

**Diastereoselective Synthesis of *syn*- β -Lactams Using Rh Catalyzed Reductive
Mannich-Type Reaction of α,β -Unsaturated Esters**

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Masaaki Omote, and Akira Ando*

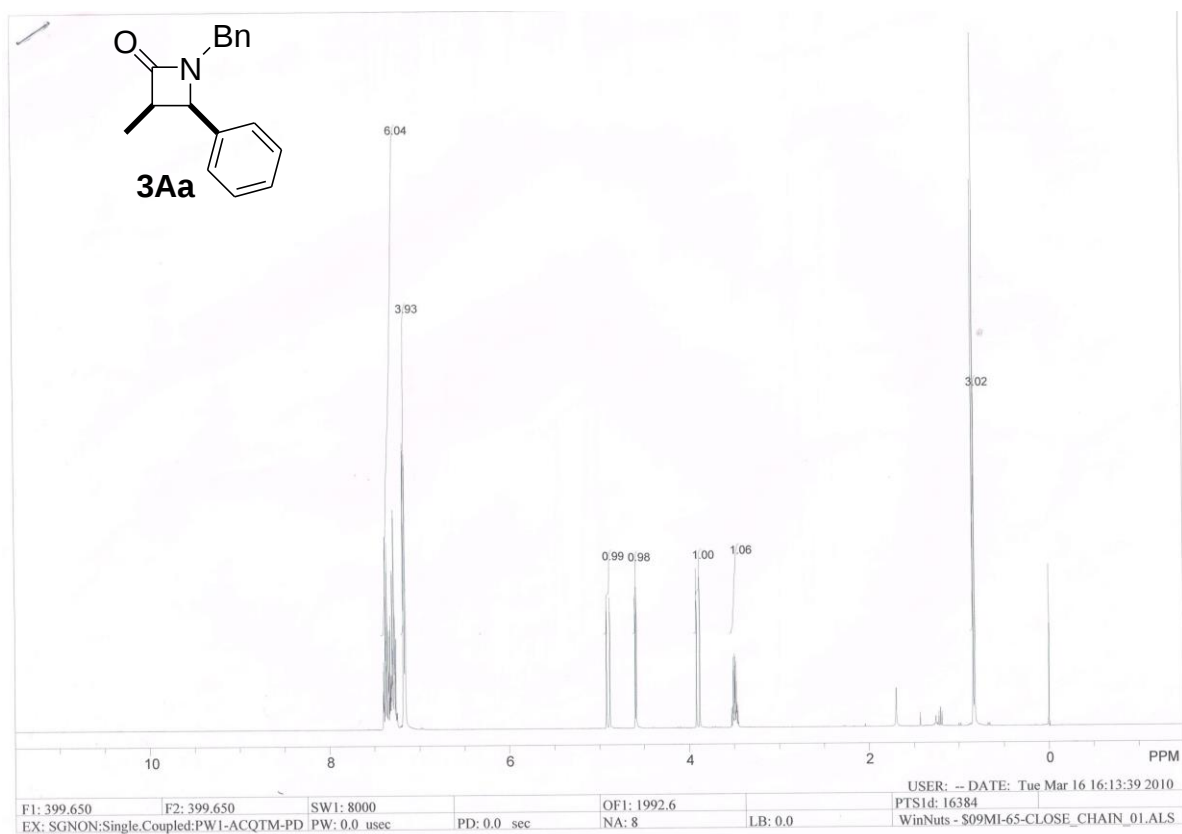
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45-1, Nagaotoge-cho, Hirakata, Osaka 573-0101, Japan*

Supporting Informations

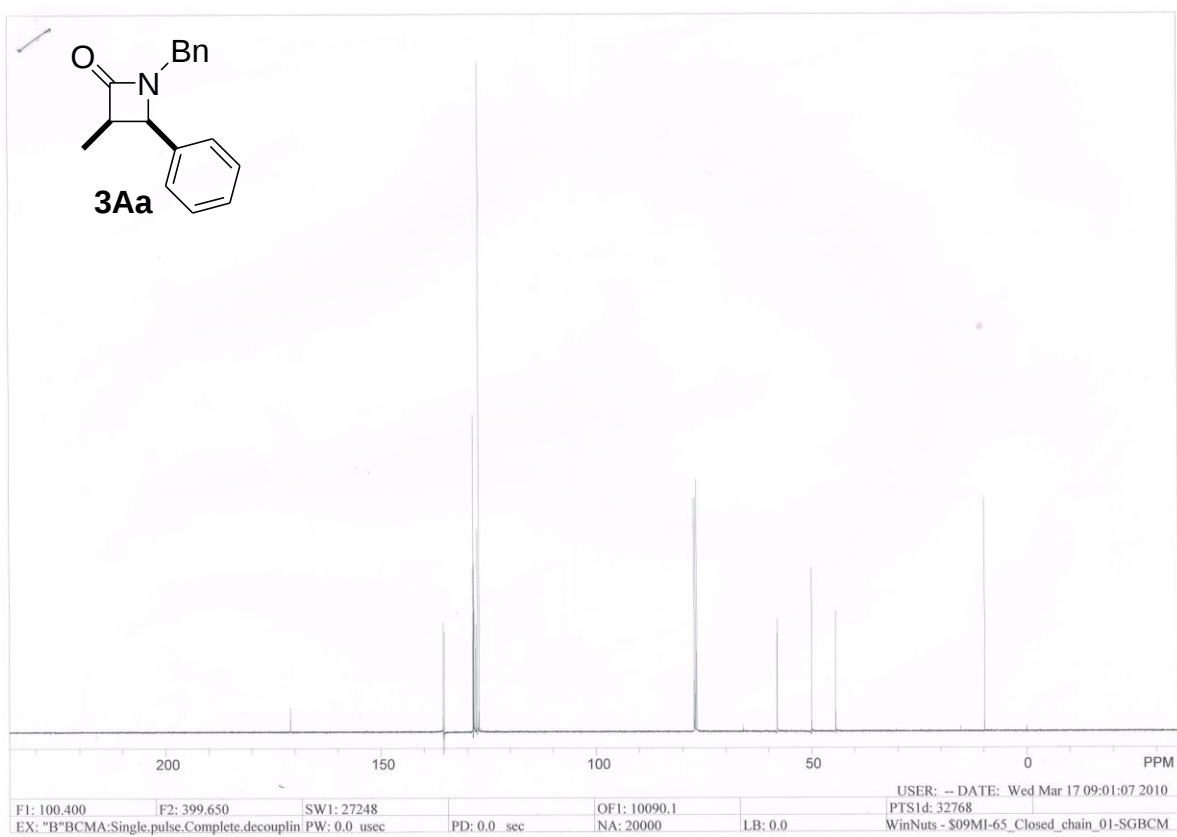
^1H NMR and ^{13}C NMR charts.....S2–40

syn-3Aa

¹H-NMR

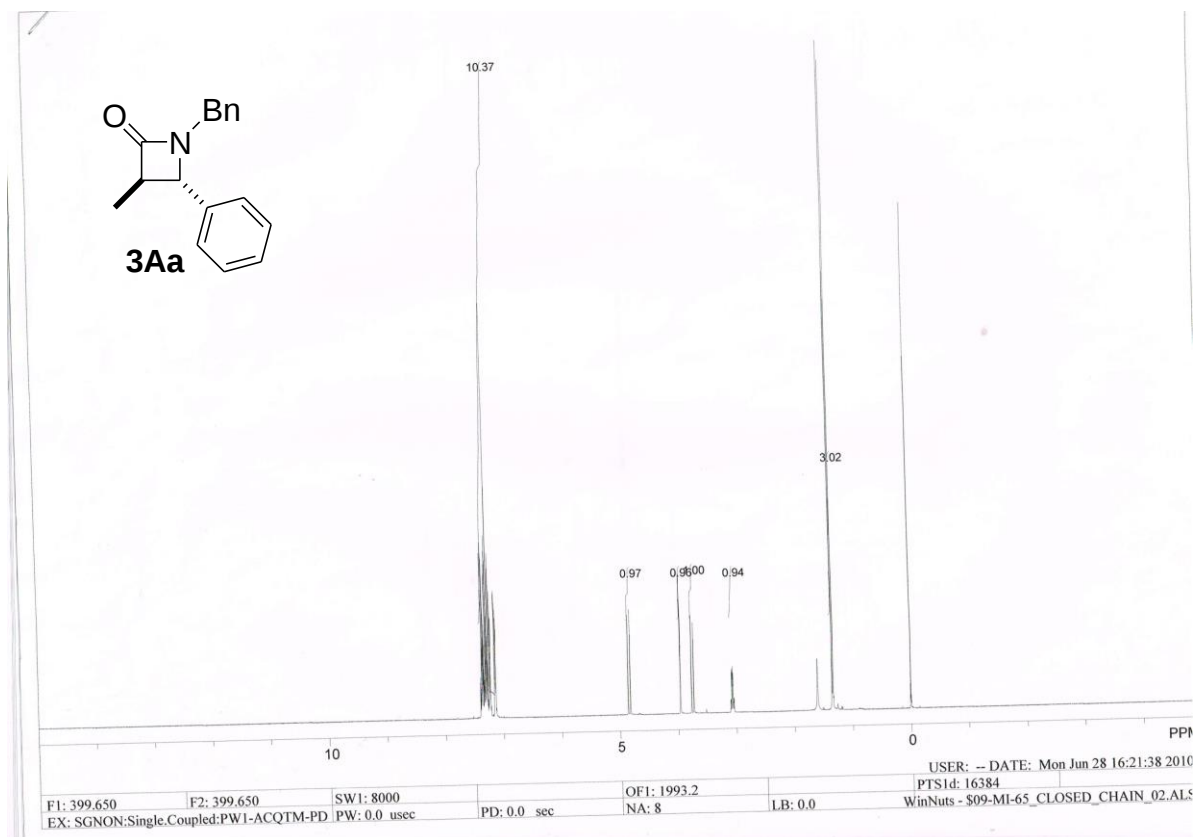


¹³C-NMR

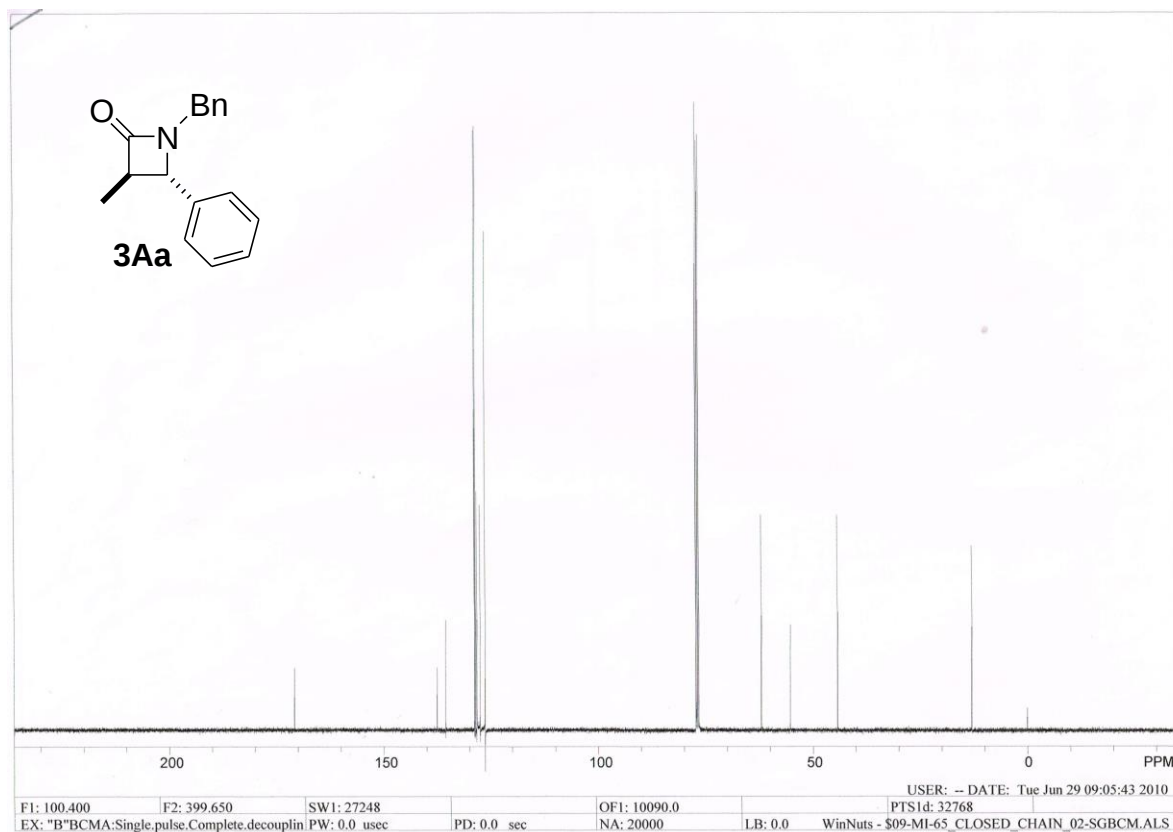


anti-3Aa

¹H-NMR

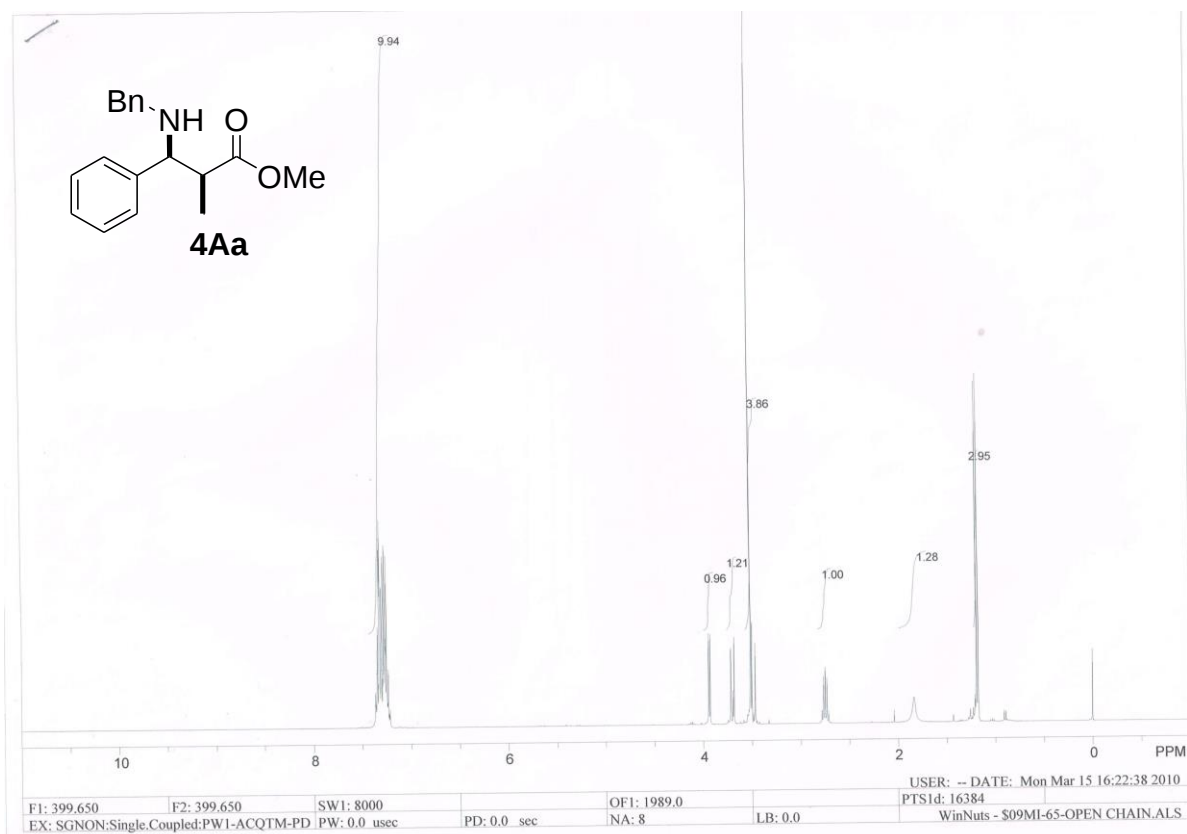


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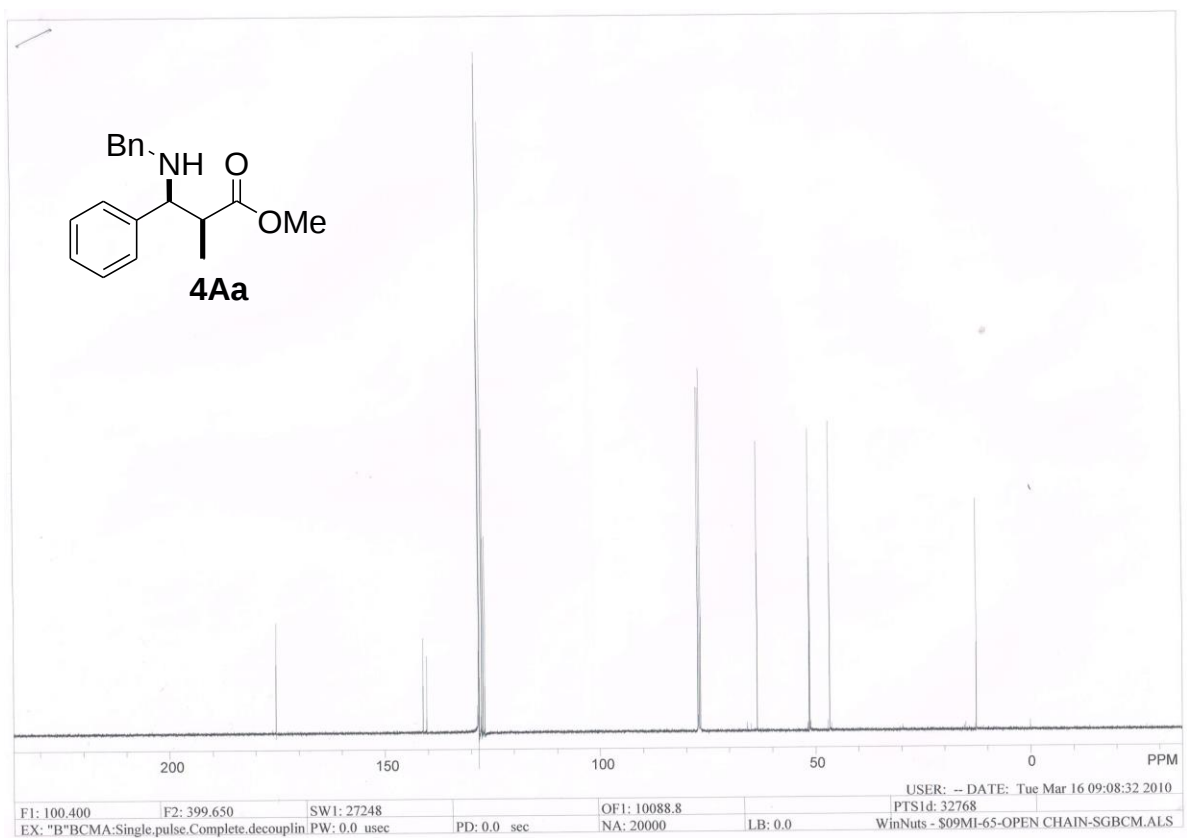


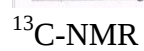
syn-4Aa

¹H-NMR



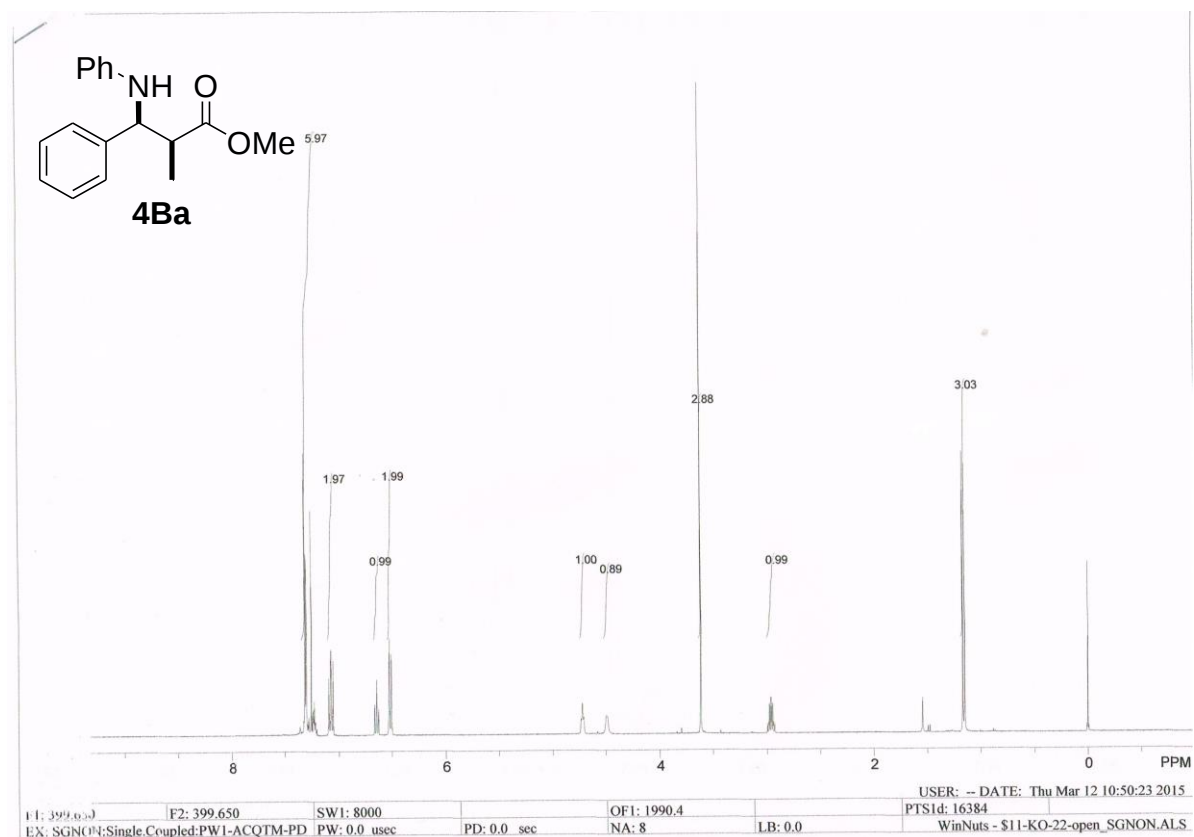
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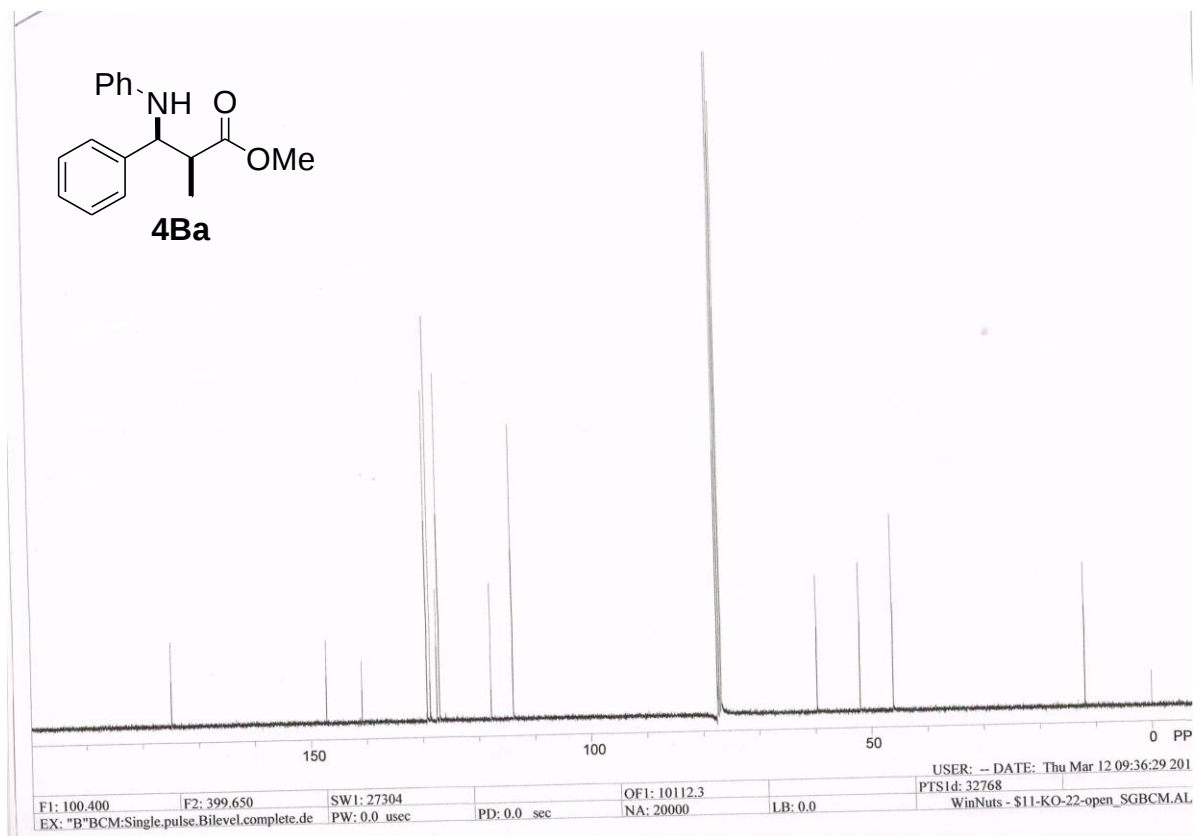
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syn-4Ba

