction mechanism

- **Ionic mechanism**

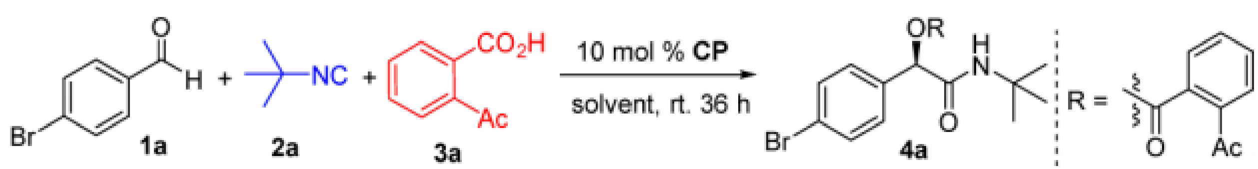


- **Concerted mechanism**



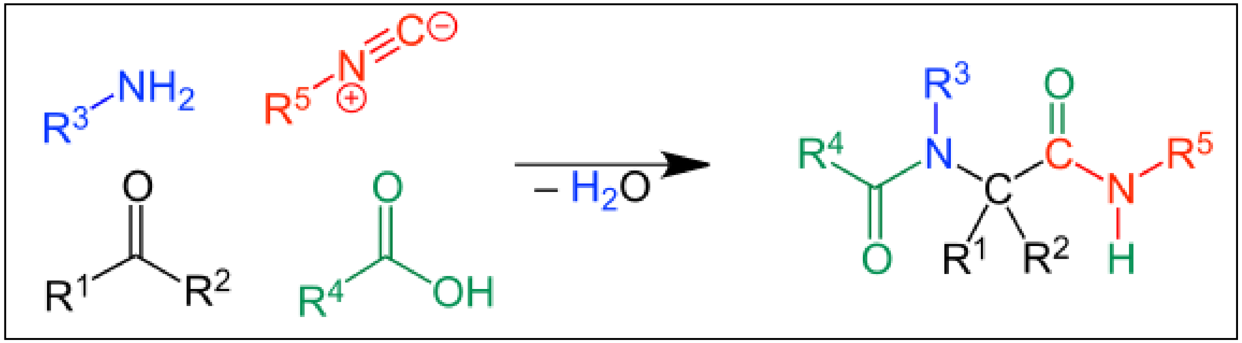


- It is carried out at high concentrations of the starting materials in inert solvents at or below room temperature;
- It is accelerated in apolar solvents;
- There are rare limitations to the carbonyl component, only sterically hindered ketones and α,β-unsaturated ketones are unreactive ;
- In addition to C-isocyanides, trimethylsilyl isocyanide also undergoes the reaction ;
- Catalytic asymmetric variants of the reaction were also developed

