

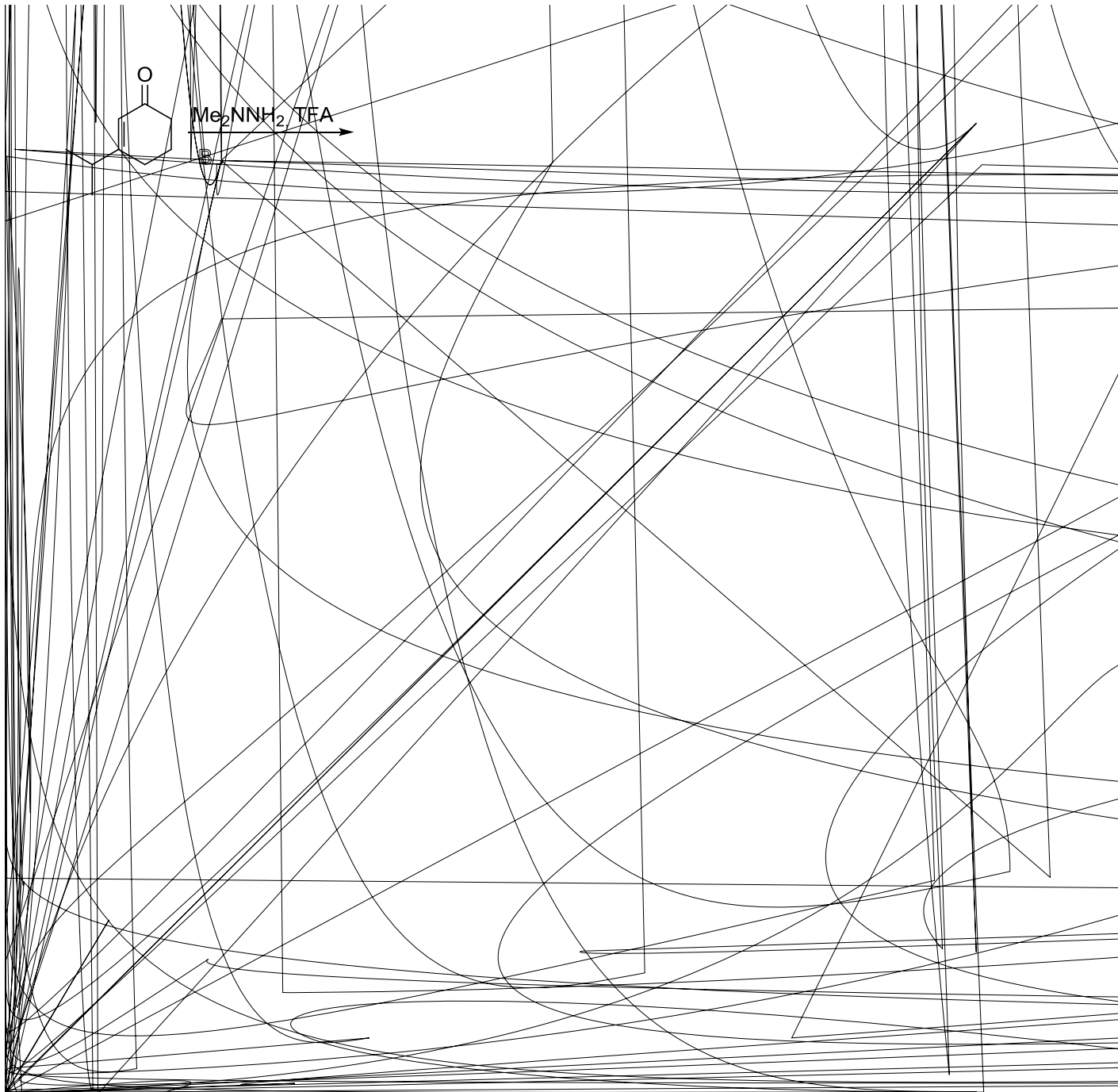
Enantioselective Total Synthesis of  
Nigelladine A via Late-Stage C–H  
Oxidation Enabled by an Engineered P450  
Enzyme



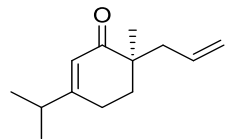
# Forward Synthesis











1. PdCl<sub>2</sub> (20 mol%)  
CuCl (2 equiv)  
DMF: H<sub>2</sub>O (9:1), 23 °C  
2. KOH, xylenes,