¹H-NMR



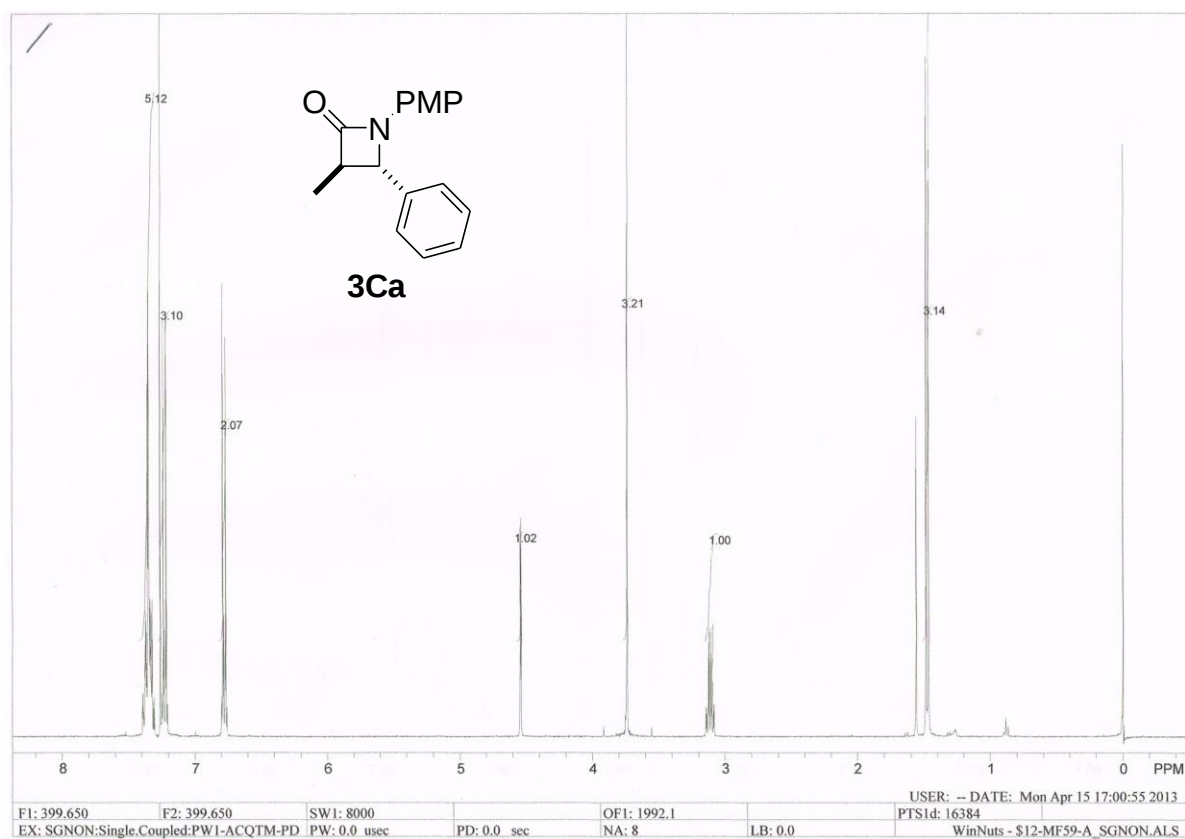
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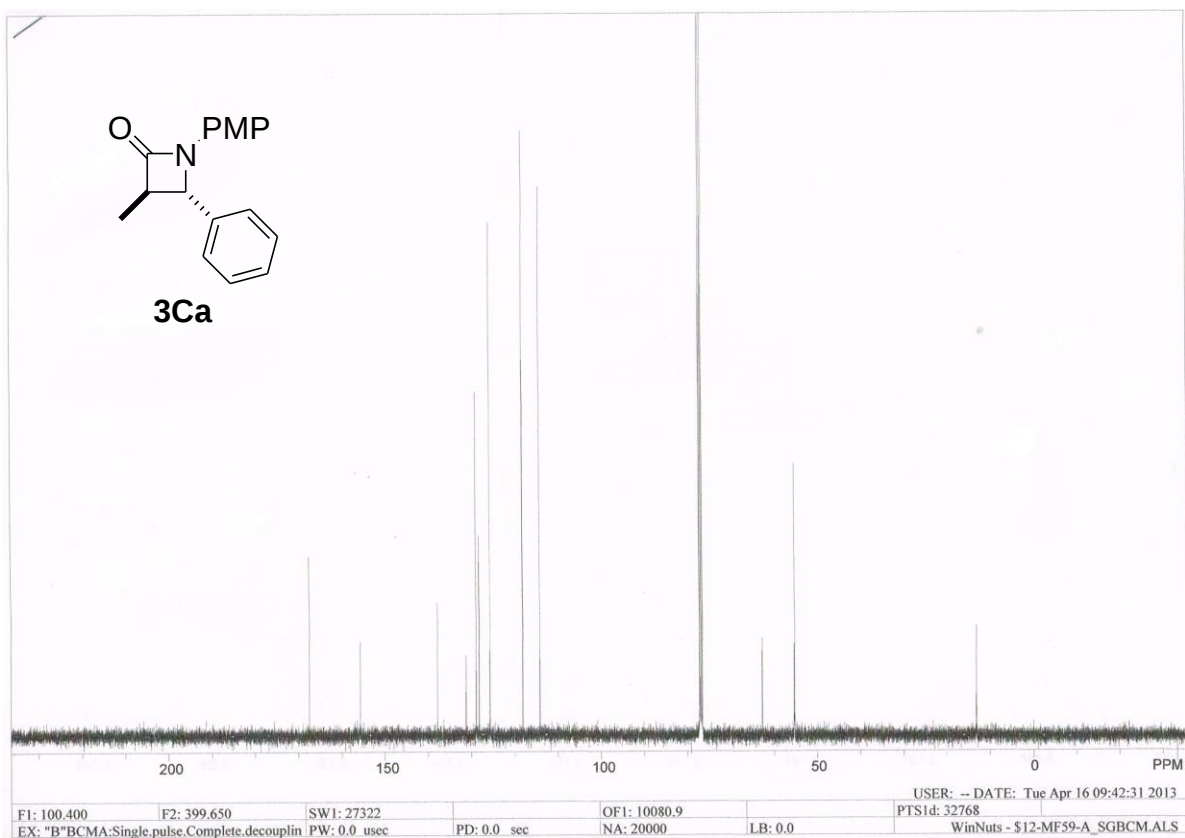
¹H-NMR

anti-3Ca

¹H-NMR

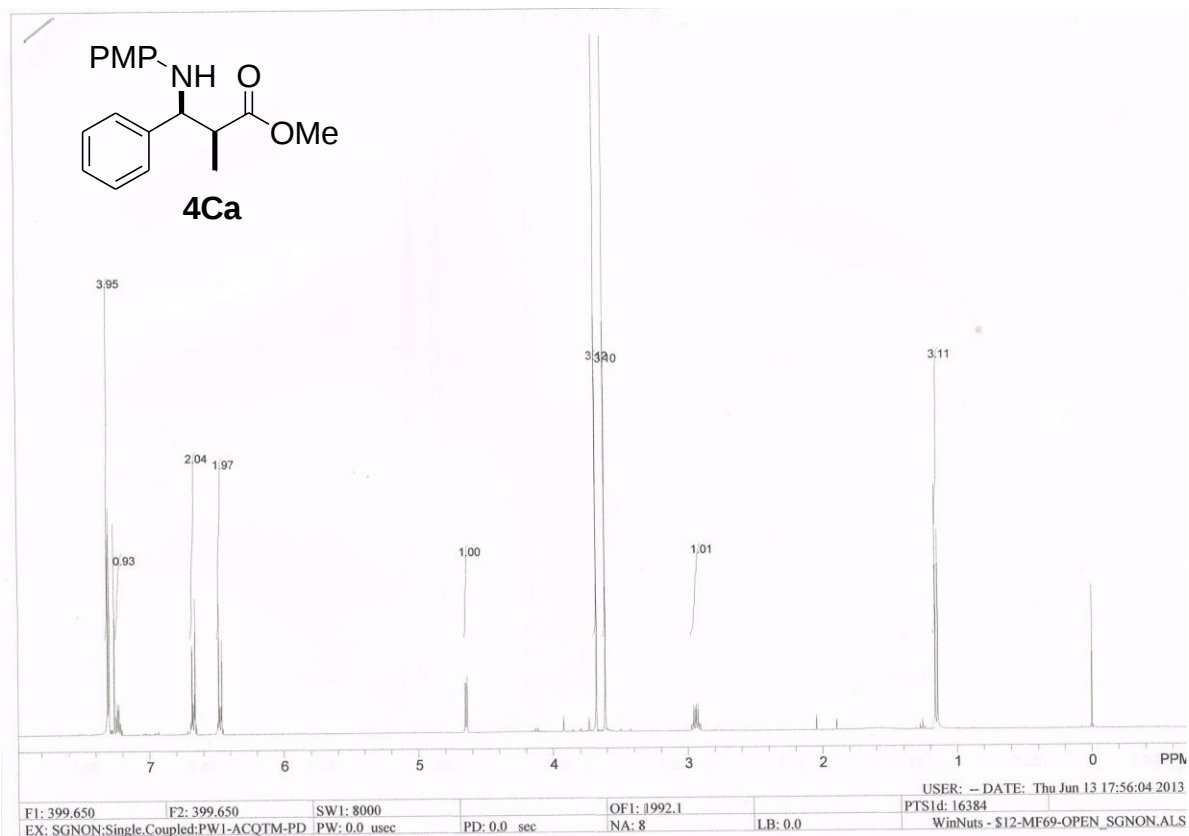


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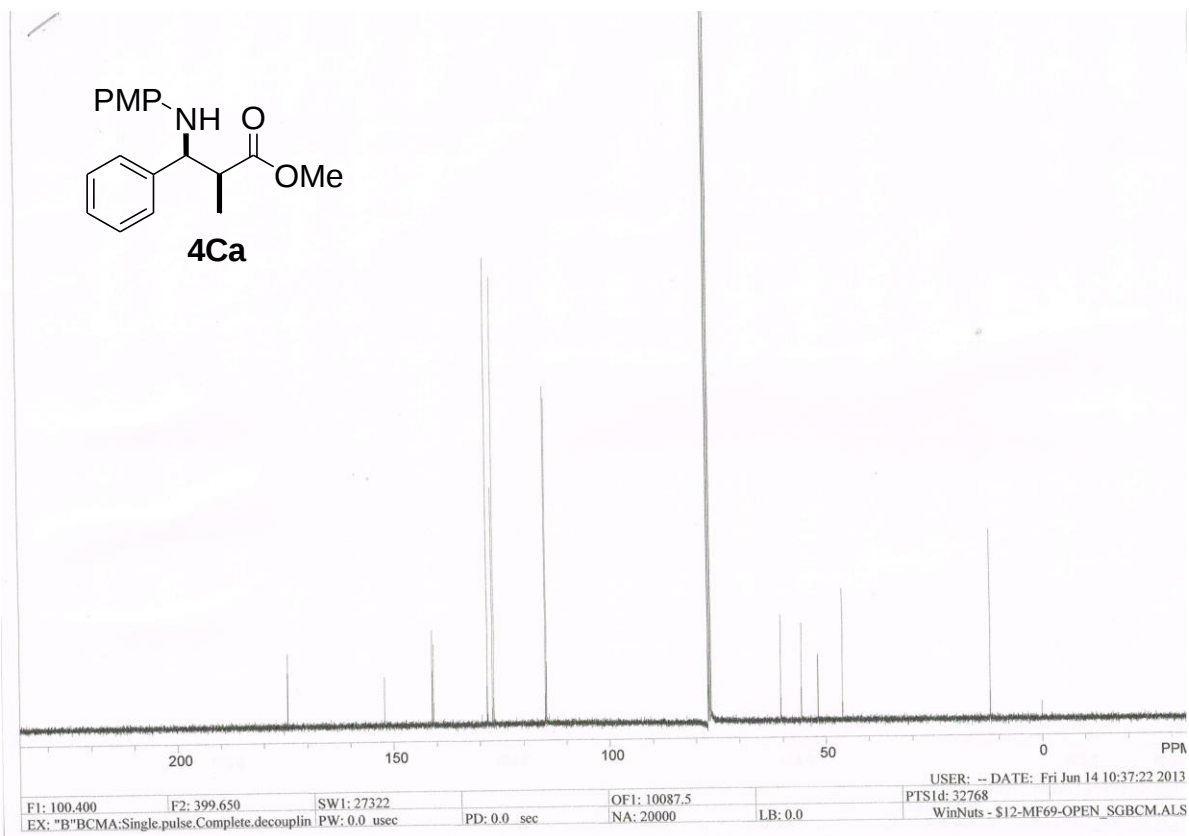


syn-4Ca

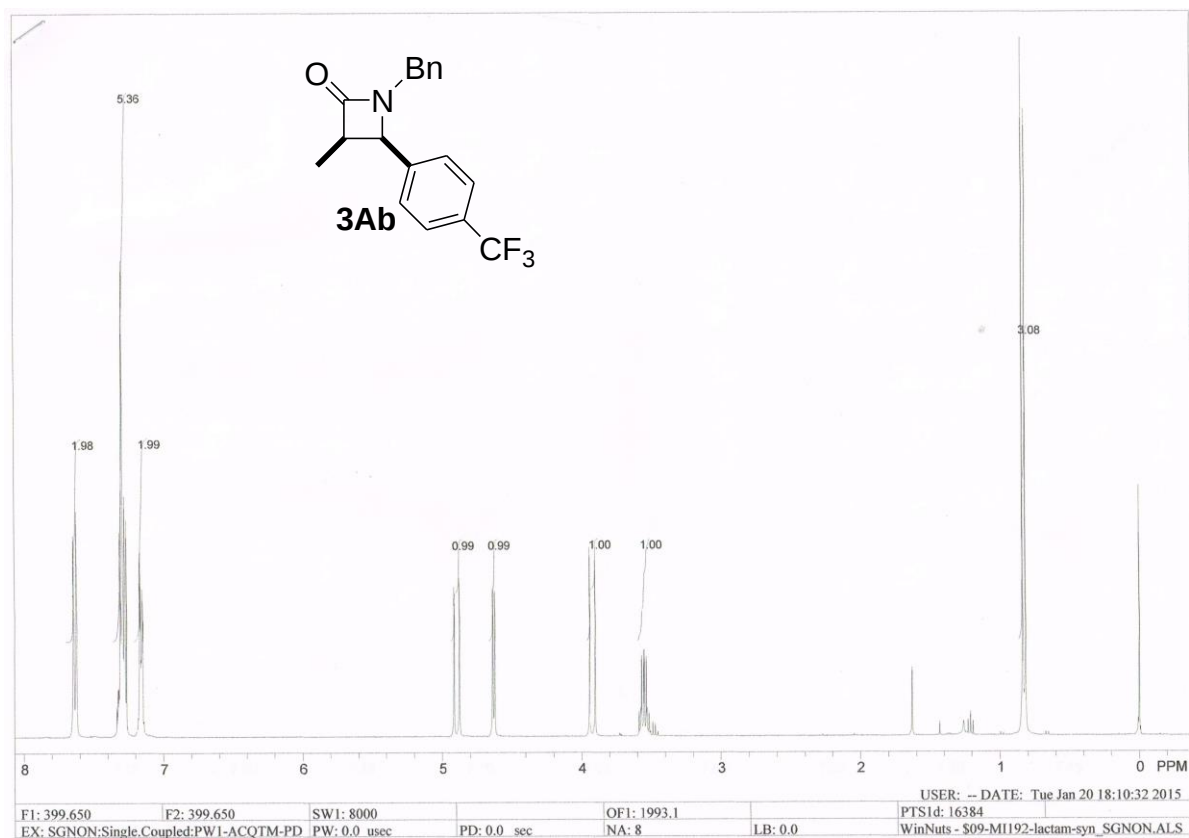
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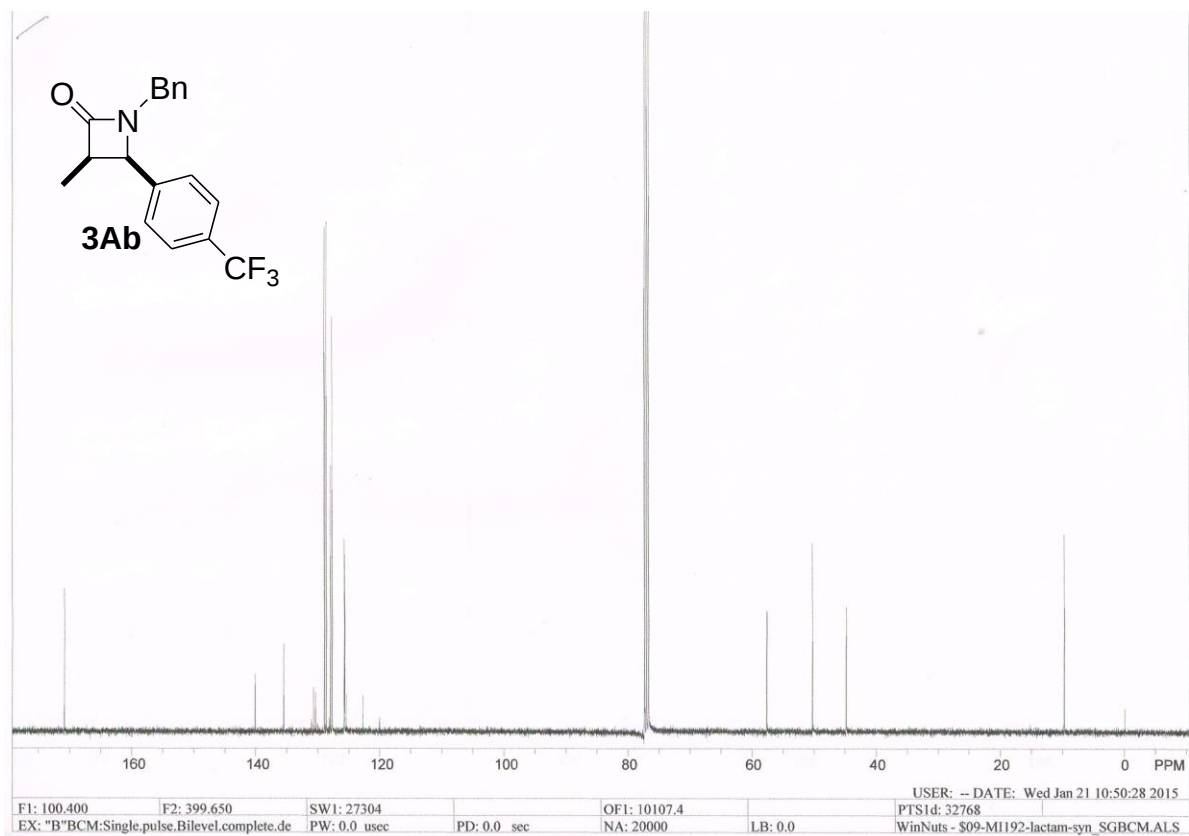
¹³C-NMR



syn-3Ab
¹H-NMR

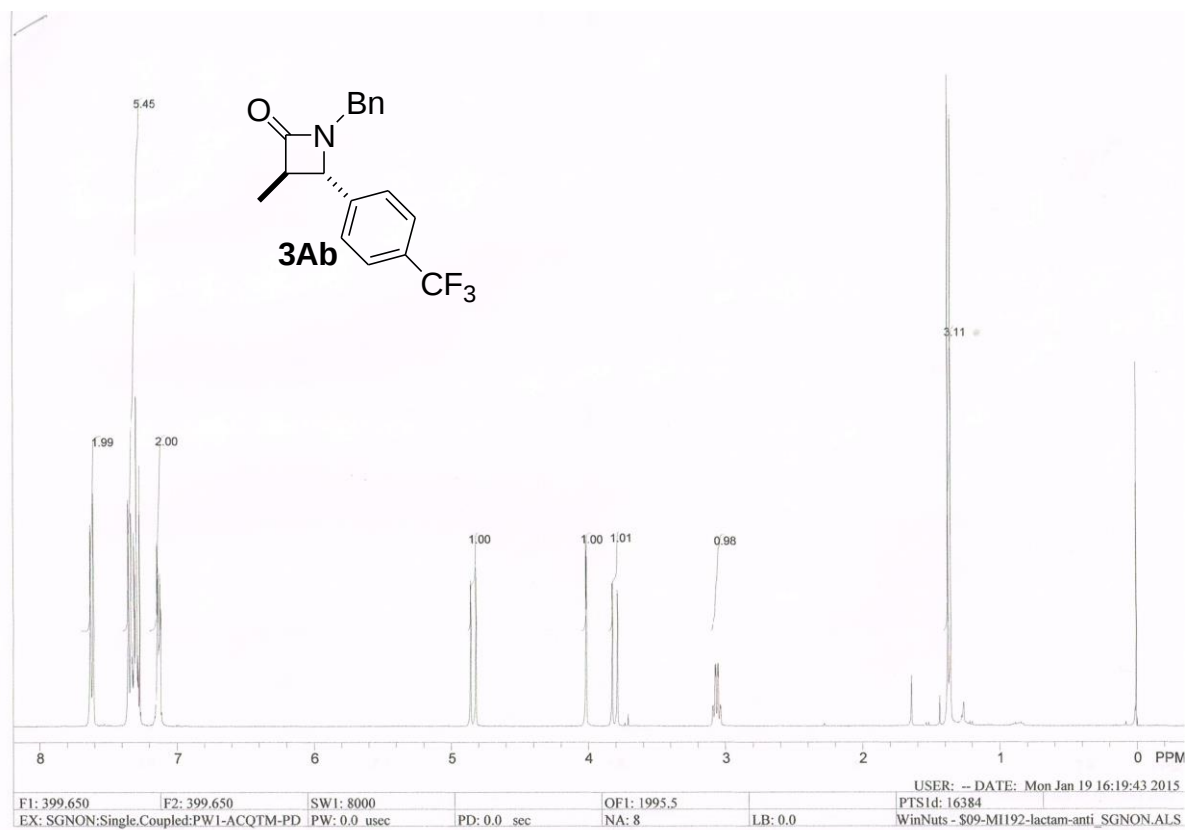


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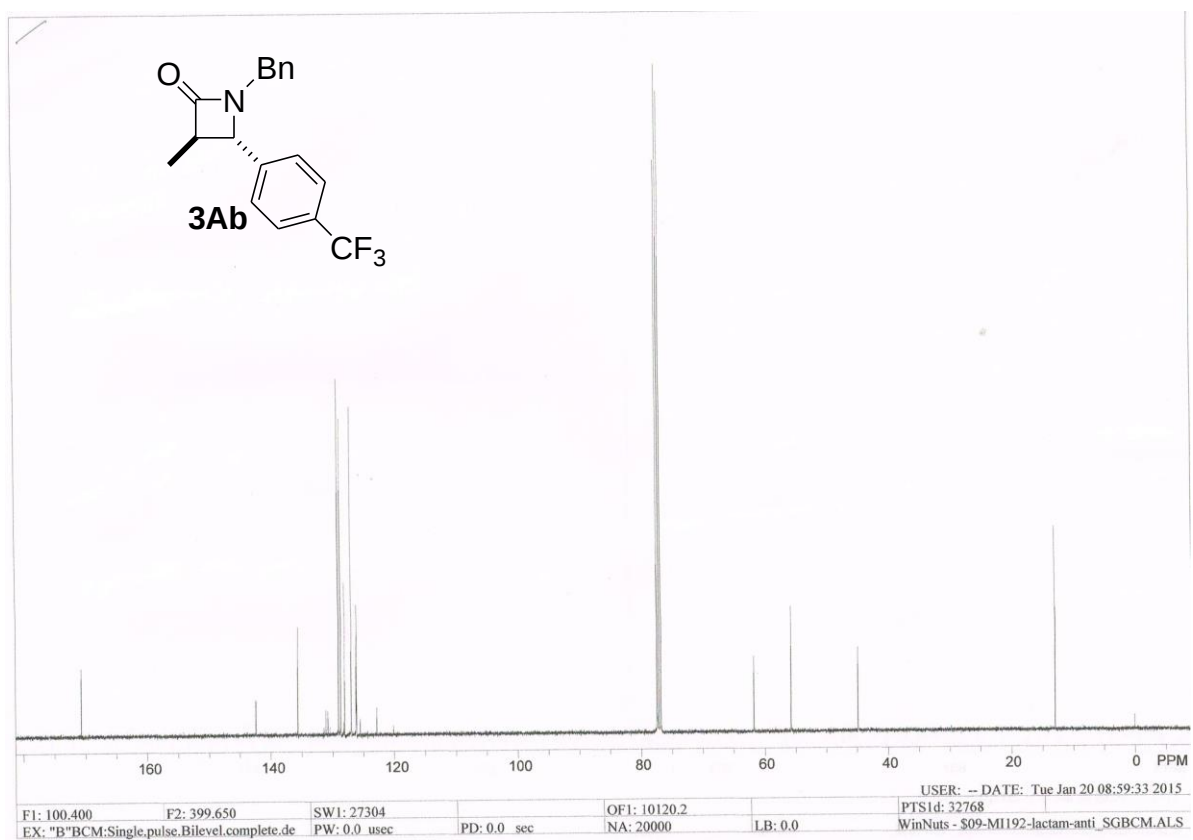