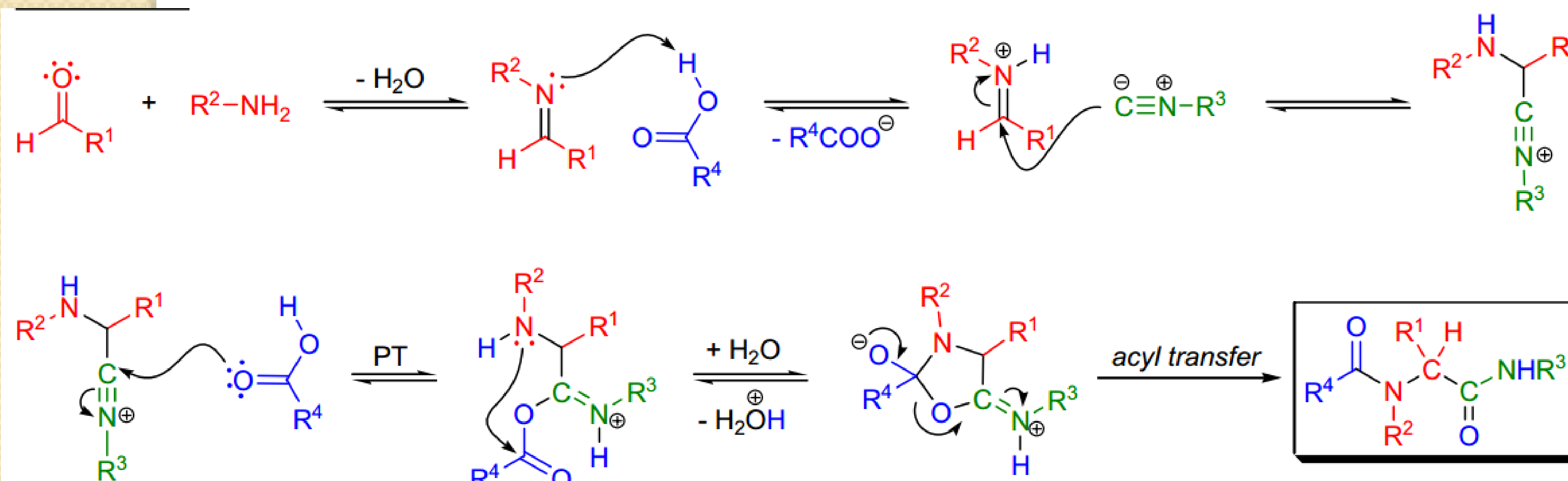


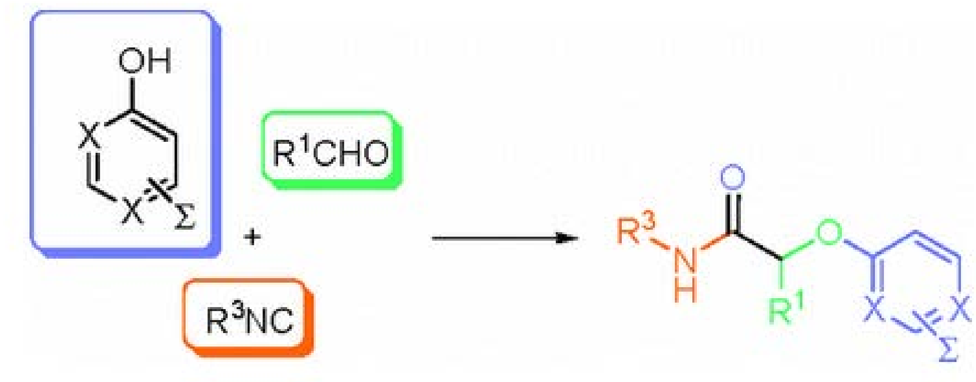
Xin-Yuan Liu, Bin Tan.et *J. Am. Chem. Soc.* **2015**, *137*, 14039−14042

