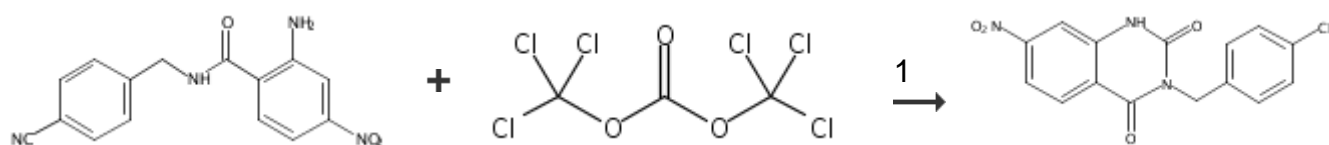
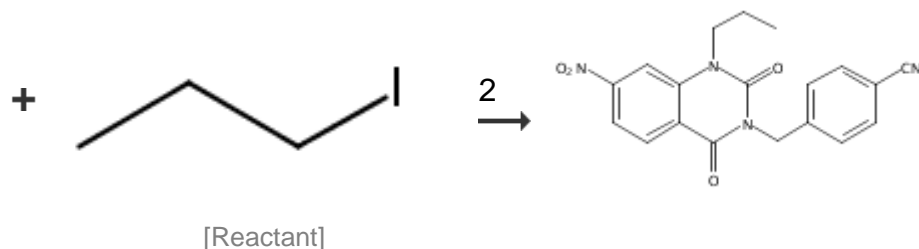


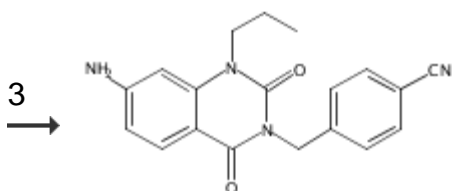
4. 4 Steps



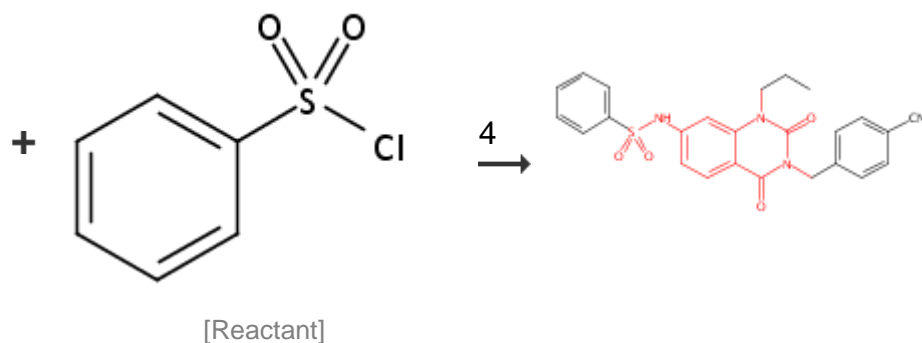
Step	Stages	Notes	Yield	
1	1.1	R:C ₅ H ₅ N, rt; rt → 50°C; 2 h, 70°C	pyridine also acts as solvent, Reactants: 2, Reagents: 1, Steps: 1, Stages: 1	98%



Step	Stages	Notes	Yield	
2	2.1	R:K ₂ CO ₃ , S:DMSO, 15 min, rt	Reactants: 2, Reagents: 1, Solvents: 1, Steps: 1, Stages: 2	86%
	2.2	60 min, rt		



Step	Stages	Notes	Yield	
3	3.1	R:H ₂ , C:Ni, S:MeOH, S:CH ₂ Cl ₂ , 7 h, rt	Raney-nickel used as catalyst, Reactants: 1, Reagents: 1, Catalysts: 1, Solvents: 2, Steps: 1, Stages: 1	40%



Step	Stages	Notes	Yield	
4	4.1	R:C ₅ H ₅ N, C:4-DMAP, 30 min, heated	pyridine also acts as solvent, Reactants: 2, Reagents: 1, Catalysts: 1, Steps: 1, Stages: 1	89%

Source

Bicyclic heterocyclic compounds for
use as thrombin inhibitors

Ries, Uwe; Huel, Norbert; Priepke,
Henning; Nar, Herbert; Stassen, Jean
Marie; Wiene, Wolfgang
Assignee Boehringer Ingelheim
Pharma K.-G., Germany
1999

Patent Information

Oct 21, 1999
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A1

Number of Steps

4

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