anti-3Ab

¹H-NMR

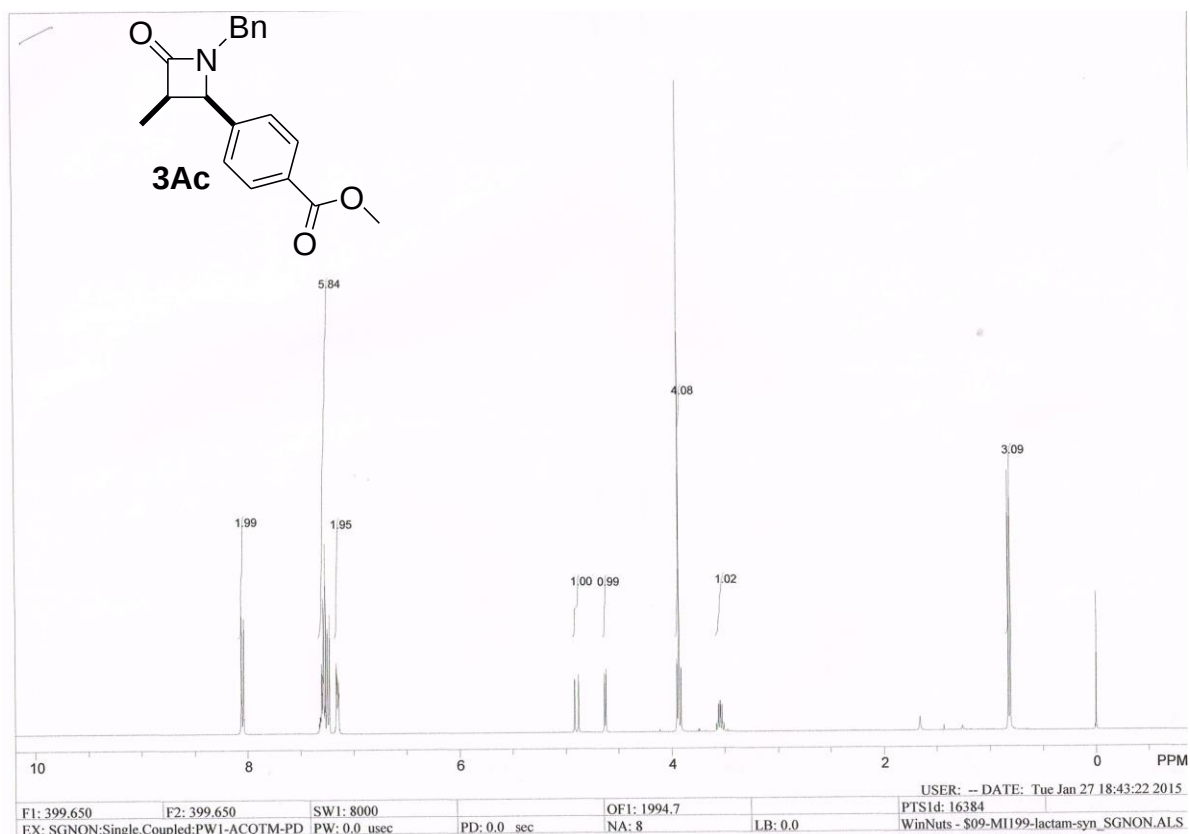


¹³C-NMR

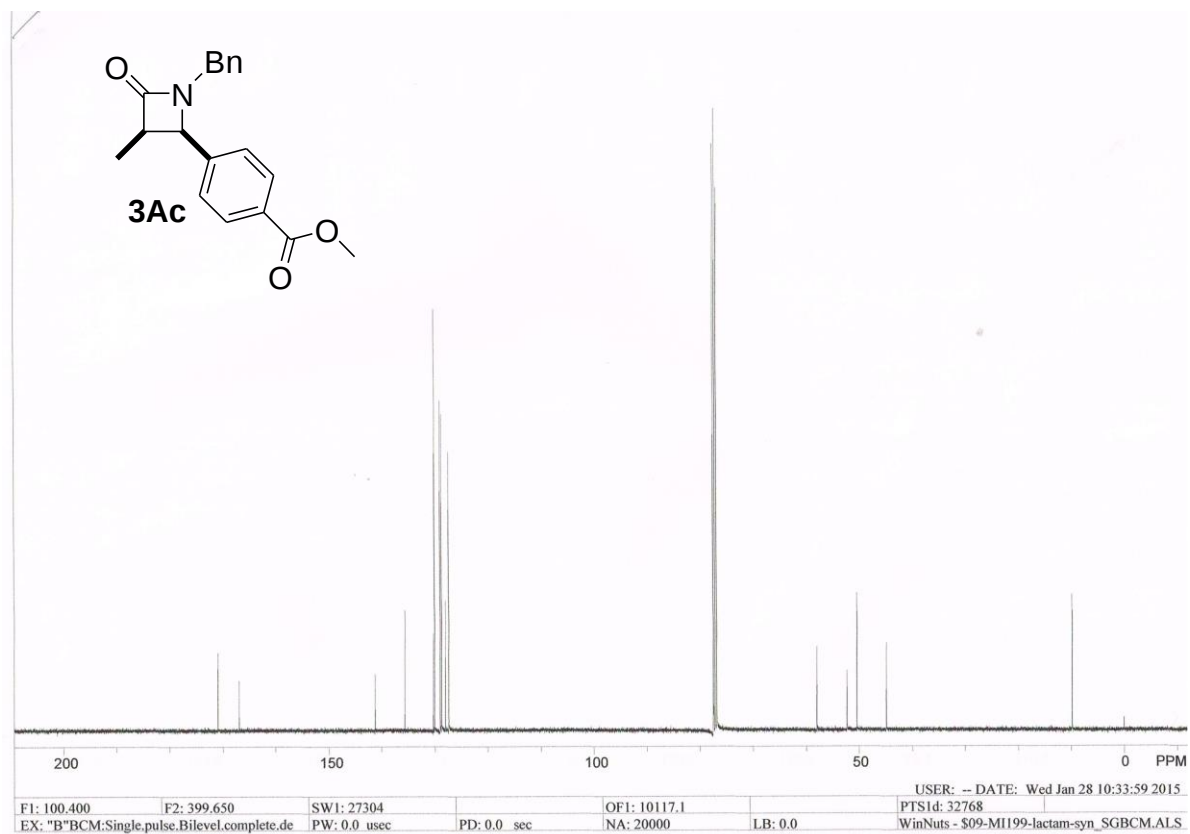


syn-3Ac

¹H-NMR

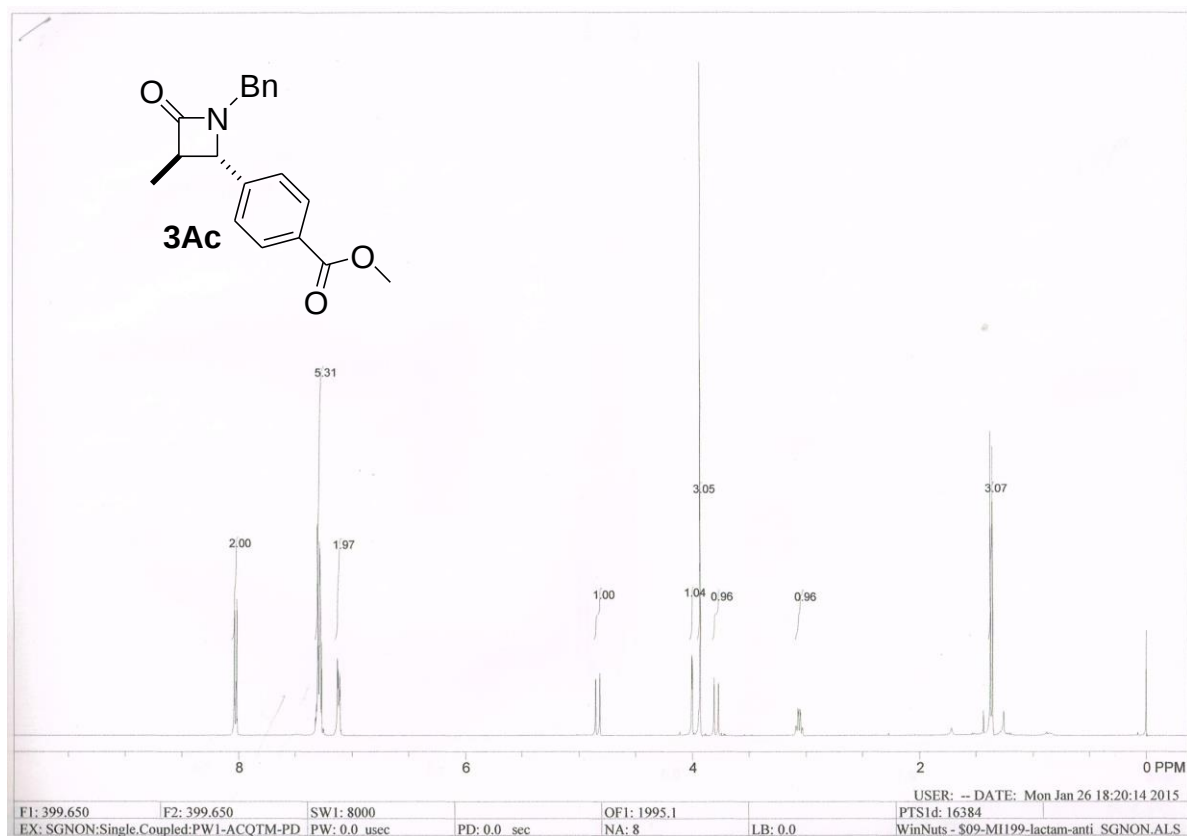


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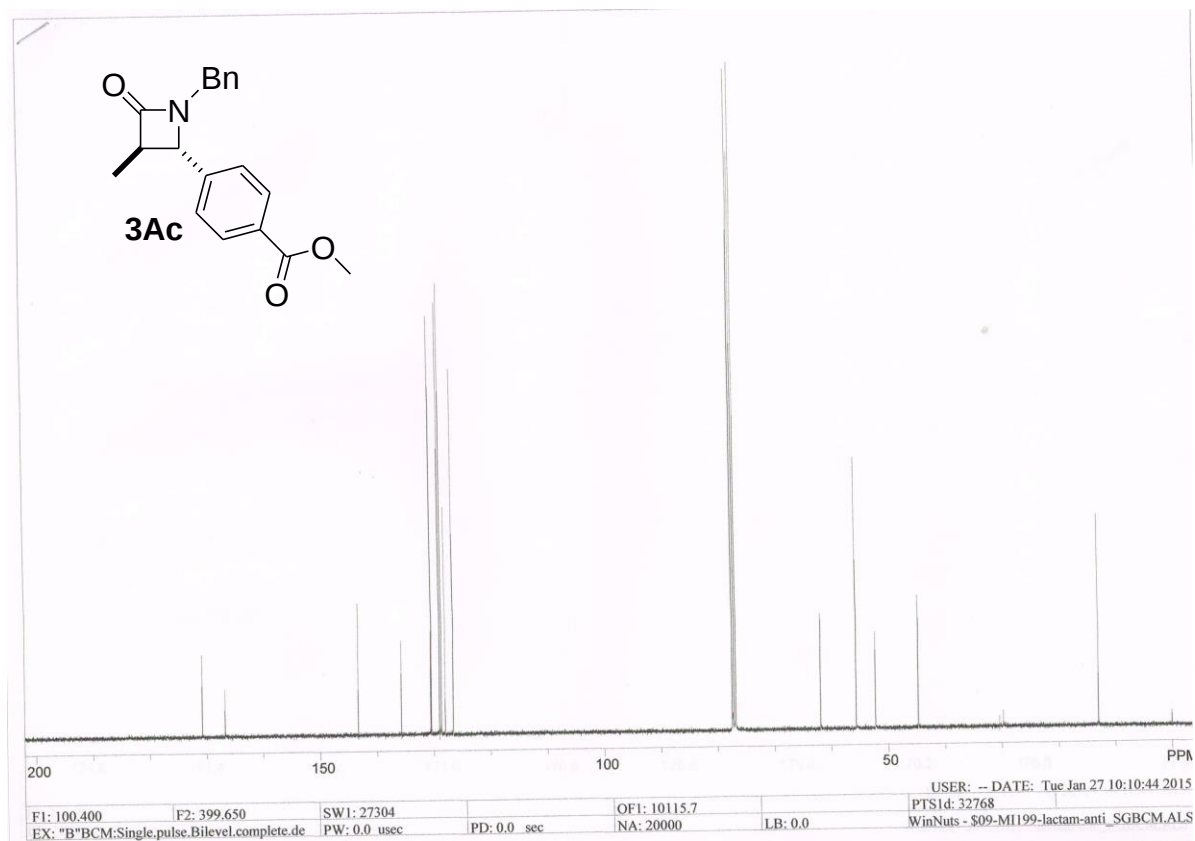


anti-3Ac

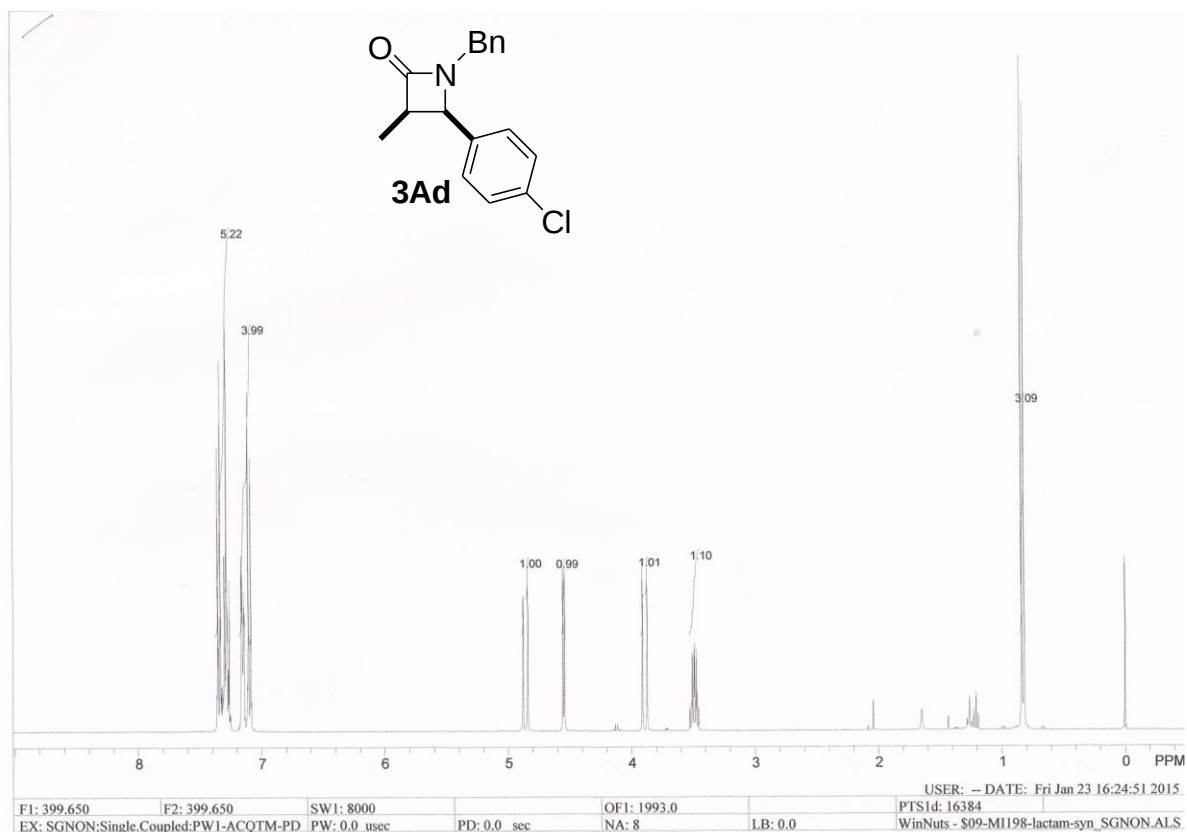
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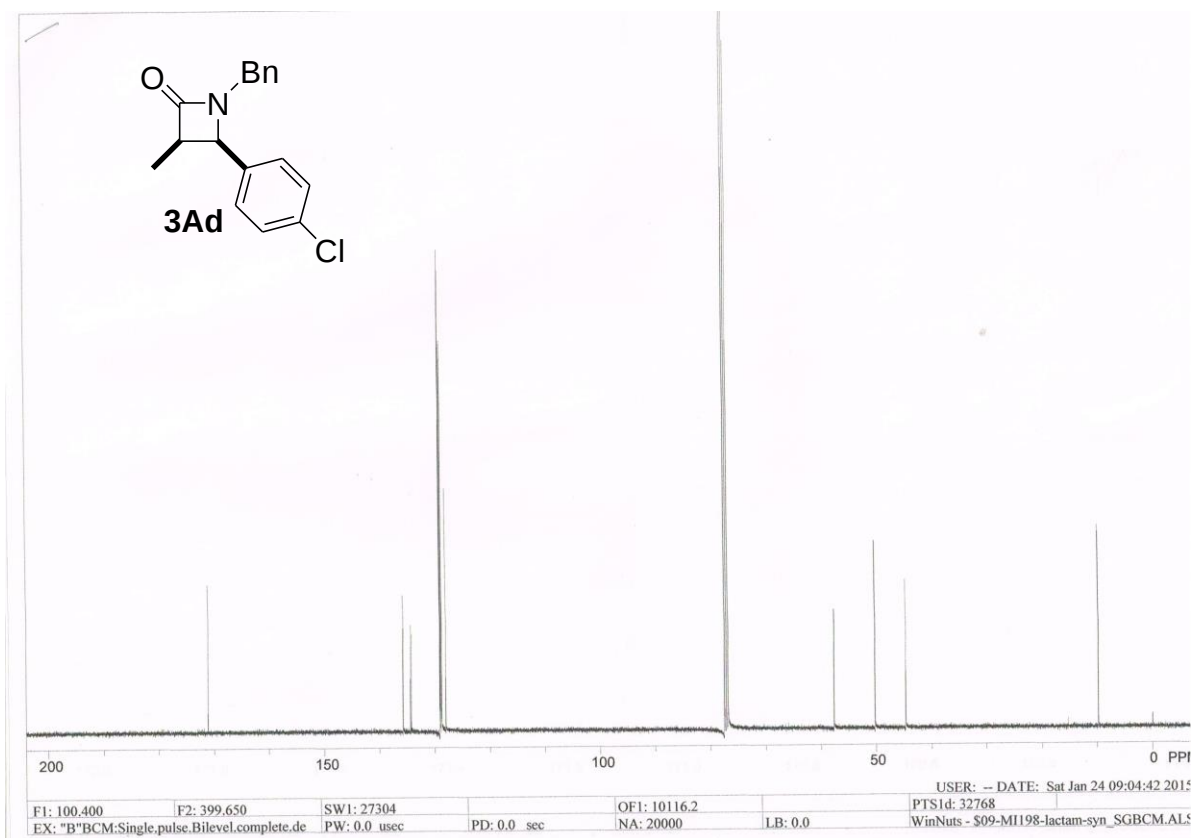
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syn-3Ad
¹H-NMR

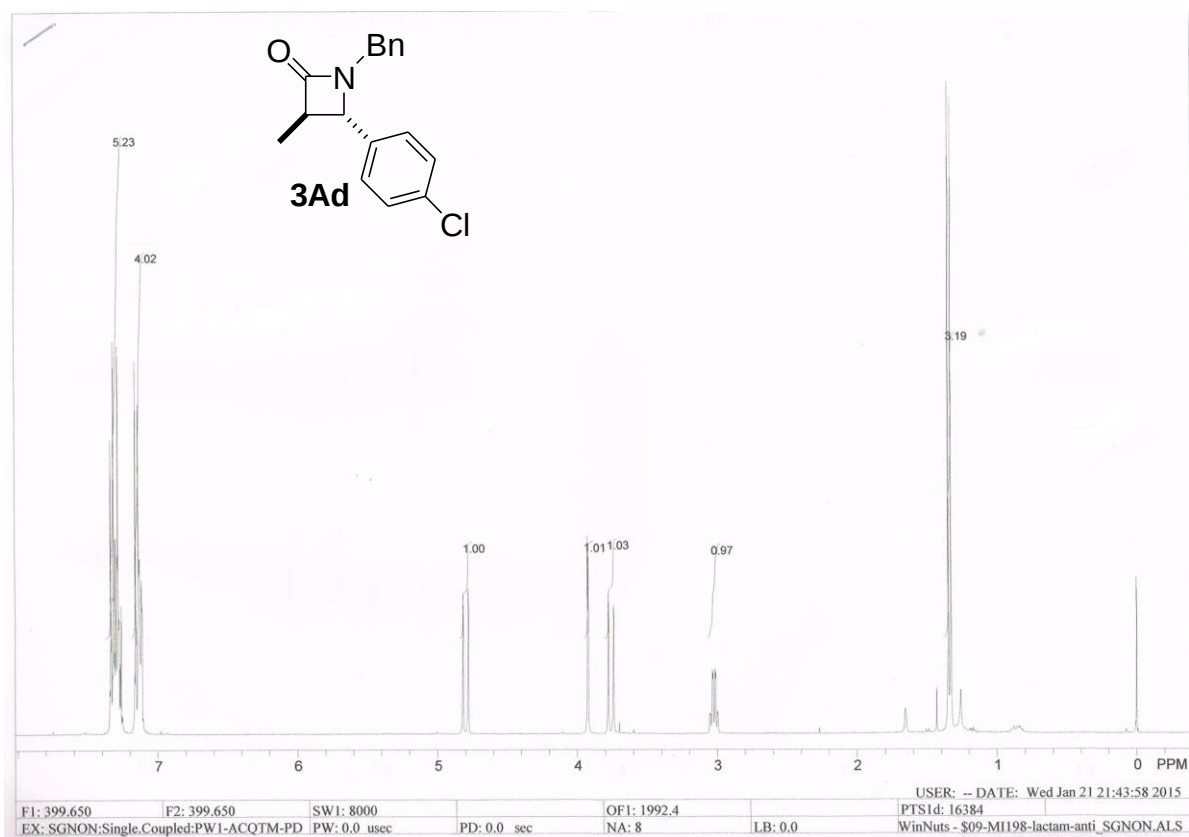


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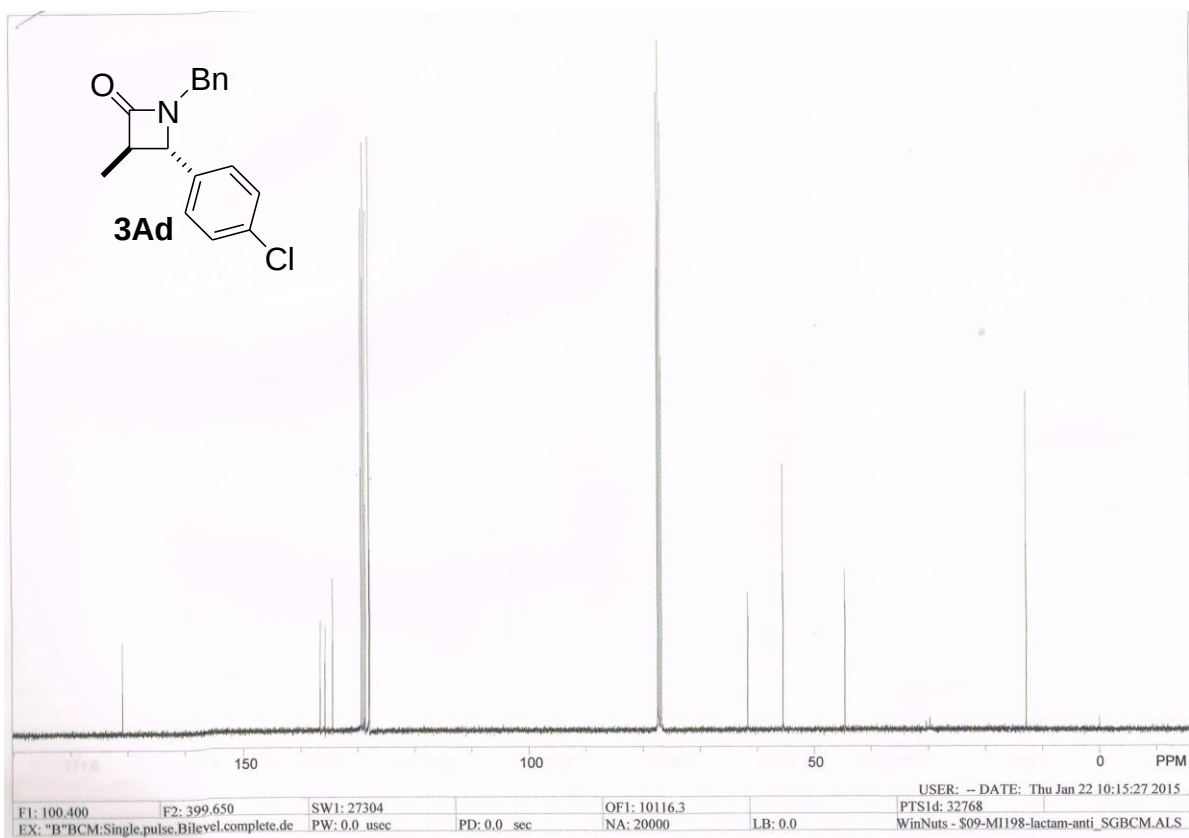


anti-3Ad

¹H-NMR

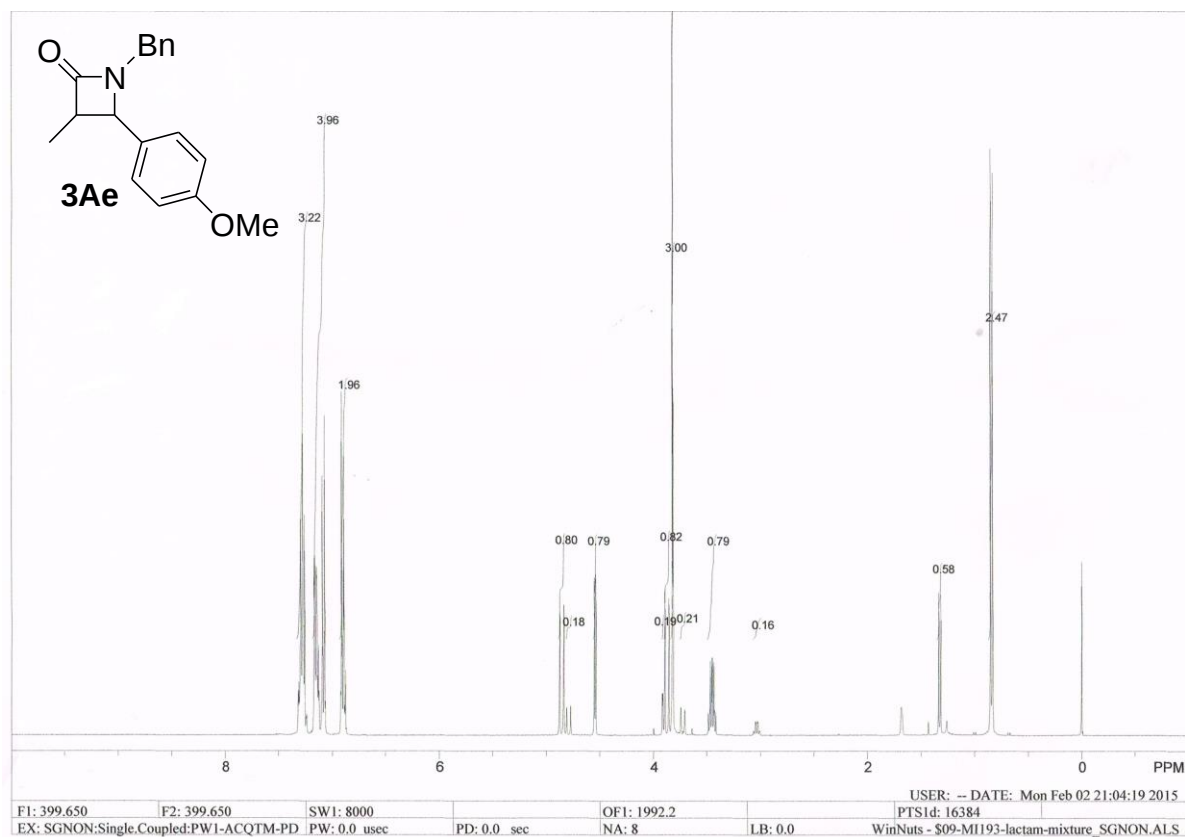


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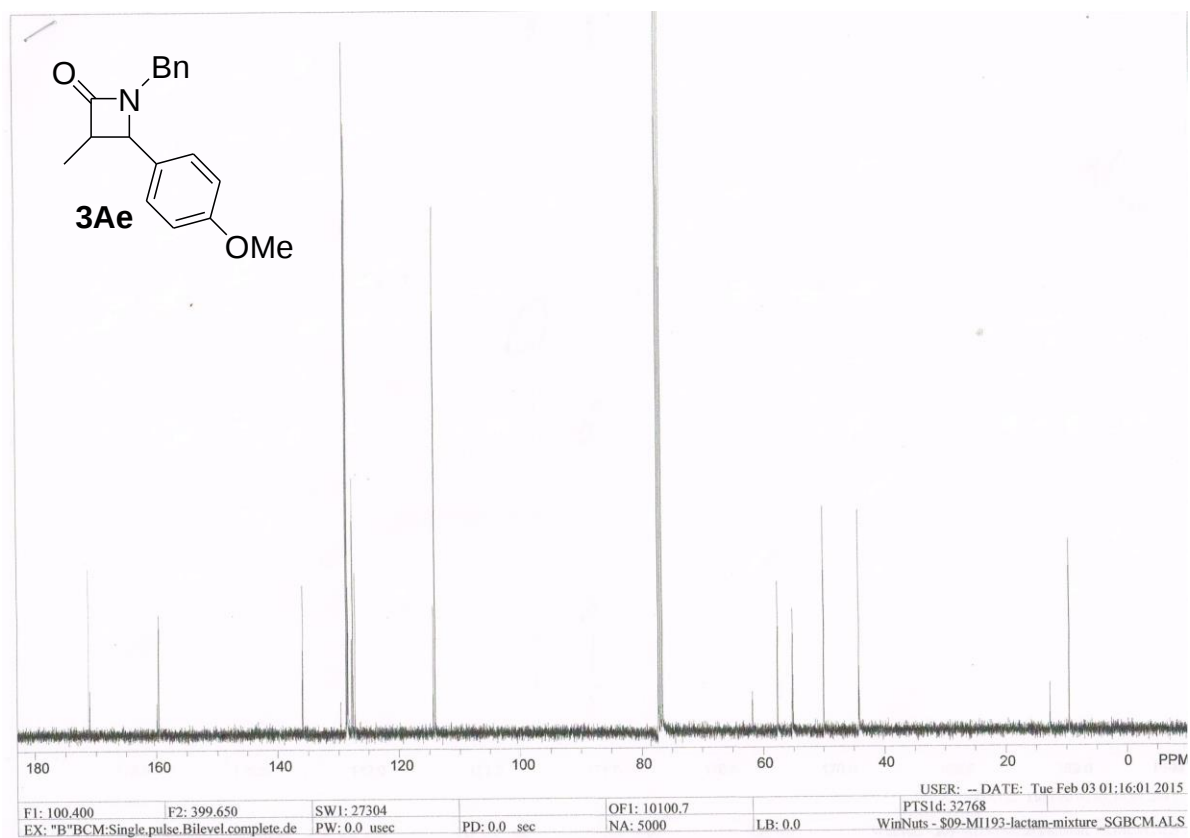


