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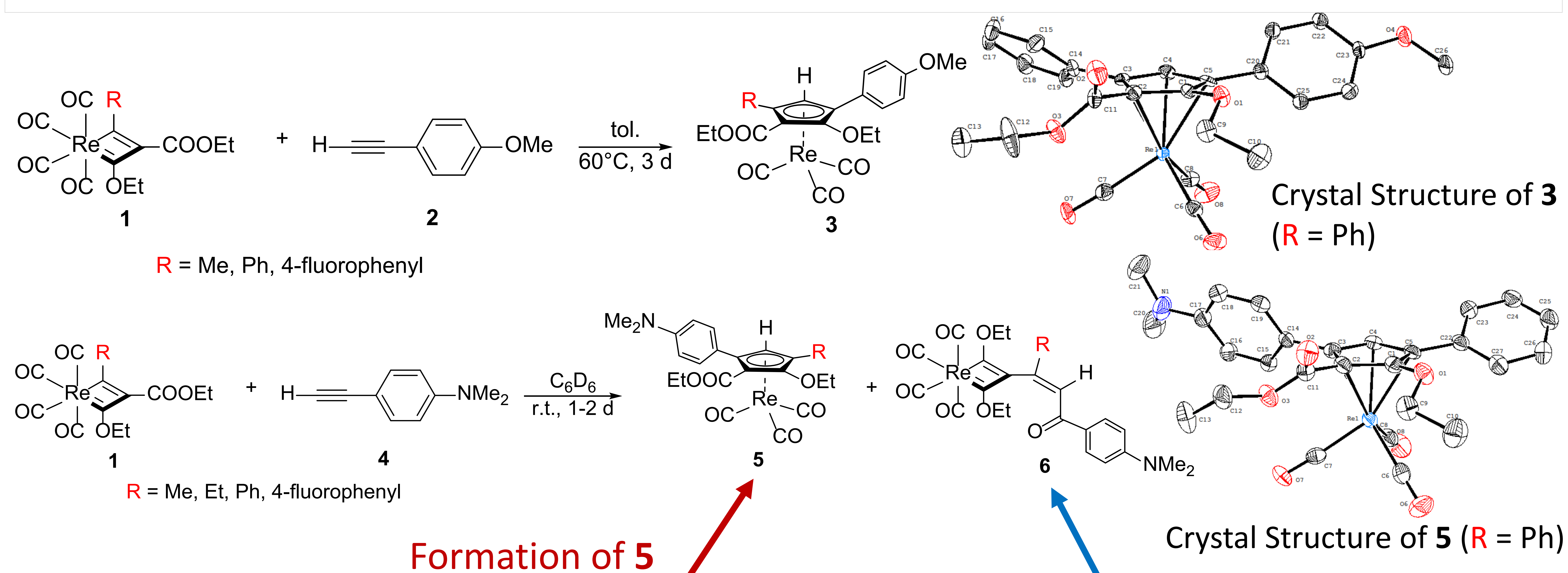
# Reactions of Rhenacyclobutadiene Complexes with Electron-rich Terminal Alkynes

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## Introduction

Rhenacyclobutadiene complexes supported by carbonyl ligands were reported to react with internal alkynes to give either rhenabenzene or  $\eta^5$ -cyclopentadienyl complexes. In this work, we report reactions of rhenacyclobutadiene with terminal alkynes. Low valent rhenacyclobutadienes **1** did not react with 4-ethynylanisole (**2**) at room temperature, but reacted at 60 °C to give the  $\eta^5$ -cyclopentadienyl complexes **3**, which is similar to previously reported reactions with internal alkynes. The reactions of rhenacyclobutadienes **1** with 4-ethynyl-*N,N*-dimethylaniline (**4**) gave unexpected results. This reaction proceeded at room temperature and gave a mixture of two products:  $\eta^5$ -cyclopentadienyl complexes **5** and the rearrangement products **6**. The new  $\eta^5$ -cyclopentadienyl complexes, with a substitution pattern (of the groups R, CO<sub>2</sub>Et, OEt) different from that in **1**, are believed to be formed via rhenadewarbenzene intermediates.



## Discussion