UGI MULTICOMPONENT REACTION

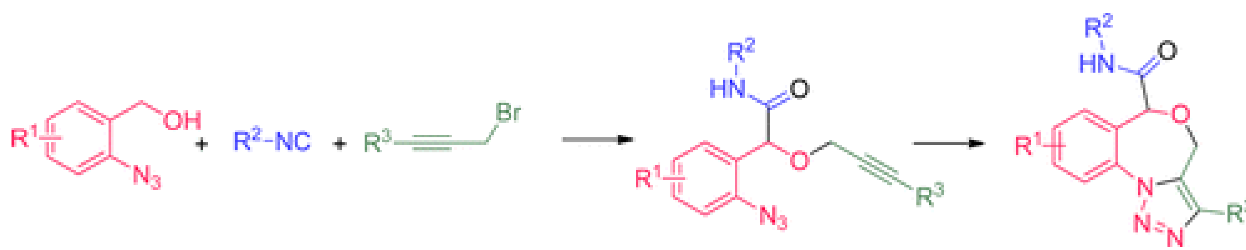


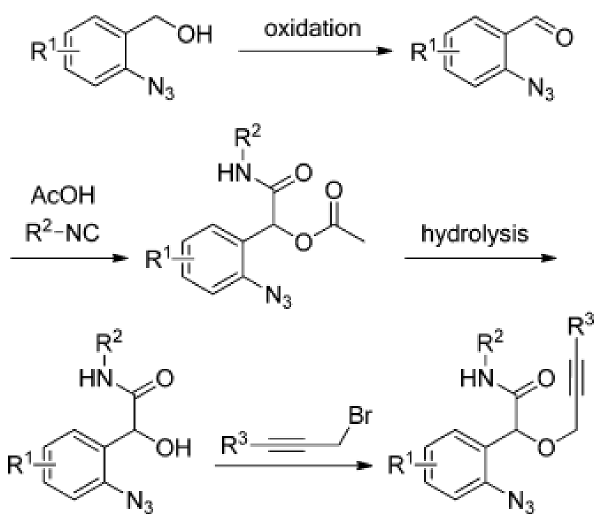
Mechanism



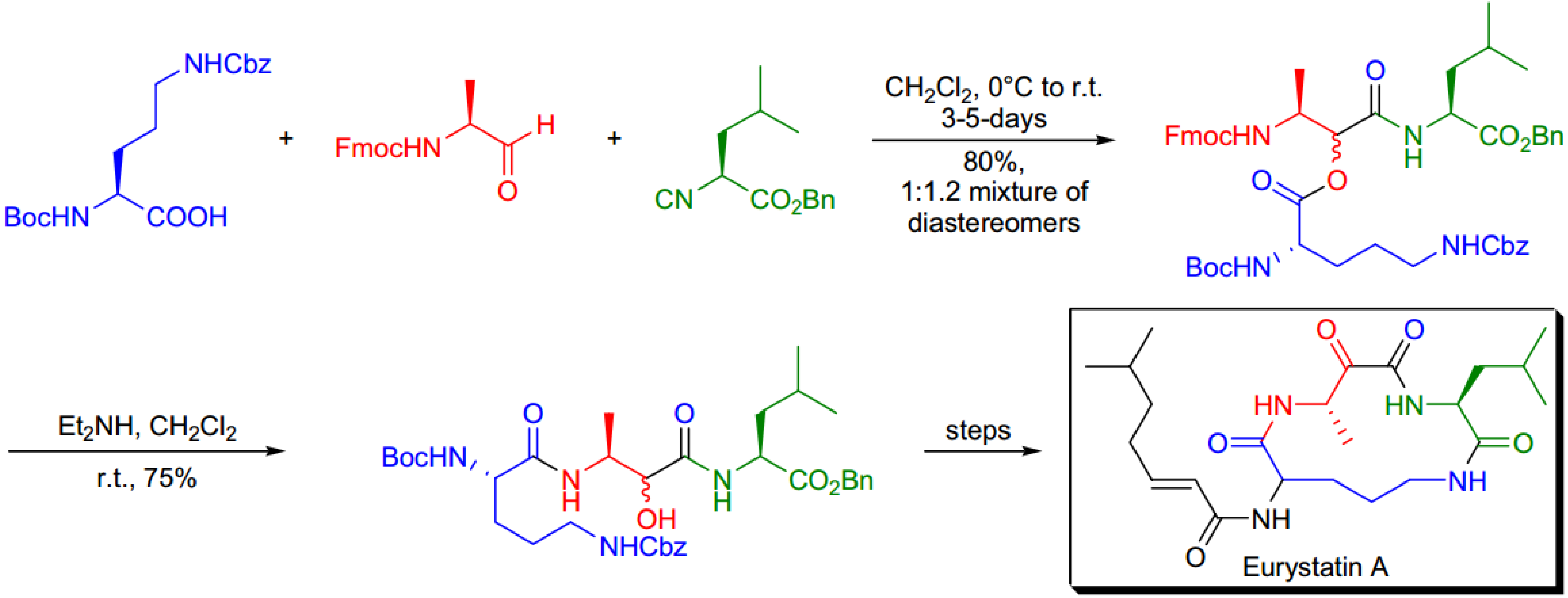
- 

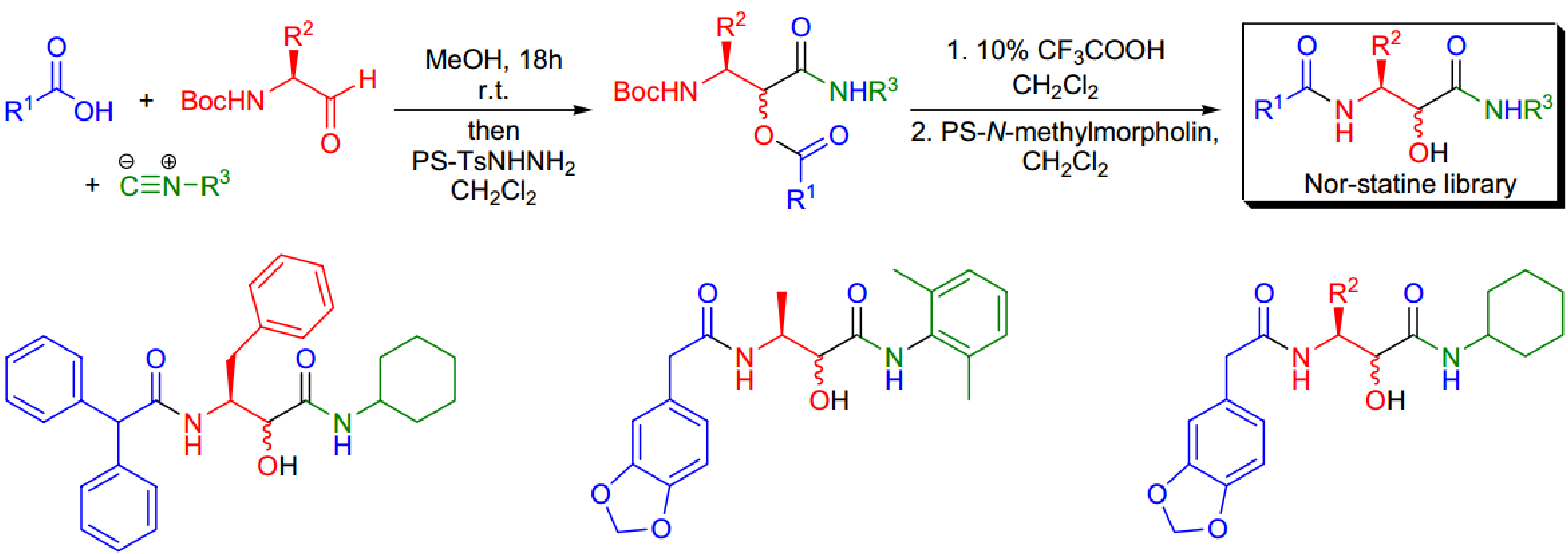
Laurence Grimaud.et *Org. Lett.* **2006**, *8*, 5021

- 



Andrea Basso.et *Org. Lett.* **2014**, *16*, 2280−2283


NHCbz
BocHN
COOH
FmocHN
H
O
CN
CO2Bn
CH2Cl2, 0°C to r.t.
3-5-days
80%,
1:1.2 mixture of
diastereomers
Et2NH, CH2Cl2
r.t., 75%
OH
steps
Eurystatin A


R1
OH
R2
BocHN
H
O
C≡N–R3
MeOH, 18h
r.t.
then
PS-TsNHNH2
CH2Cl2
NHR3
1. 10% CF3COOH
CH2Cl2
2. PS-N-methylmorpholin,
CH2Cl2
Nor-statine library