diastereomeric mixture-3Ae

¹H-NMR

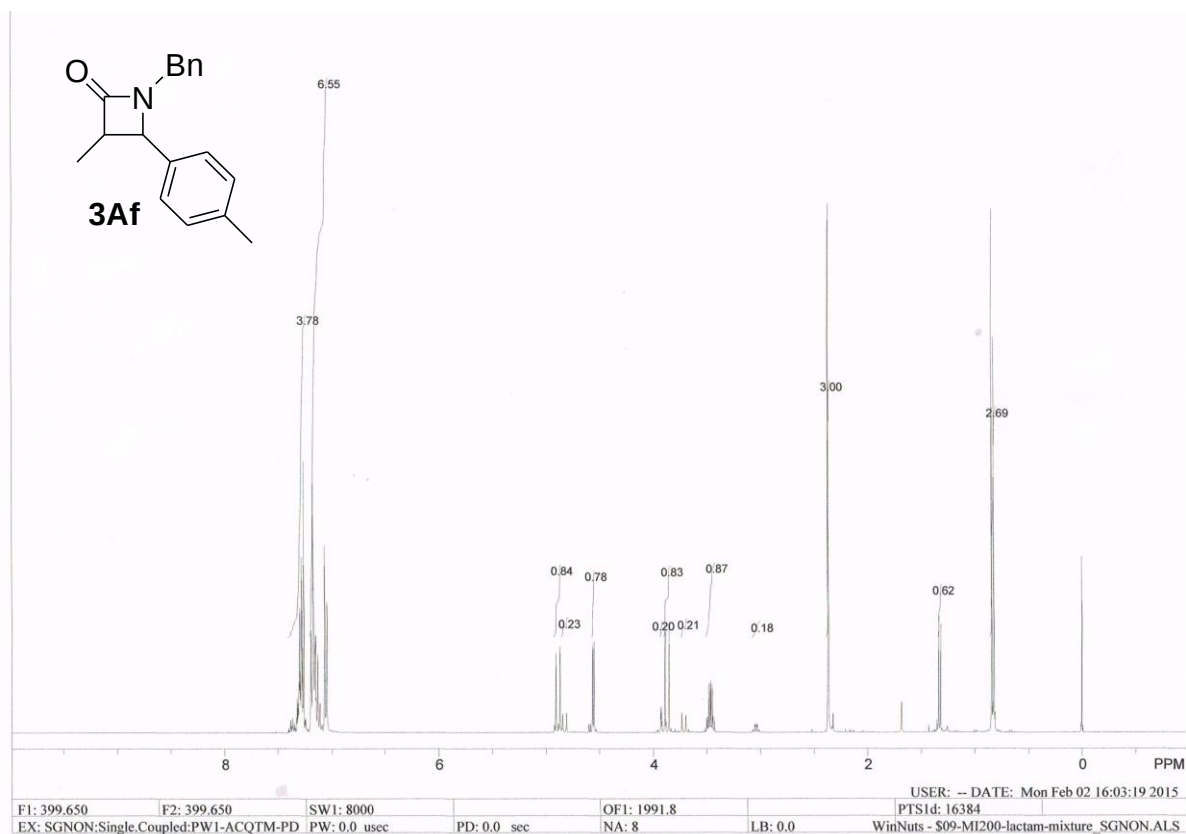


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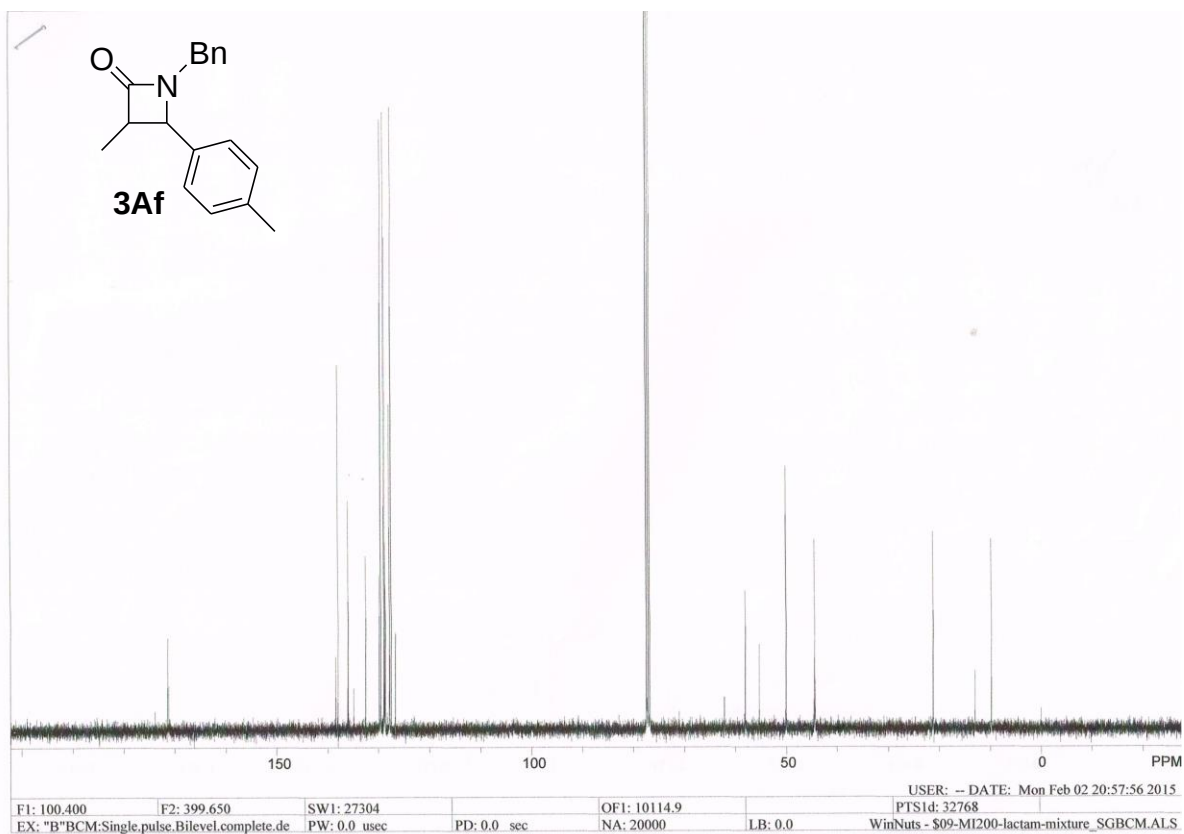


diastereomeric mixture-3Af

¹H-NMR

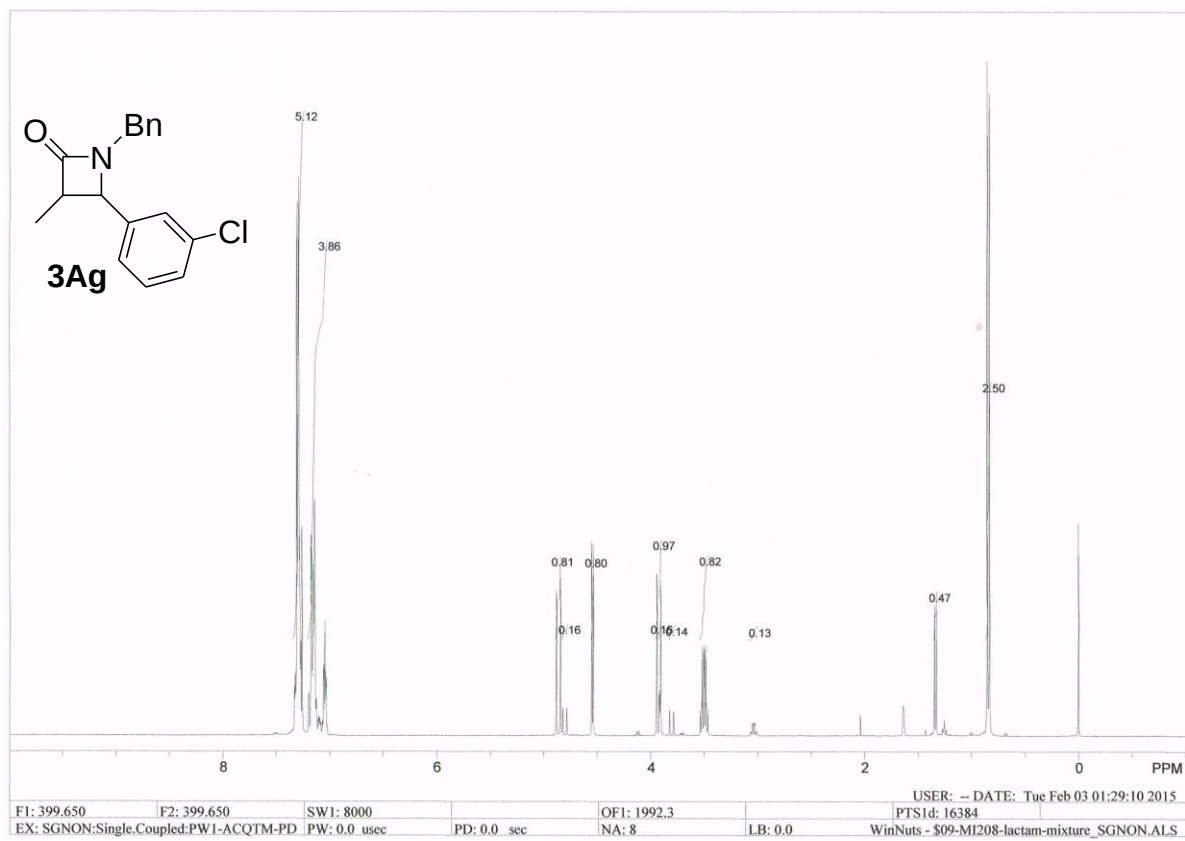


¹³C-NMR

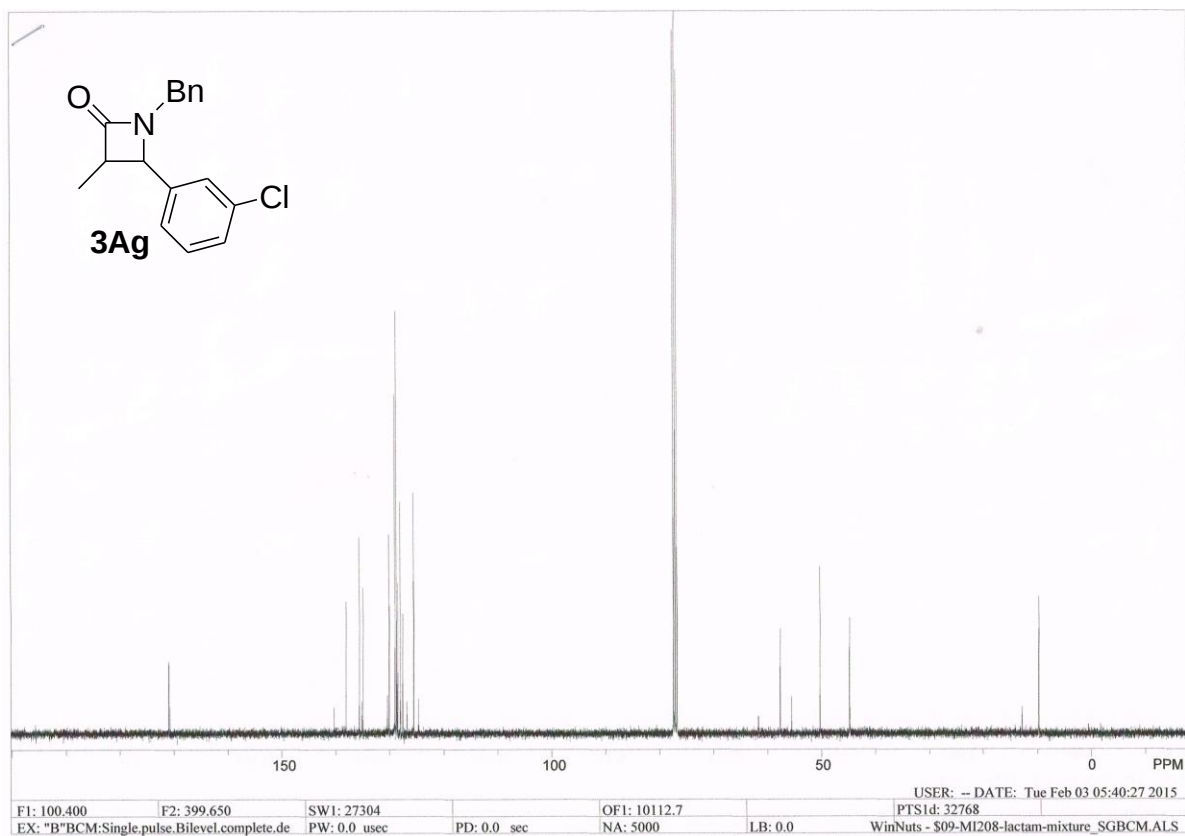


diastereomeric mixture-3Ag

¹H-NMR

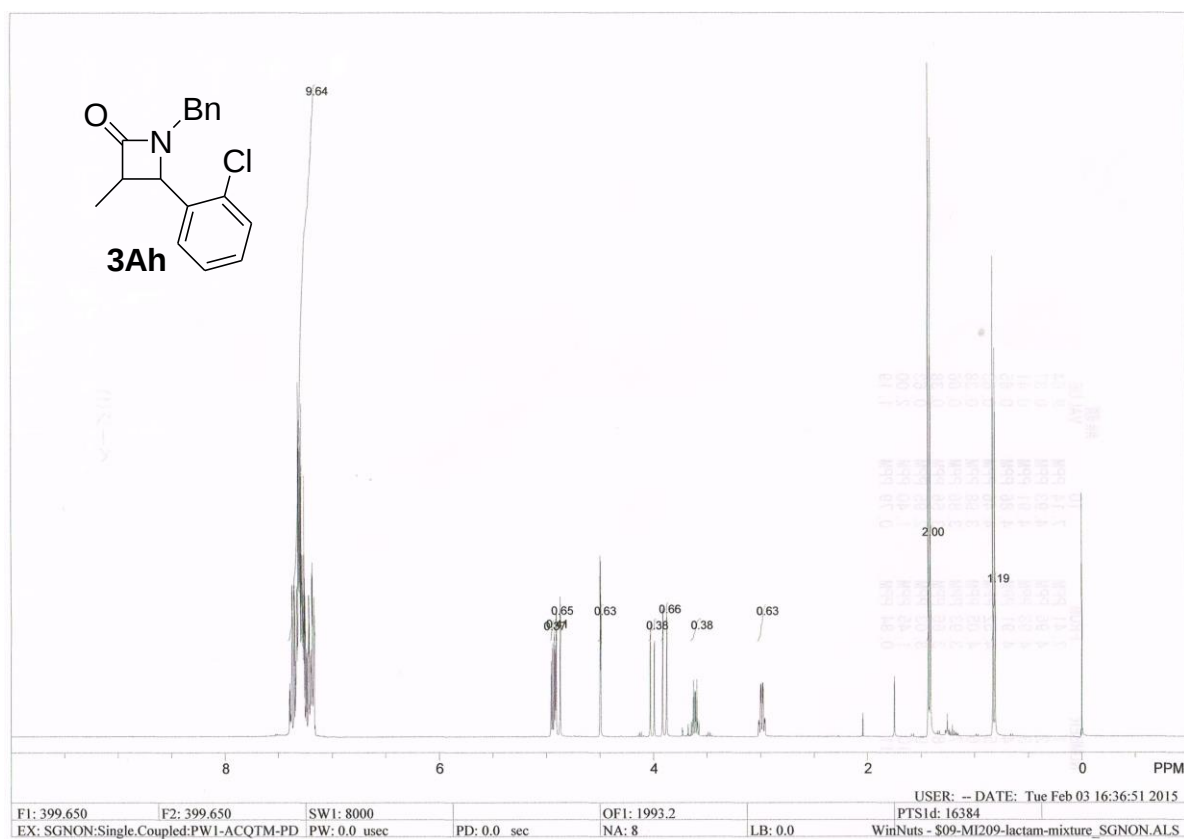


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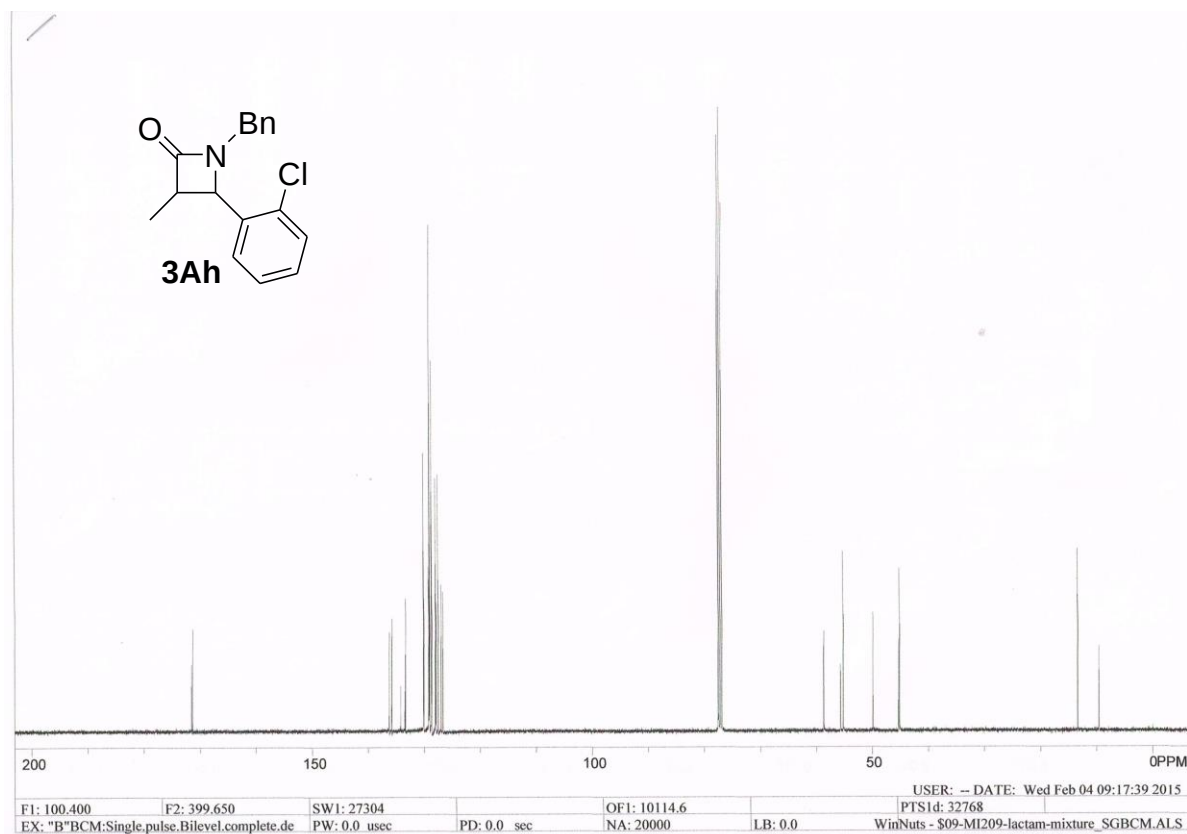


diastereomeric mixture-3Ah

¹H-NMR

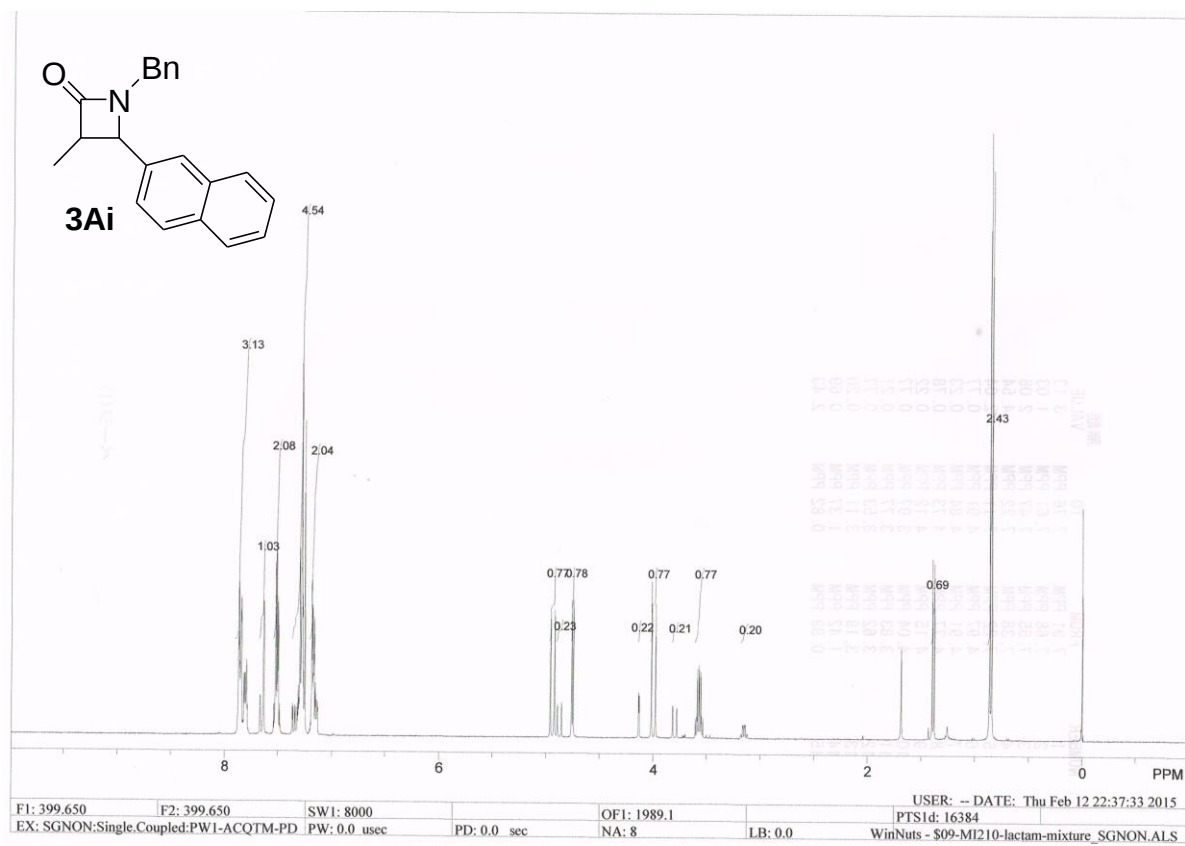


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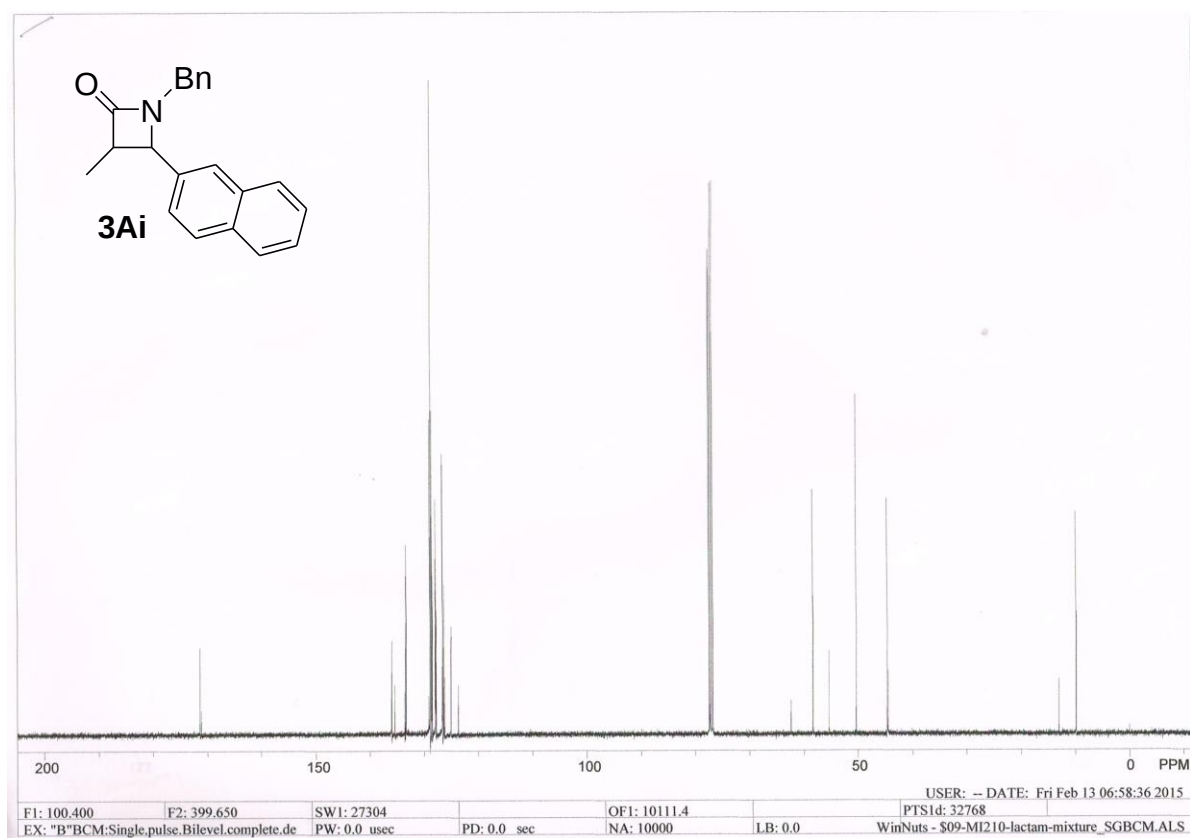


diastereomeric mixture-3Ai

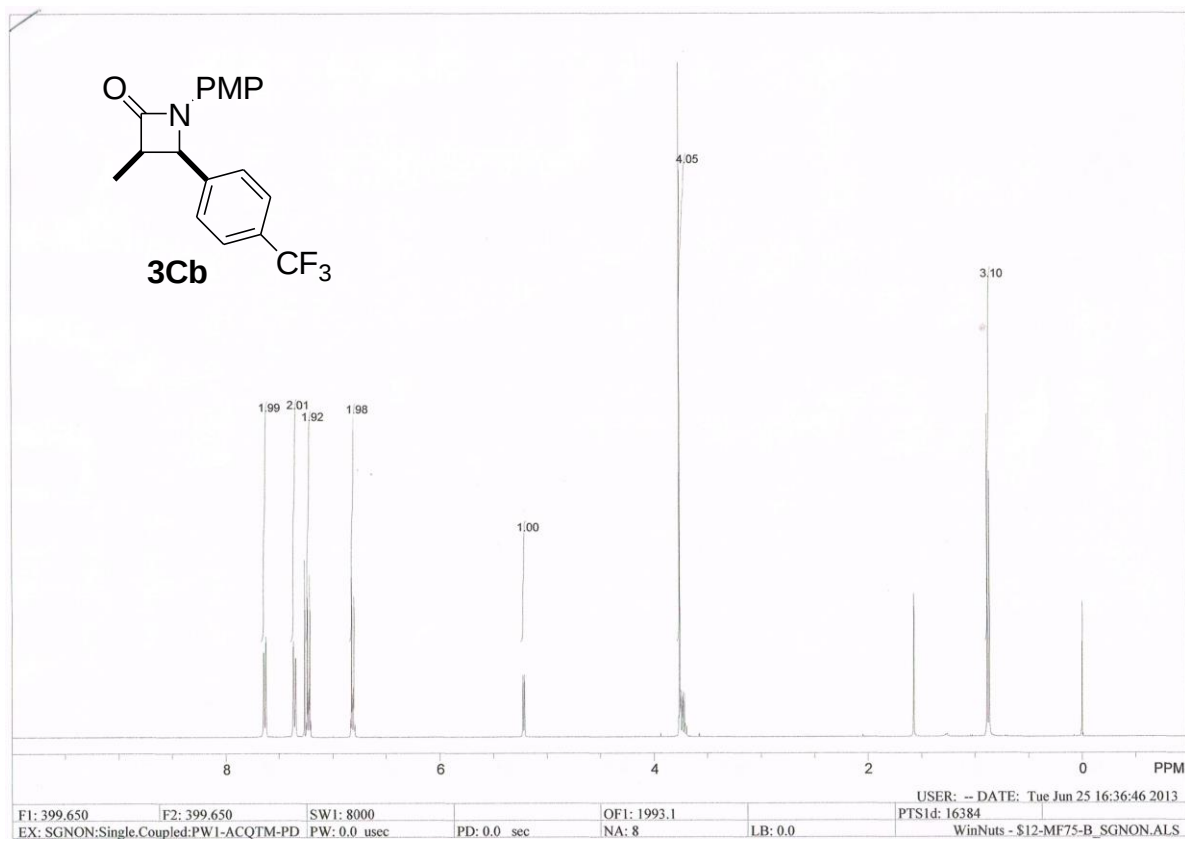
¹H-NMR



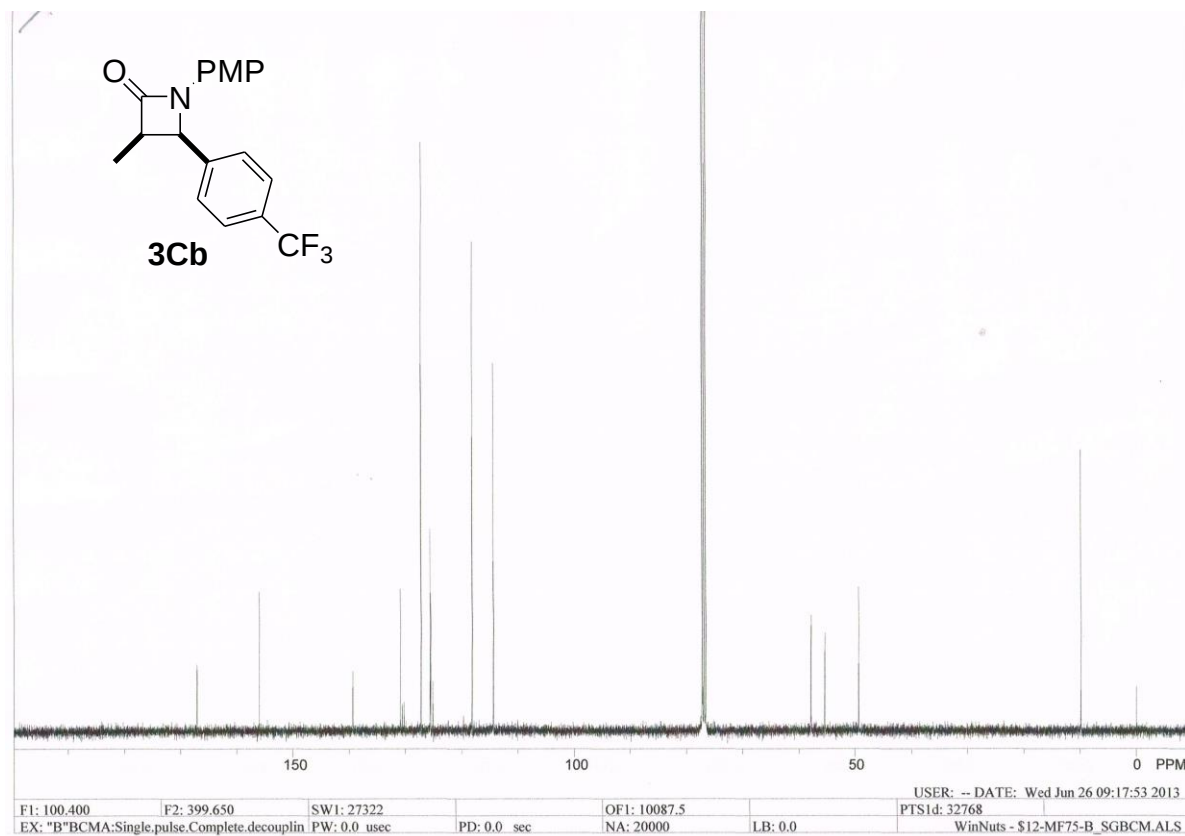
¹³C-NMR



syn-3Cb
¹H-NMR

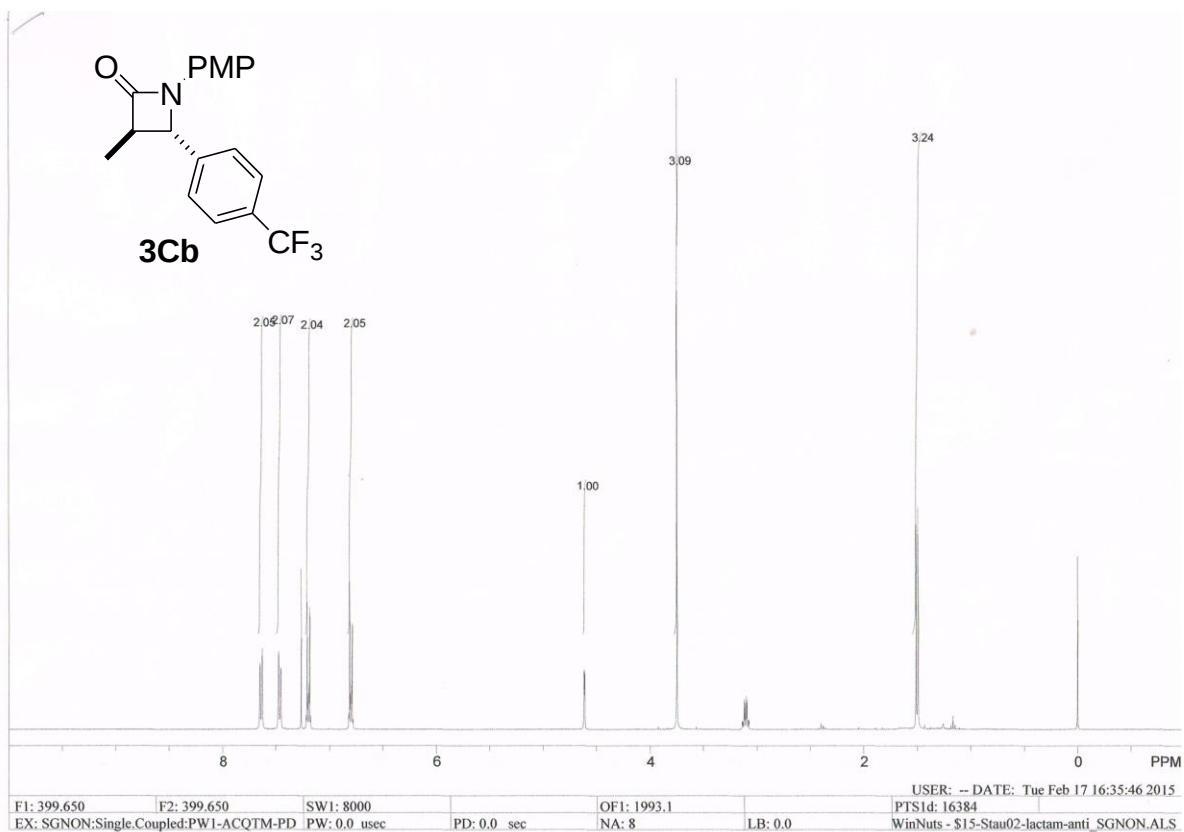


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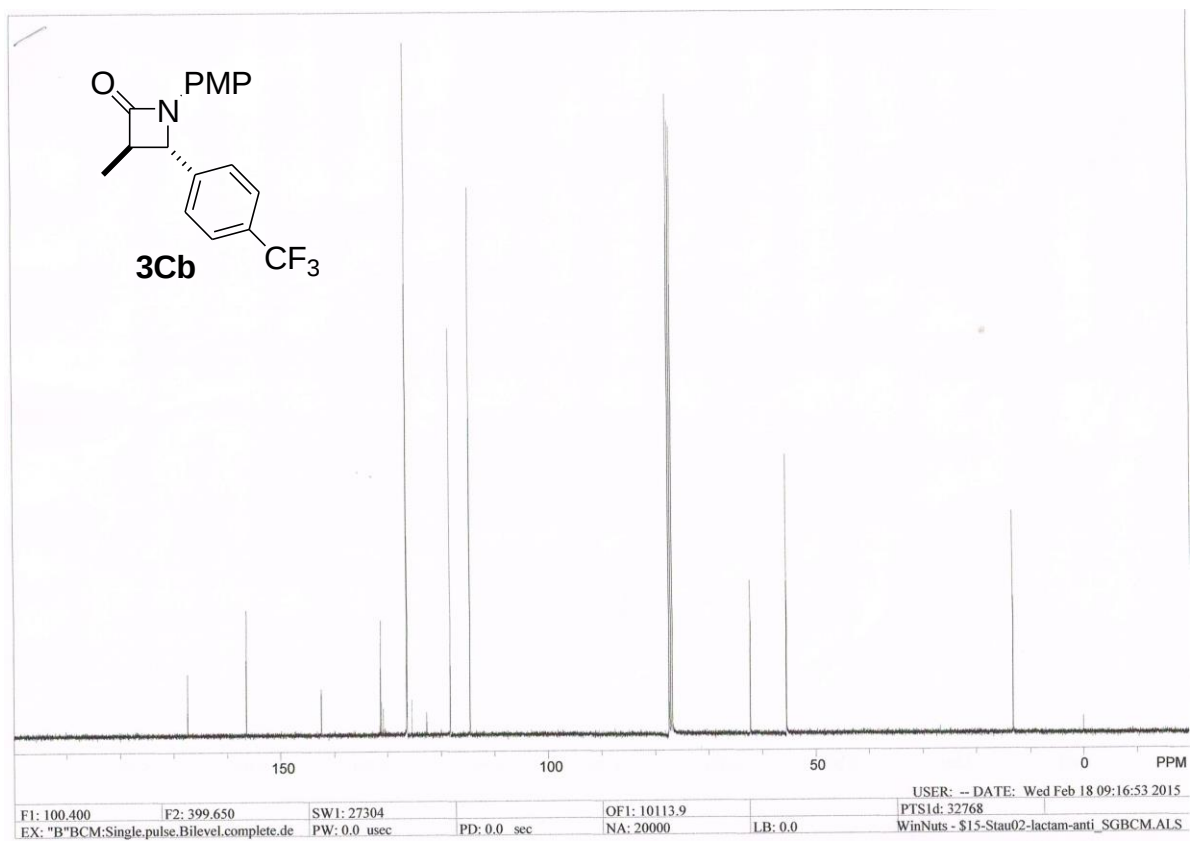


anti-3Cb

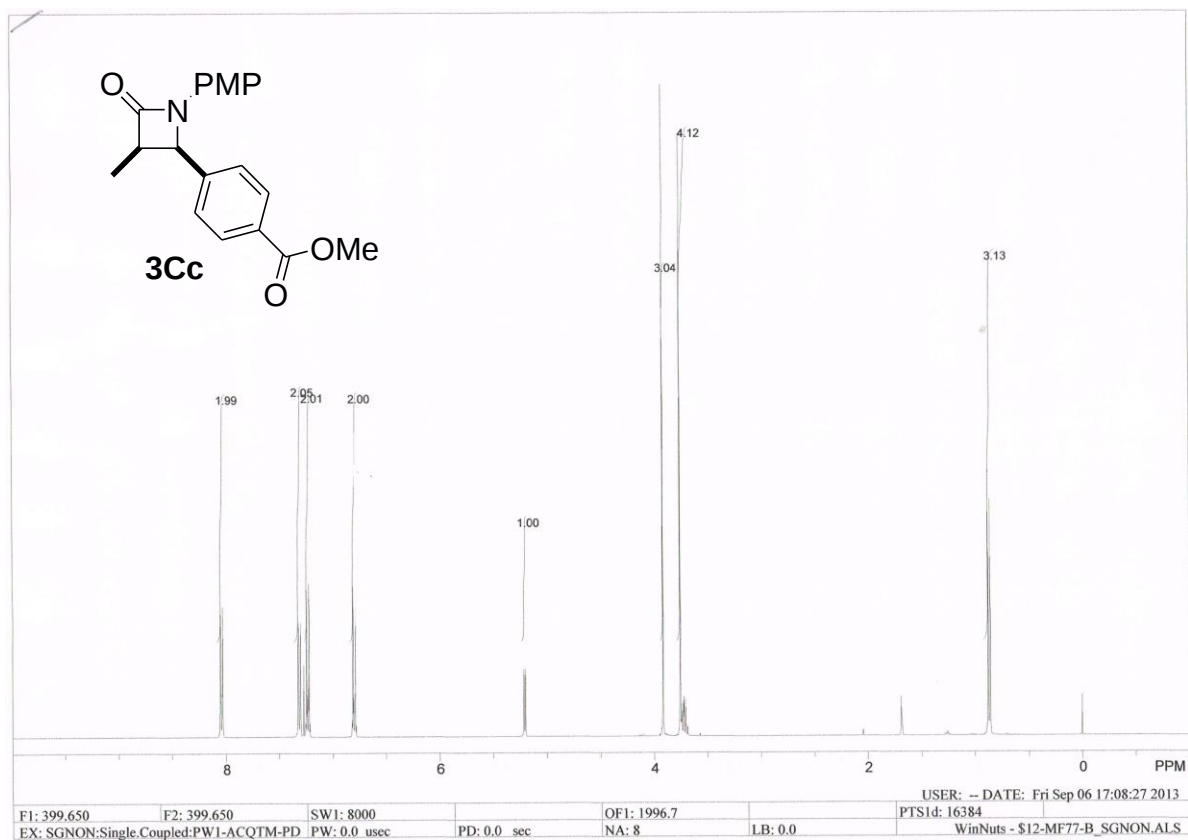
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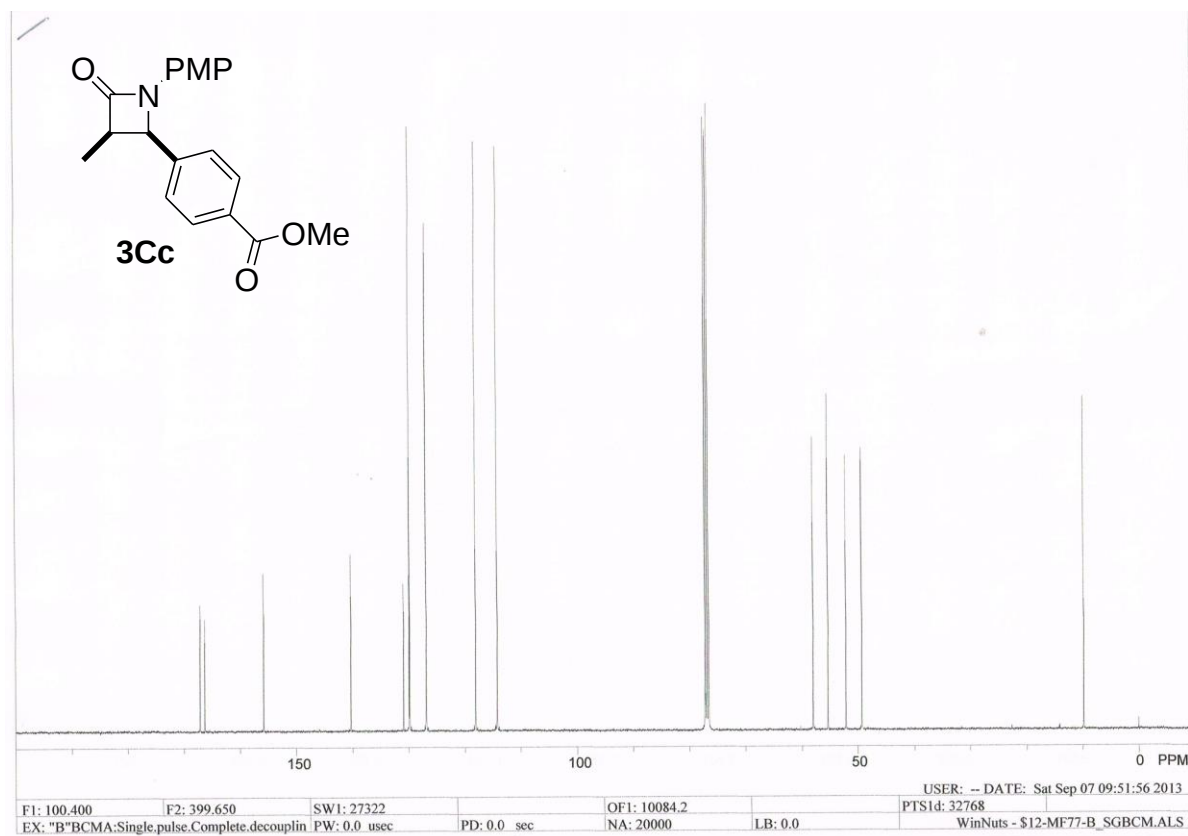
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syn-3Cc
¹H-NMR

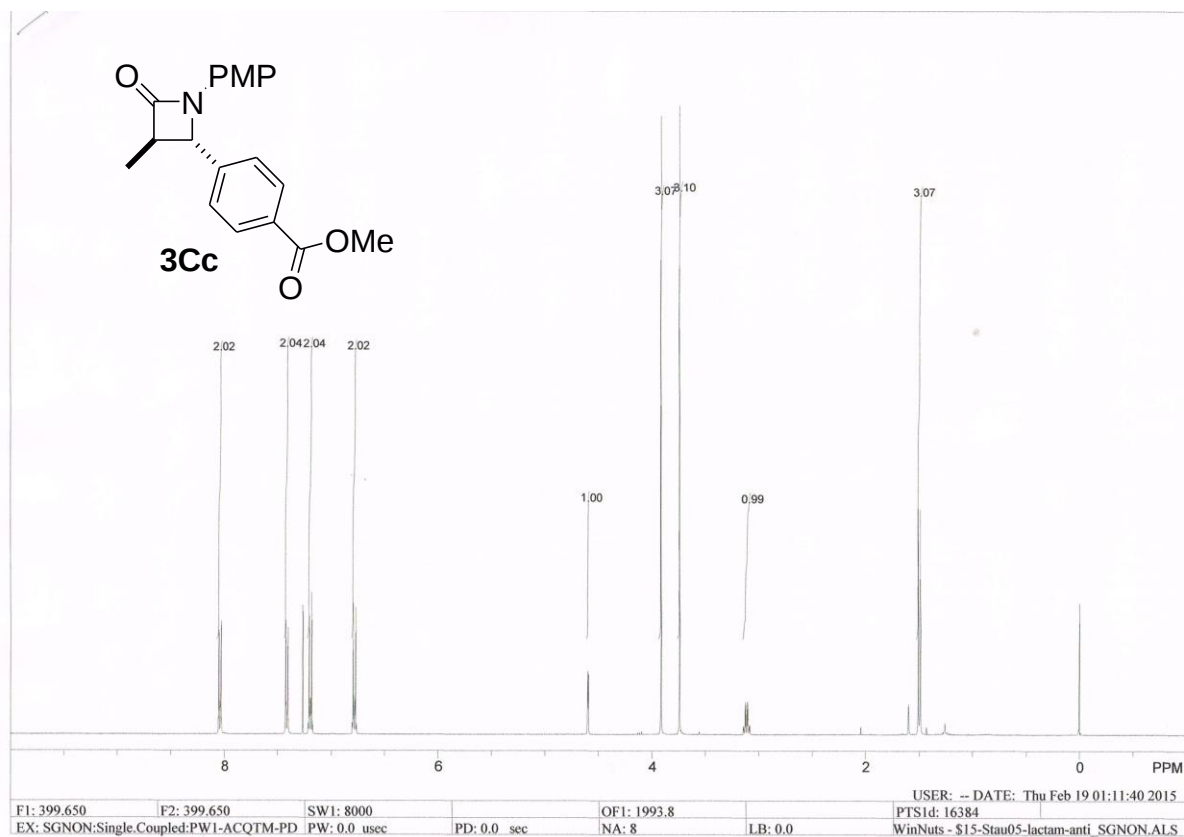


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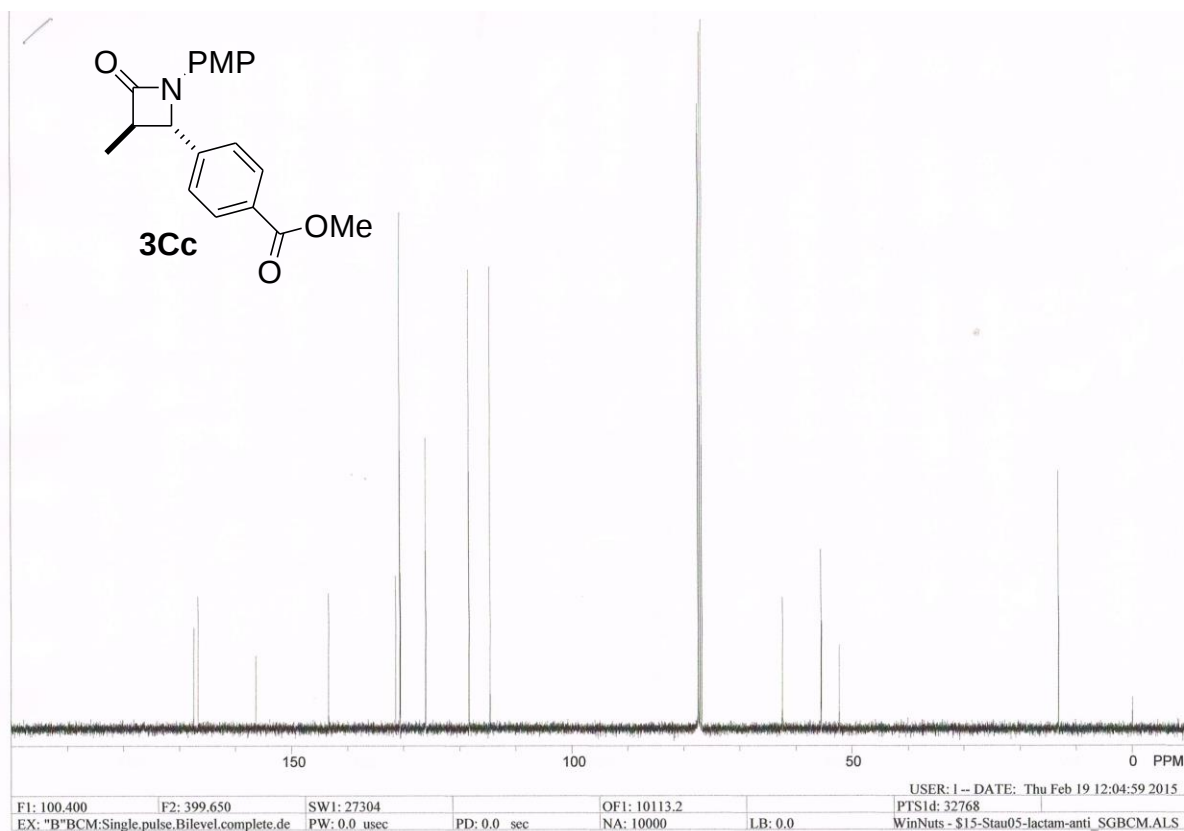


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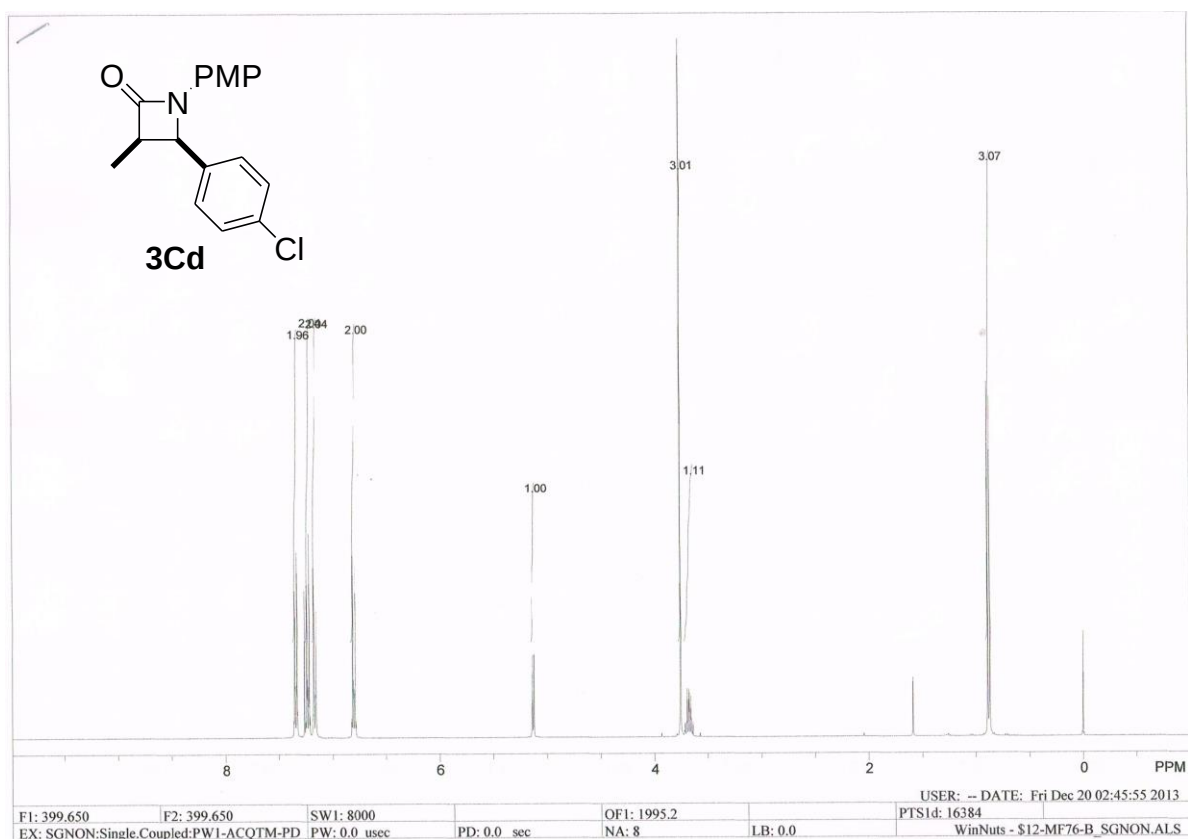
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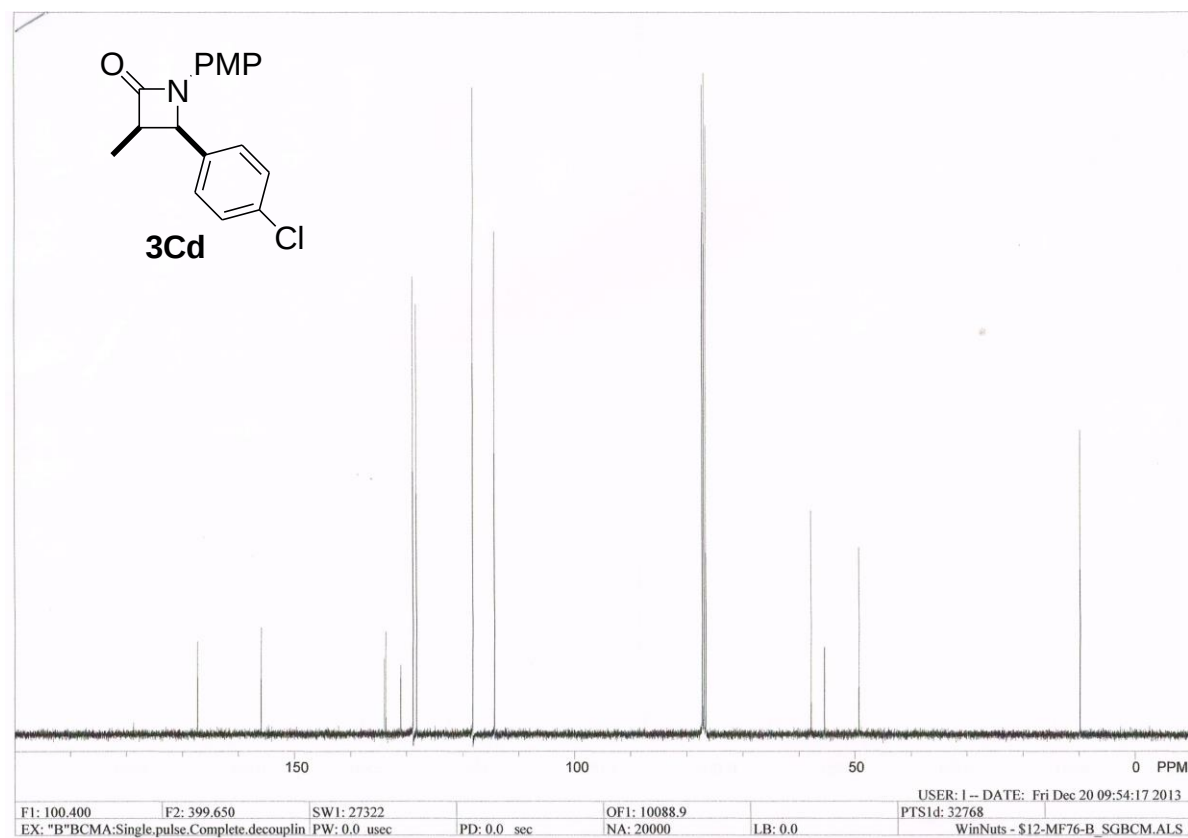
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syn-3Cd
¹H-NMR

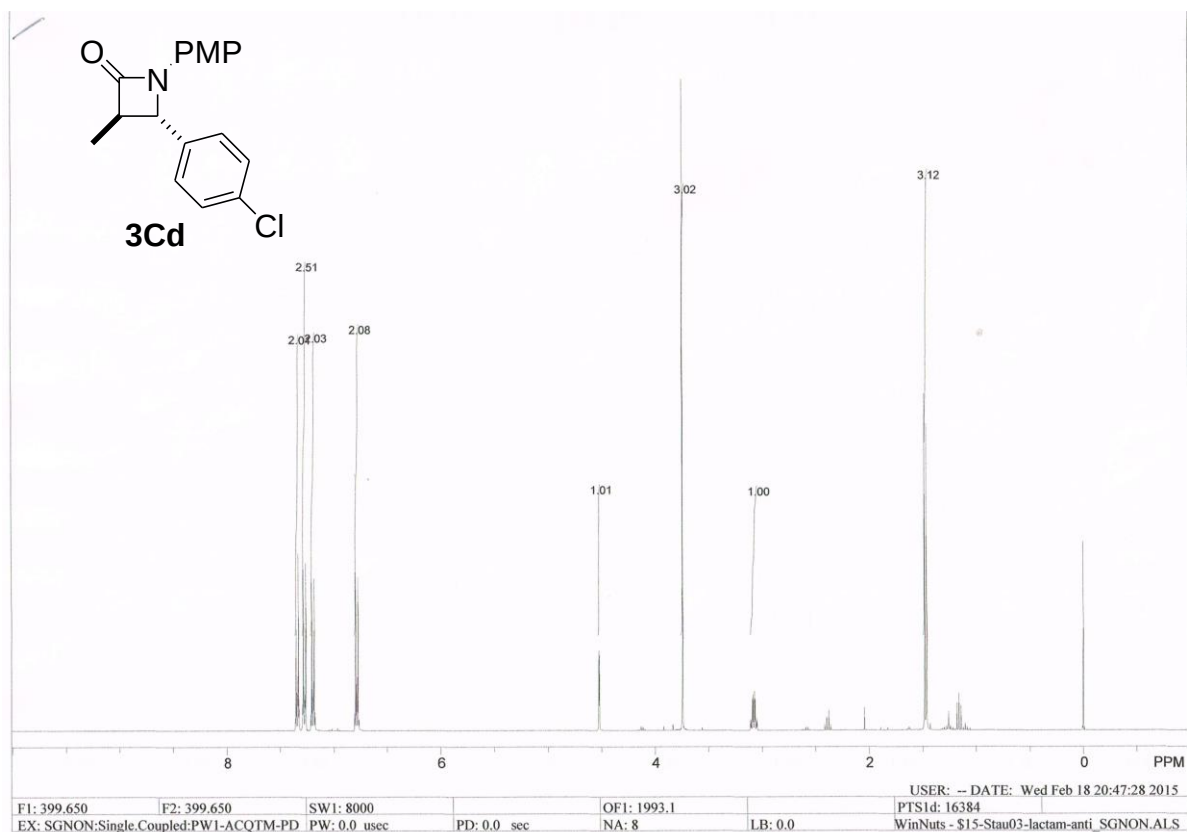


¹³C-NMR

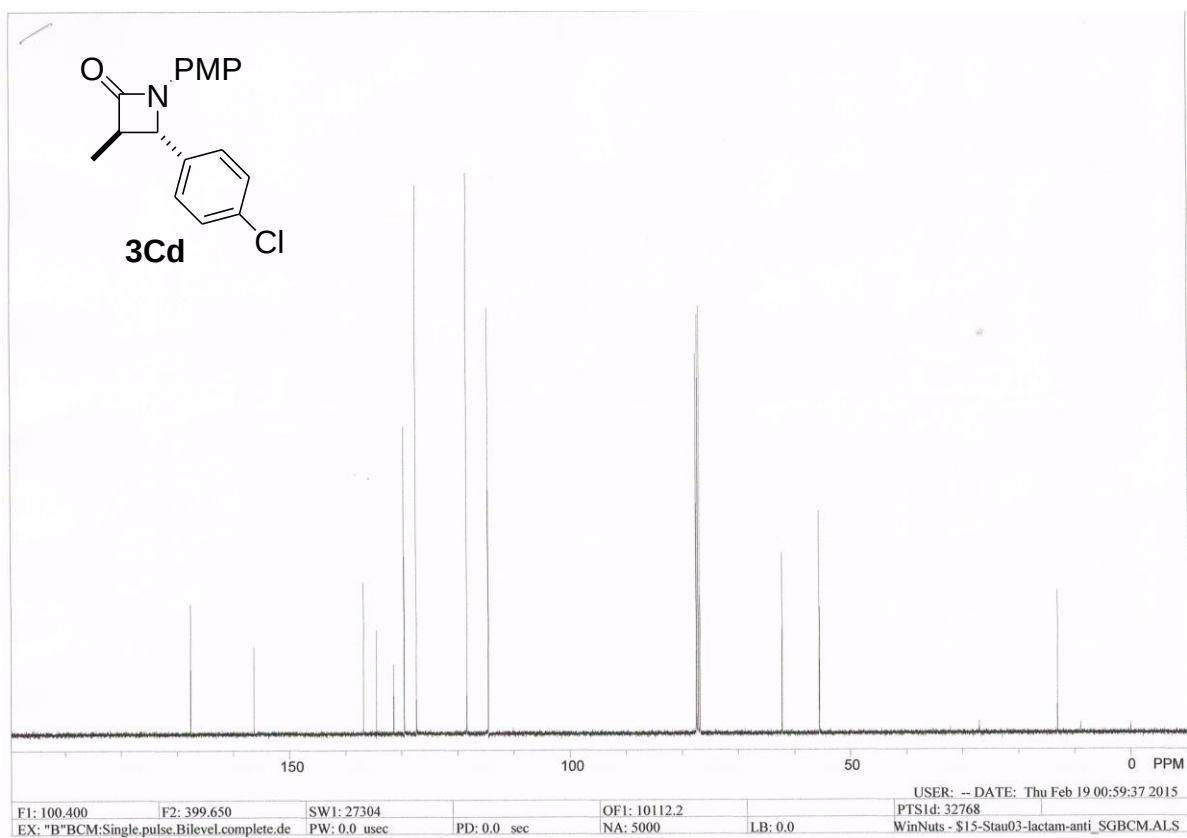


anti-3Cd

¹H-NMR

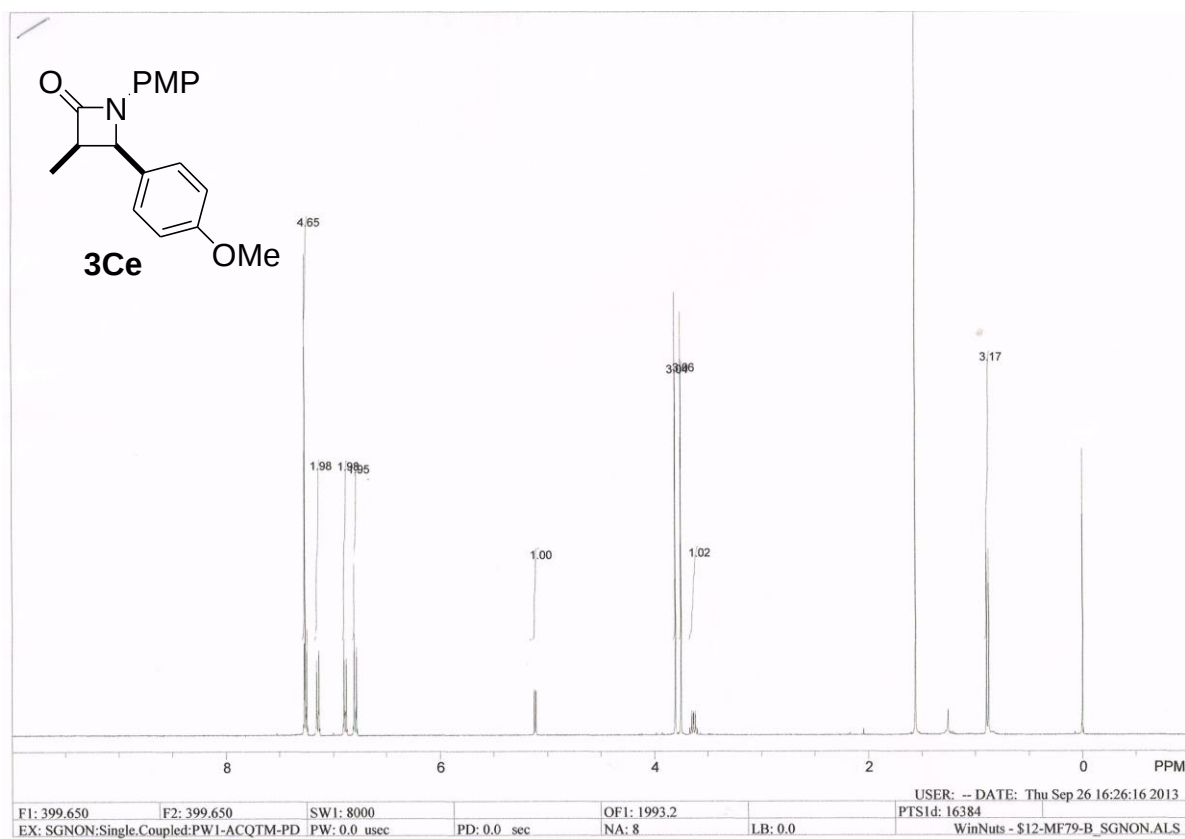


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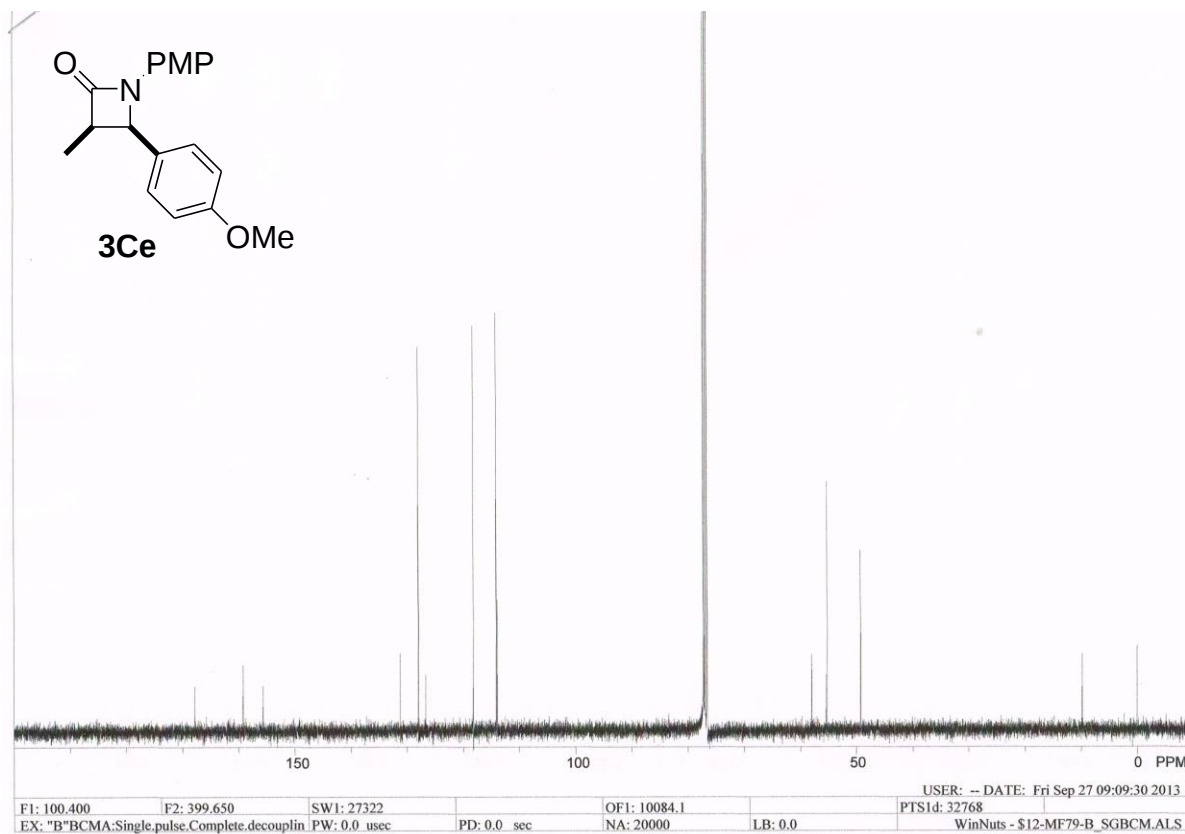


syn-3Ce

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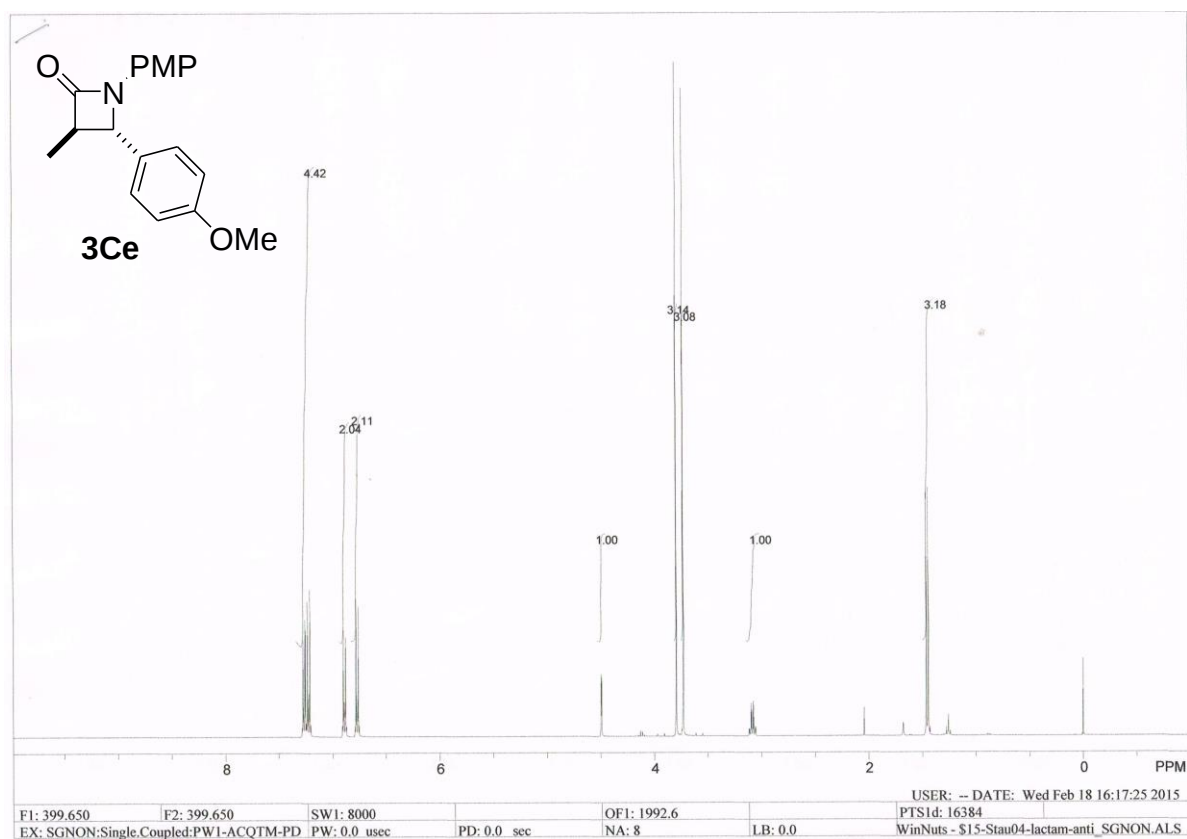


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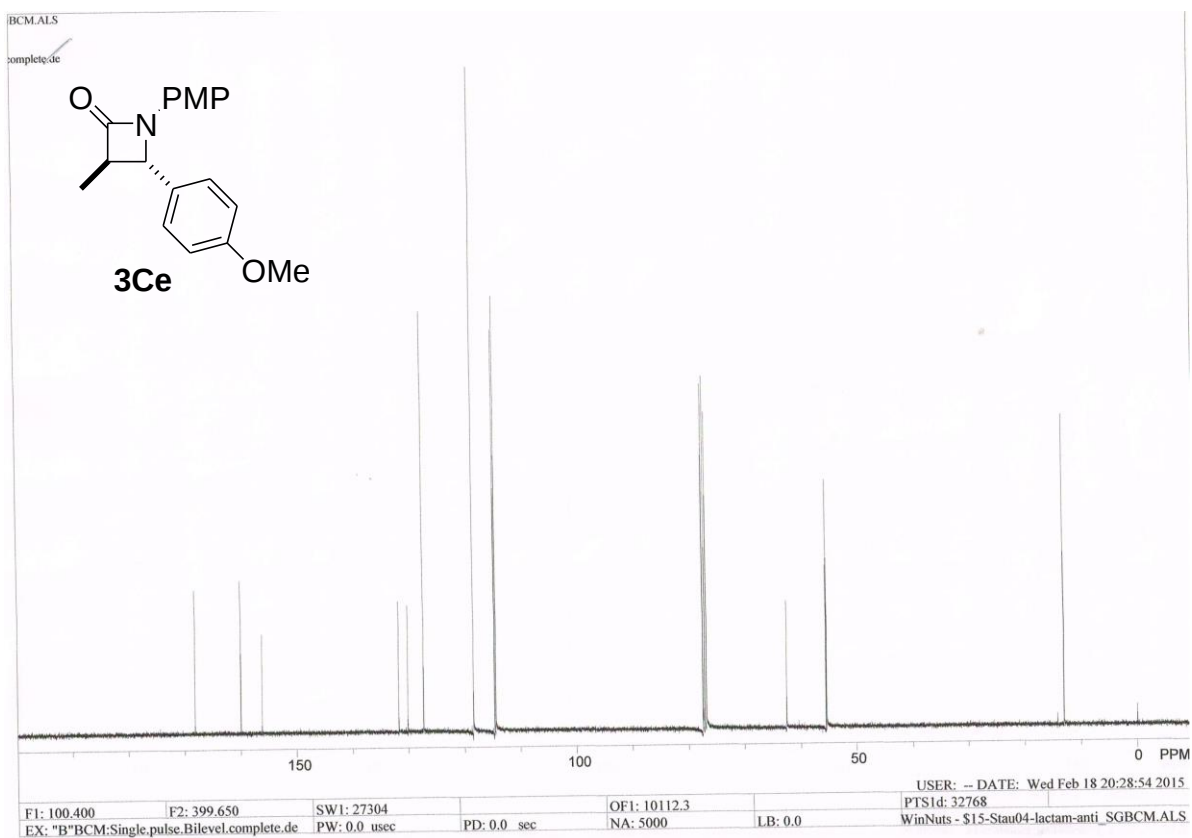


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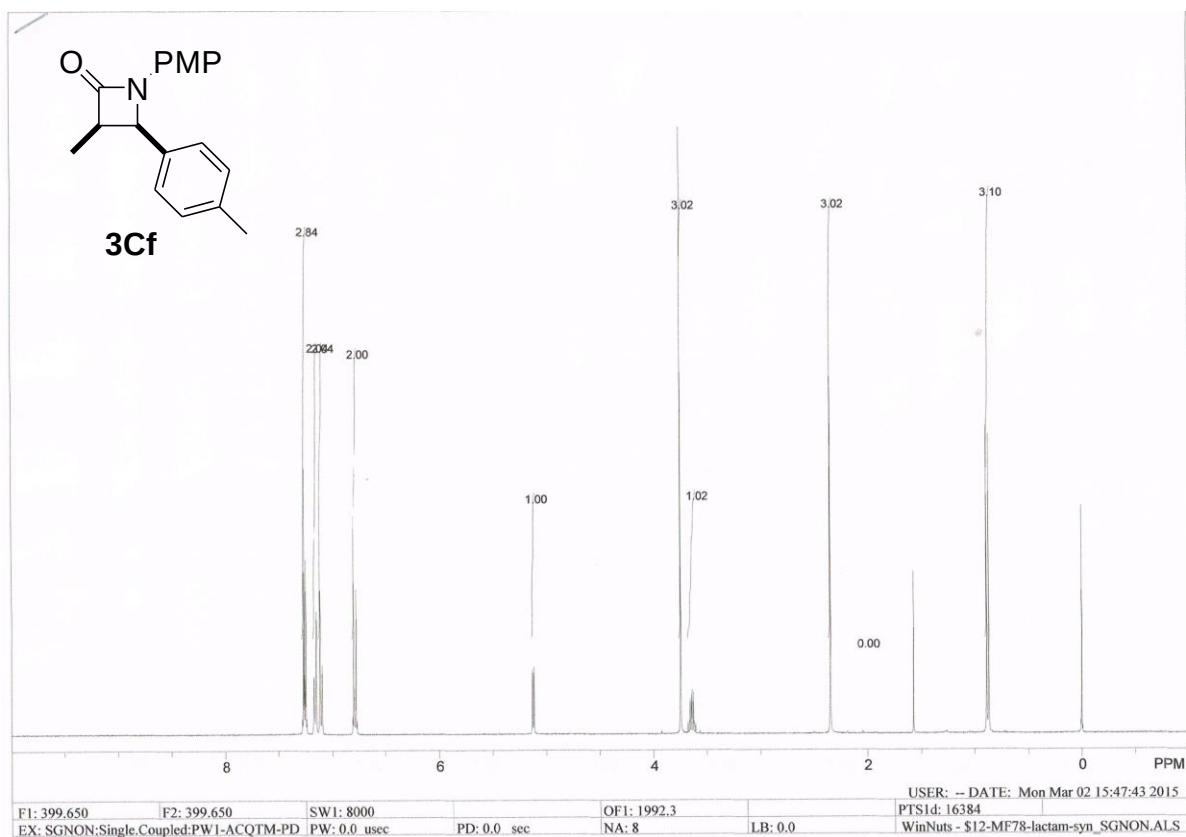


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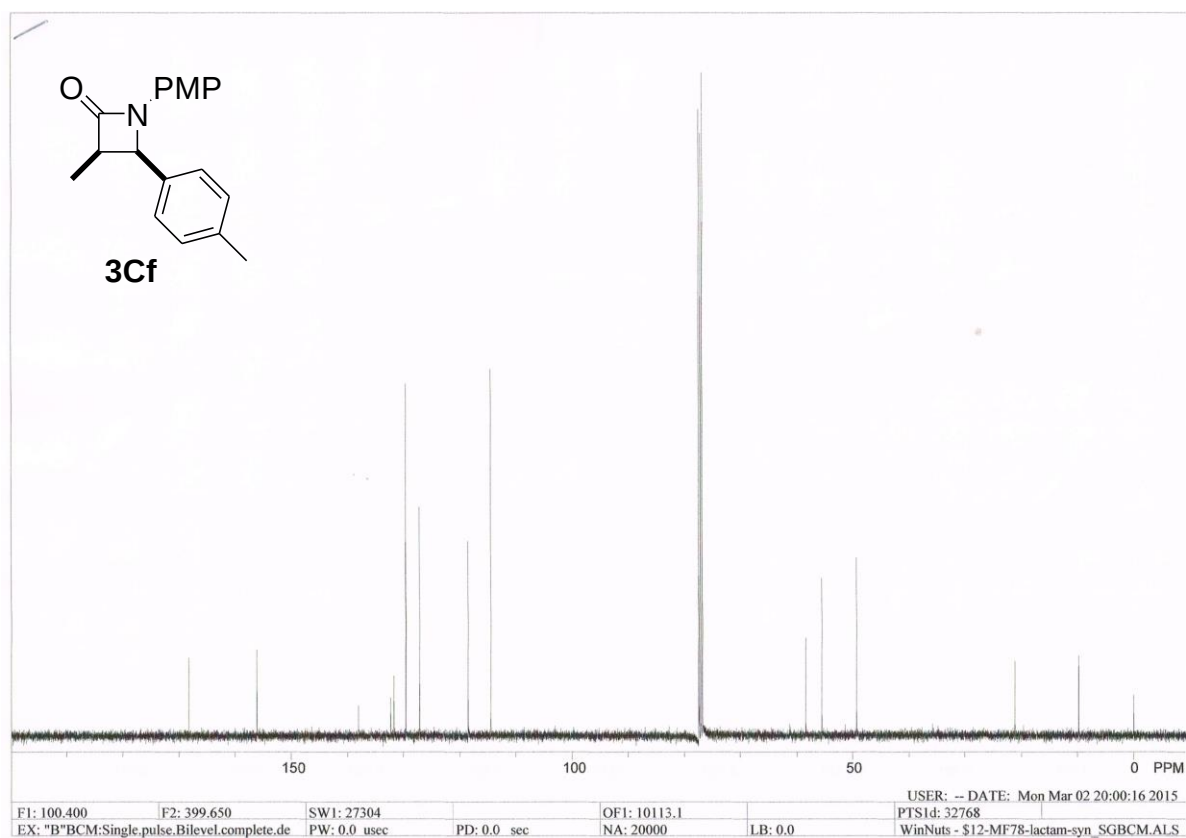


syn-3Cf

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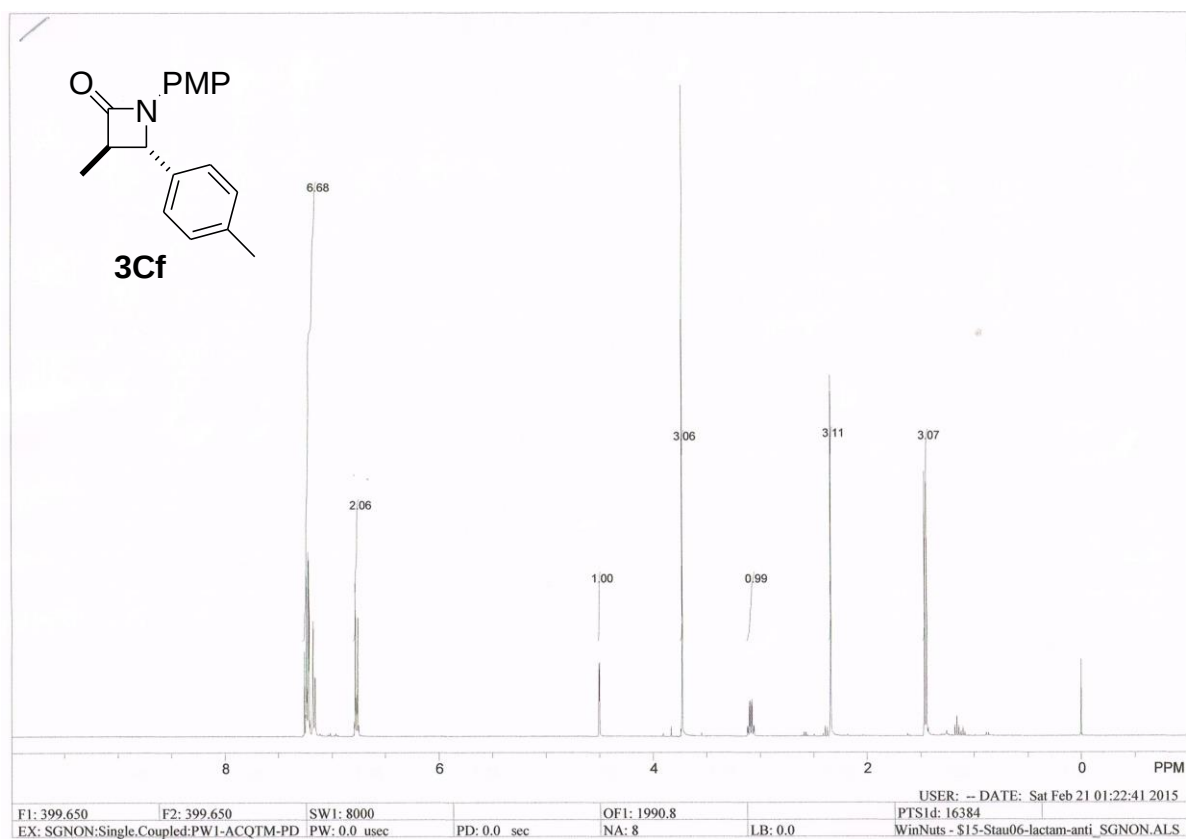


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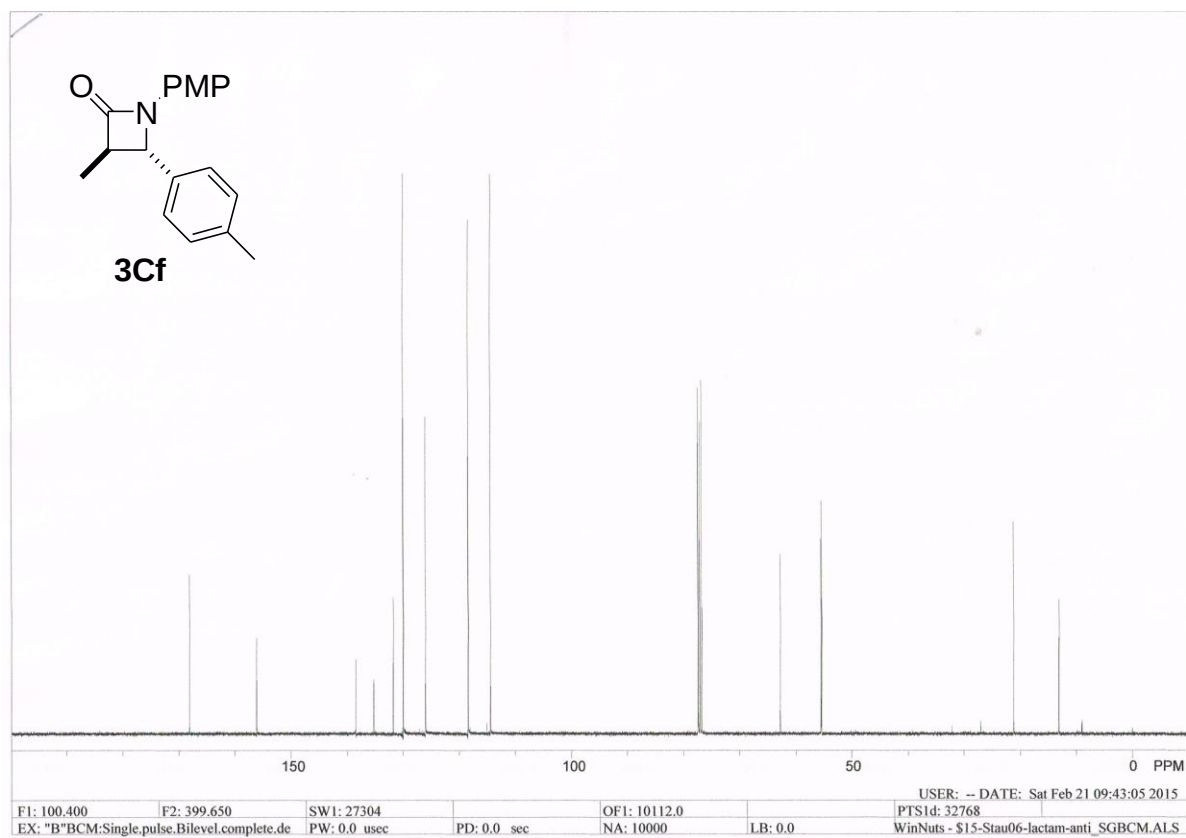


anti-3Cf

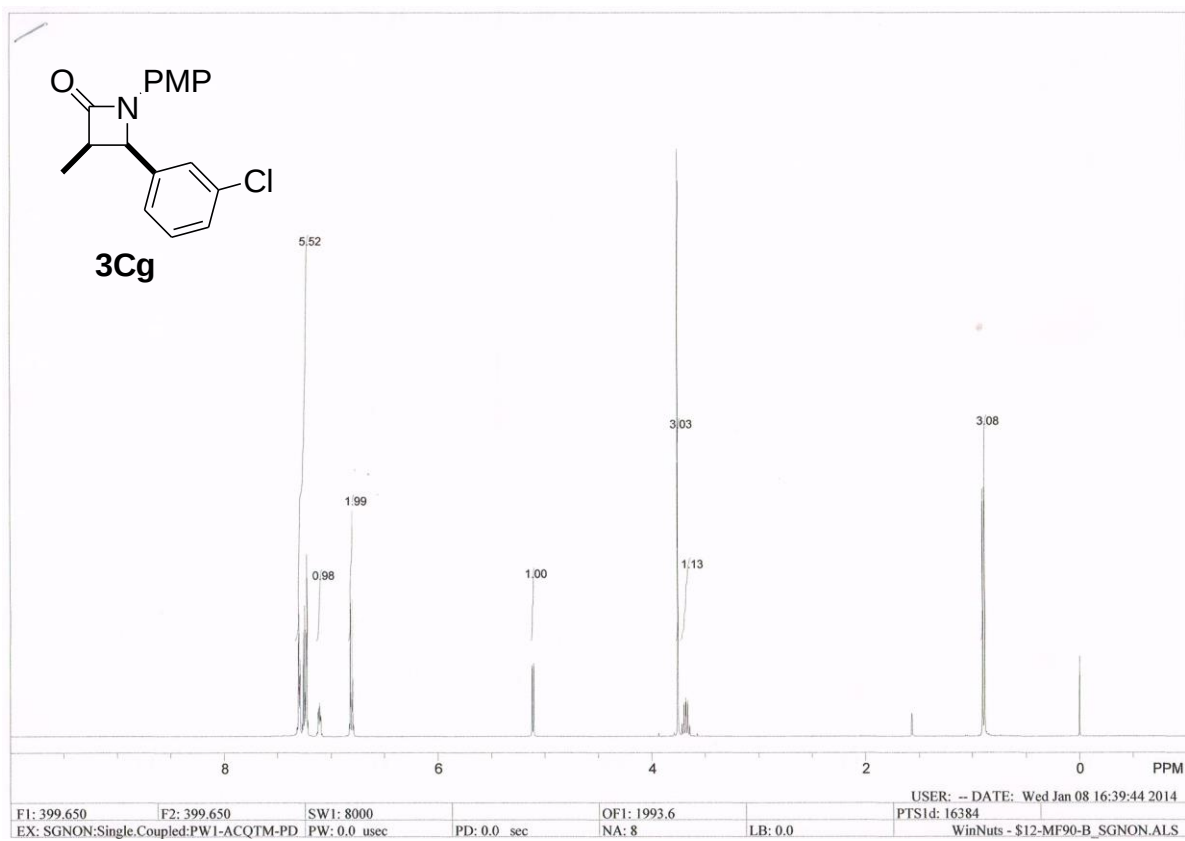
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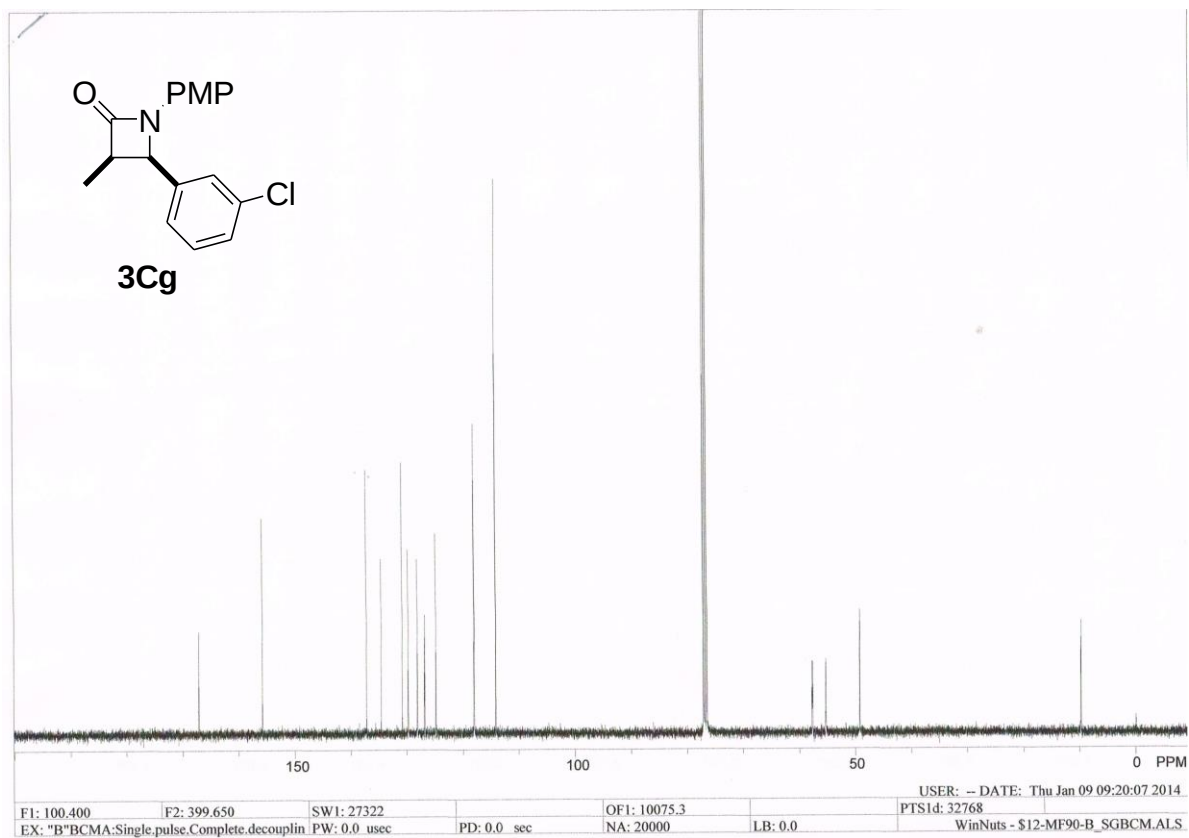
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syn-3Cg
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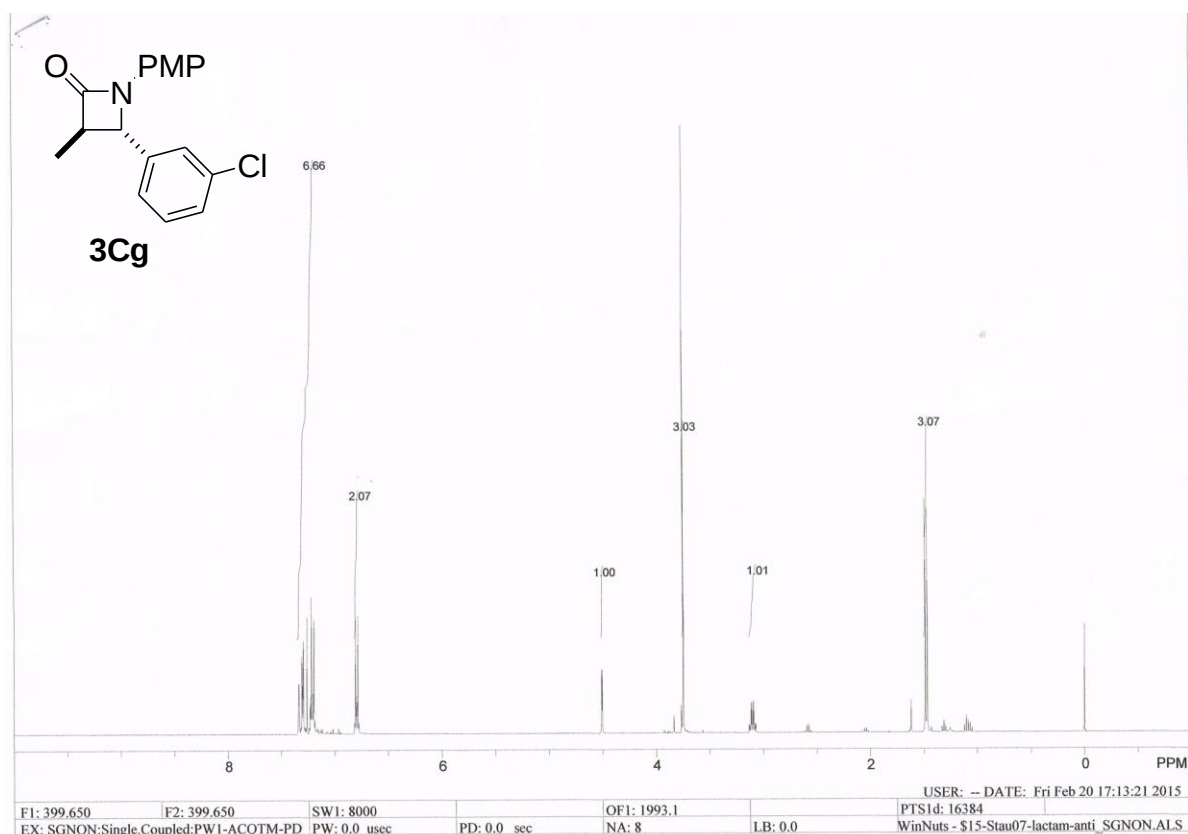


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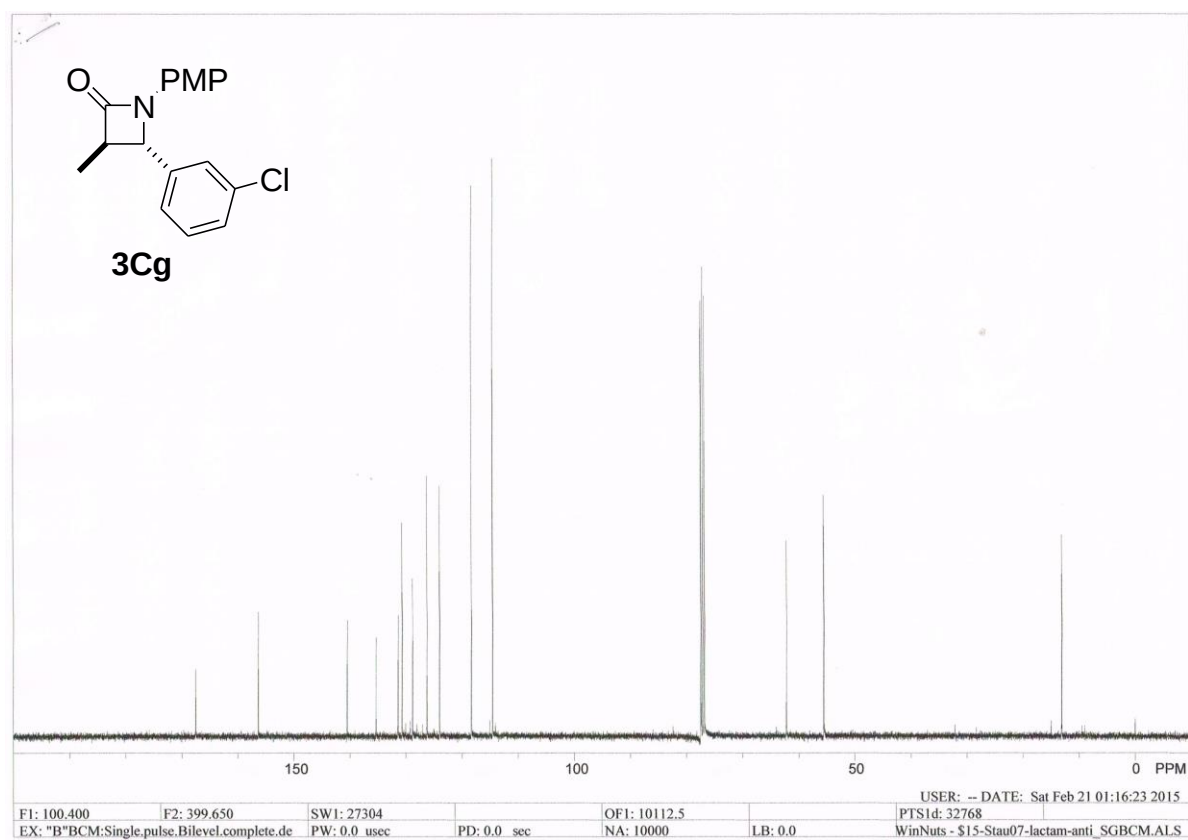


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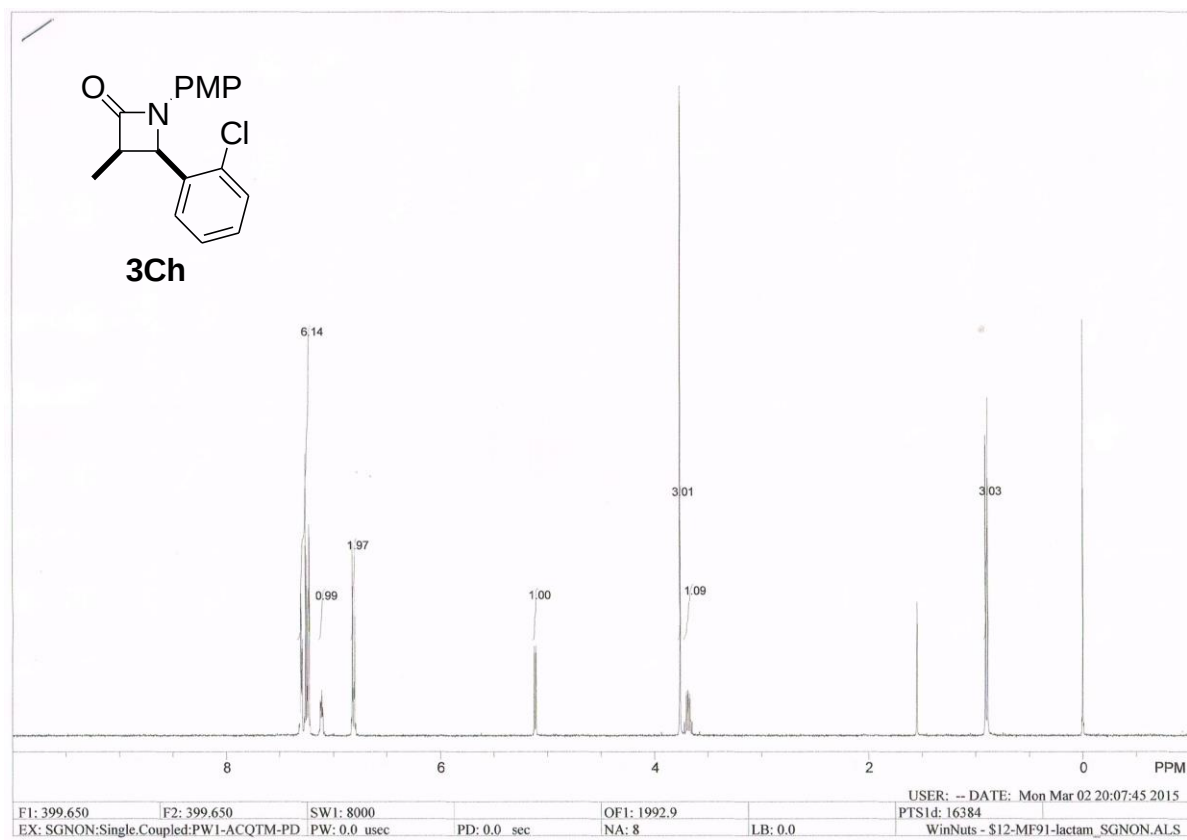
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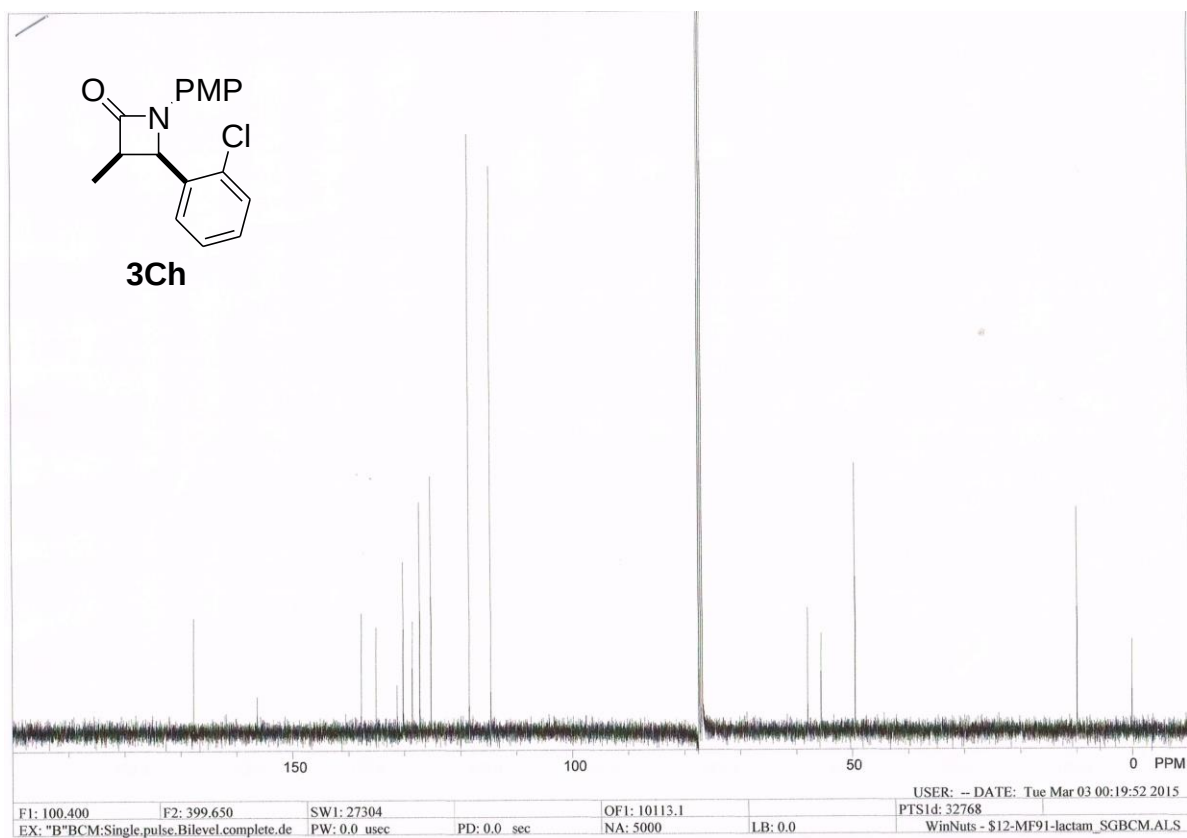
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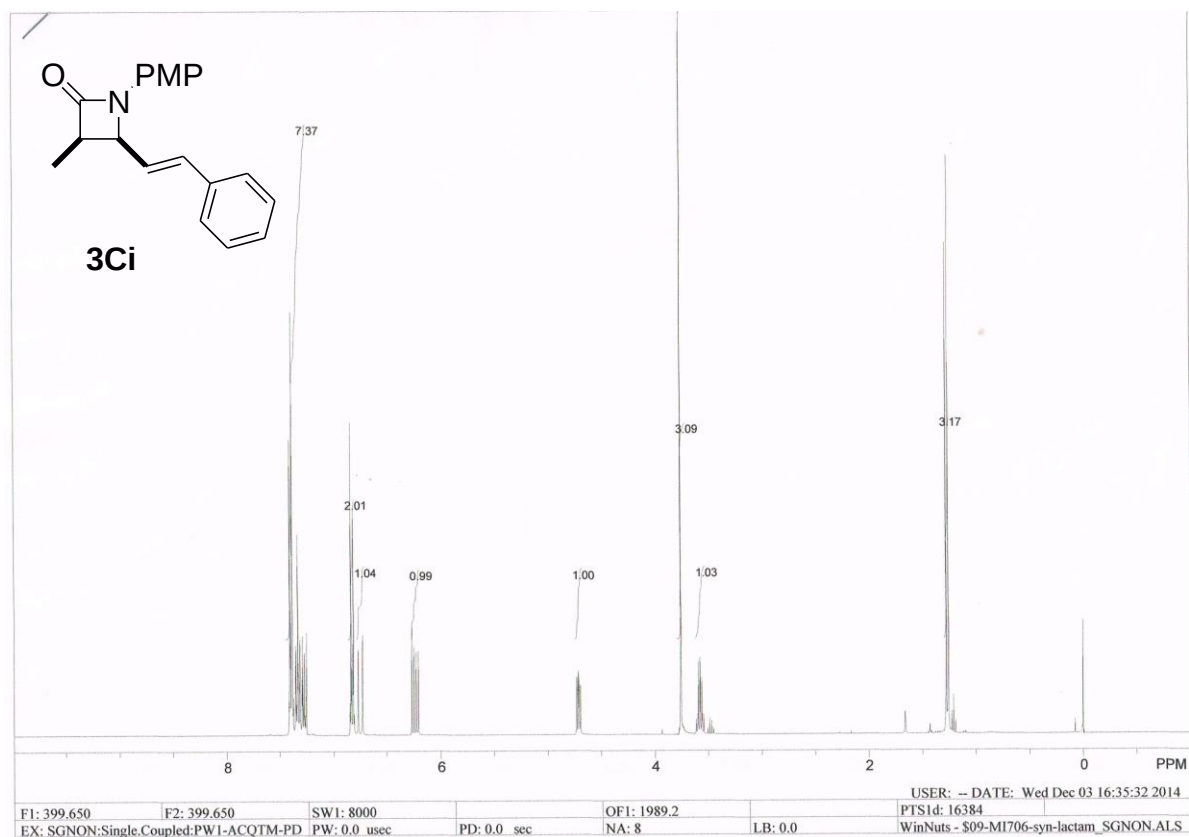
syn-3Ch
¹H-NMR



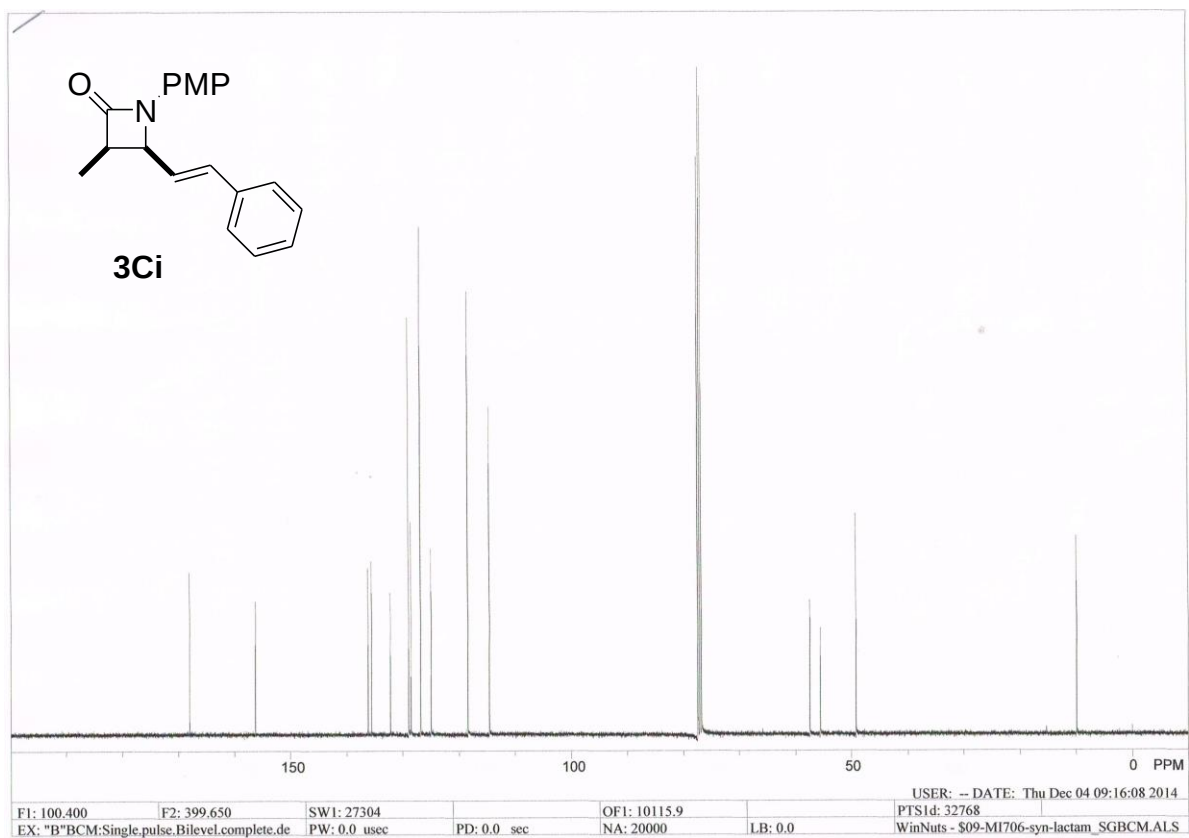
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syn-3Ci
¹H-NMR

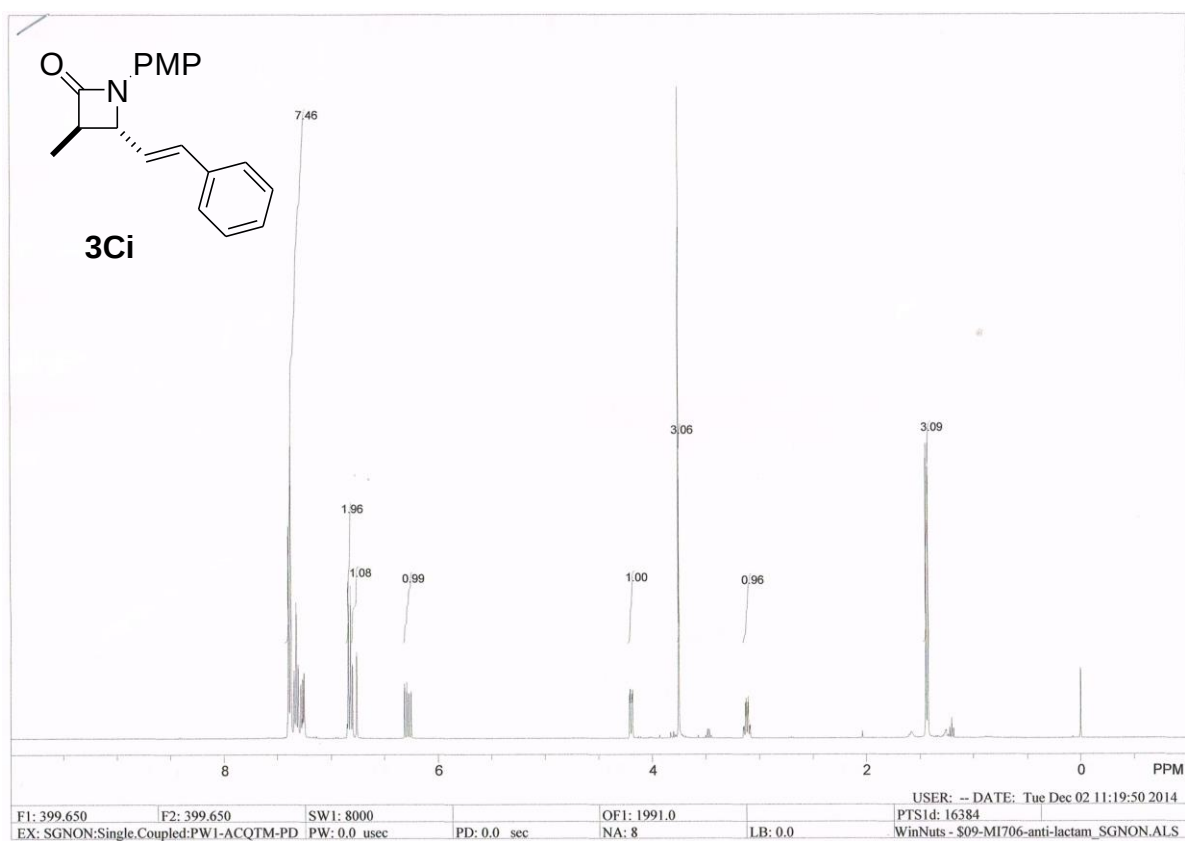


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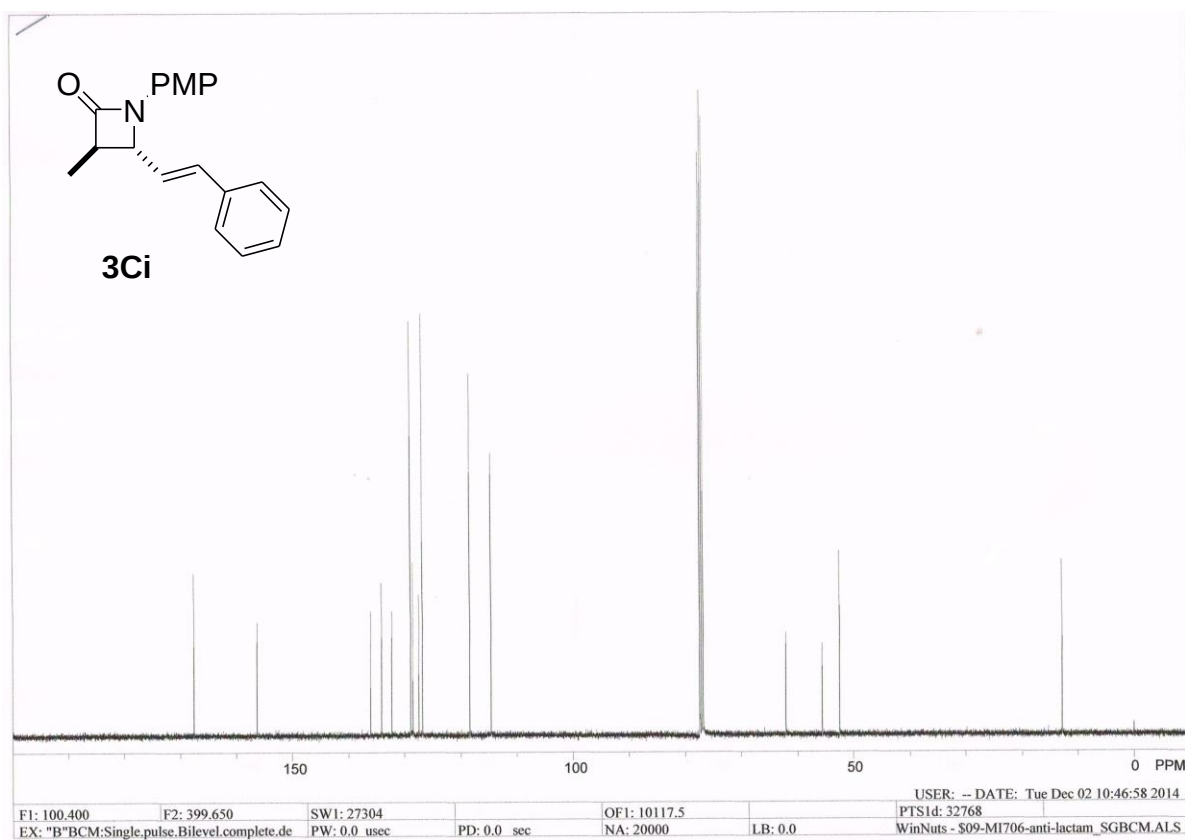


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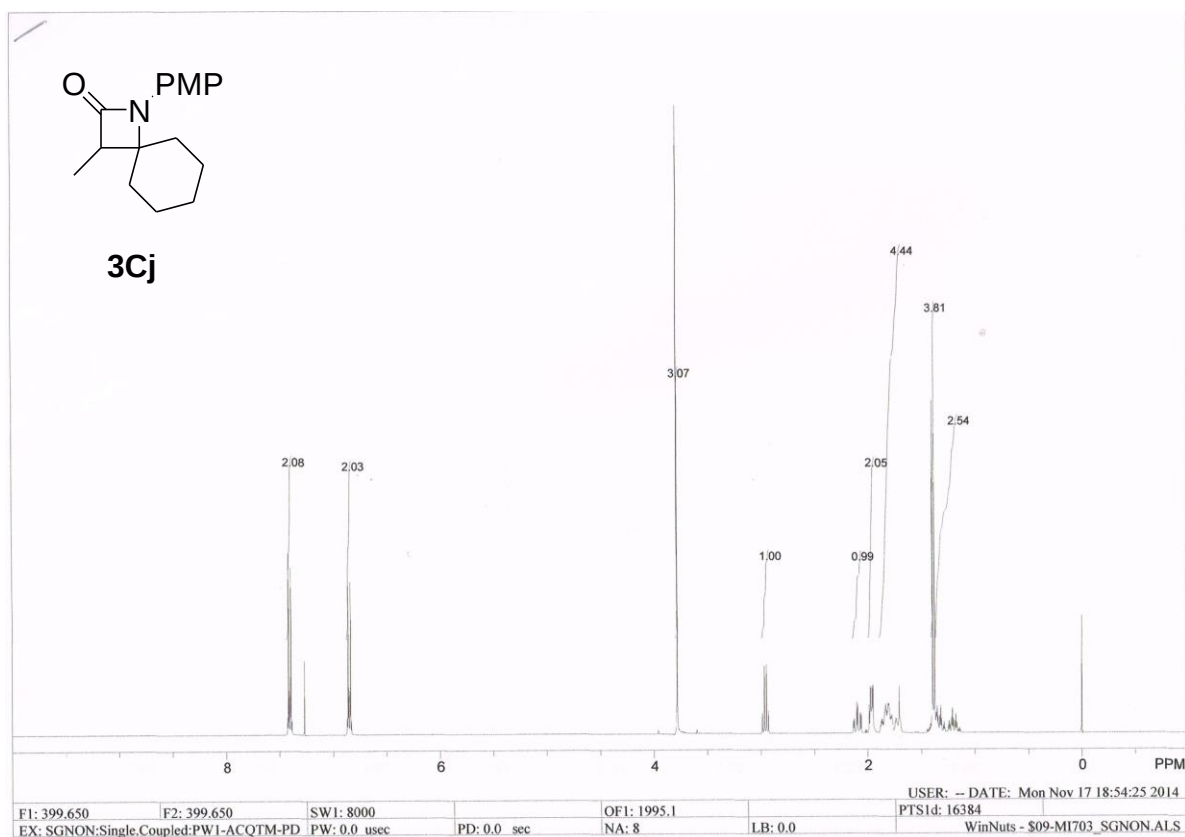
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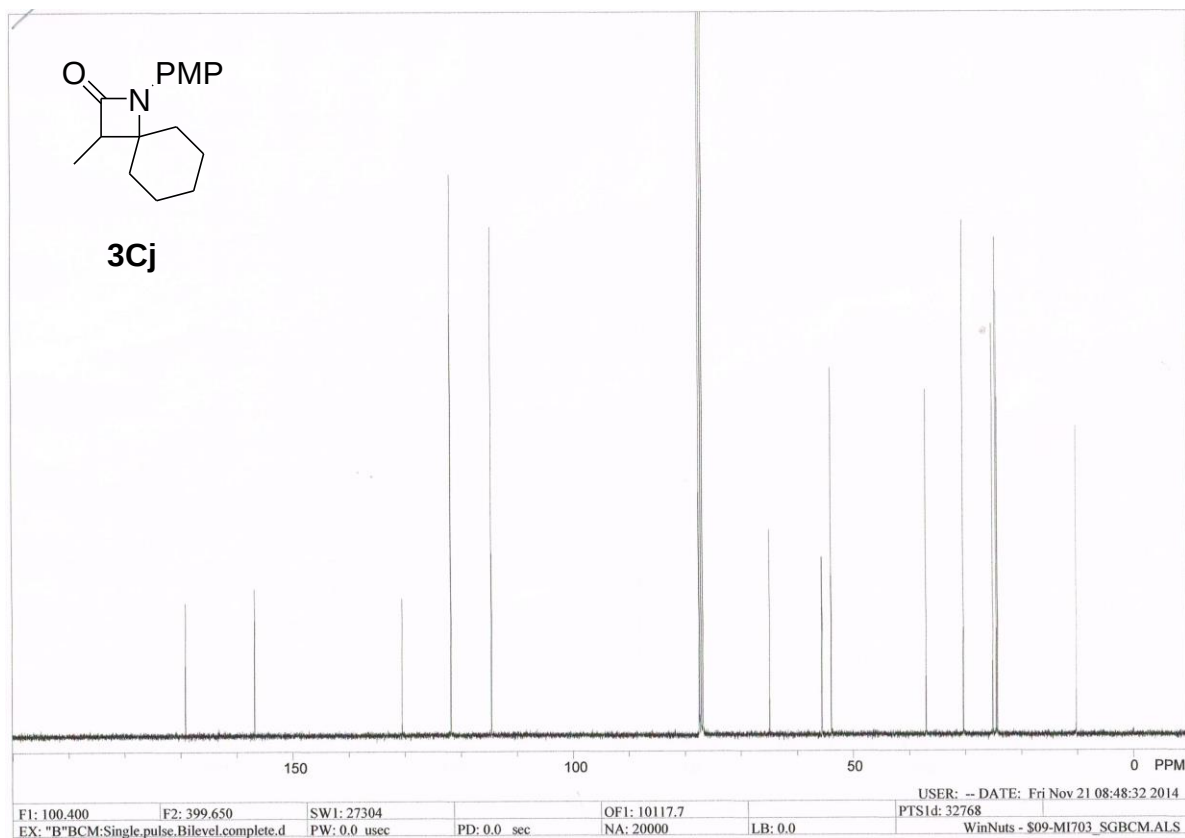
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3Cj
¹H-NMR

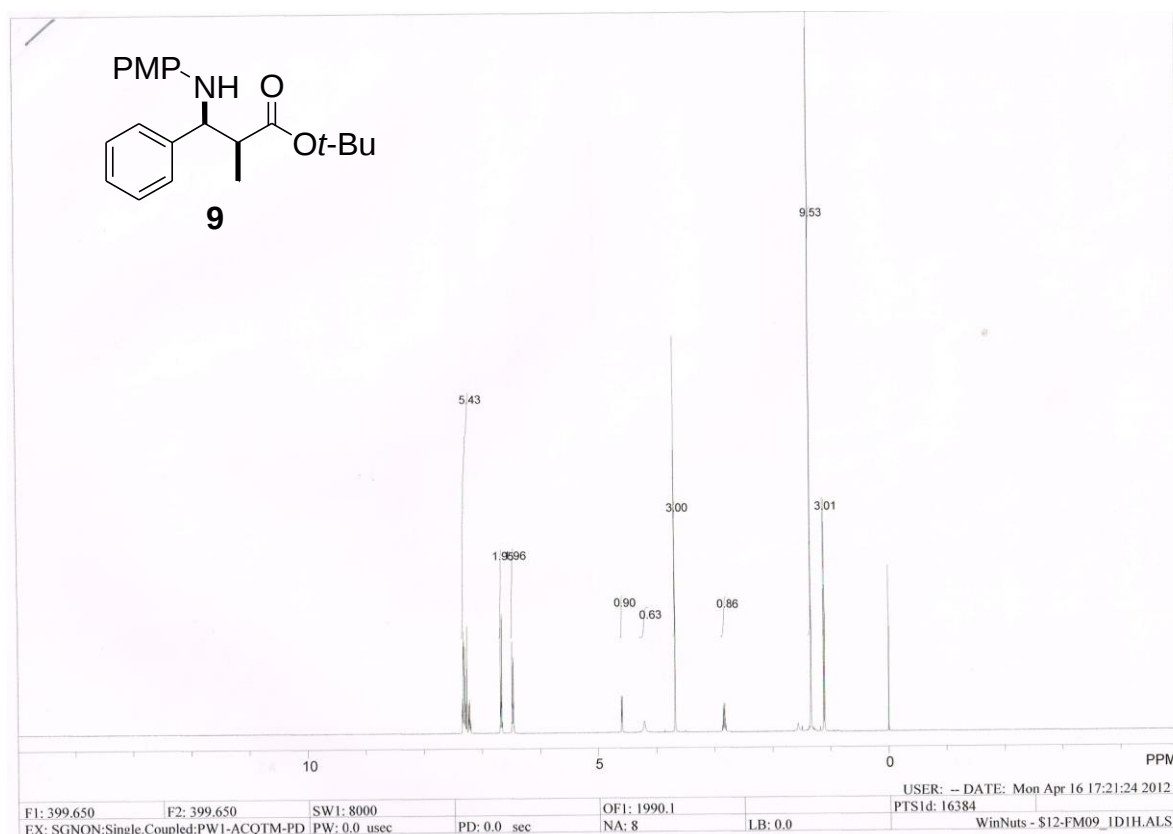


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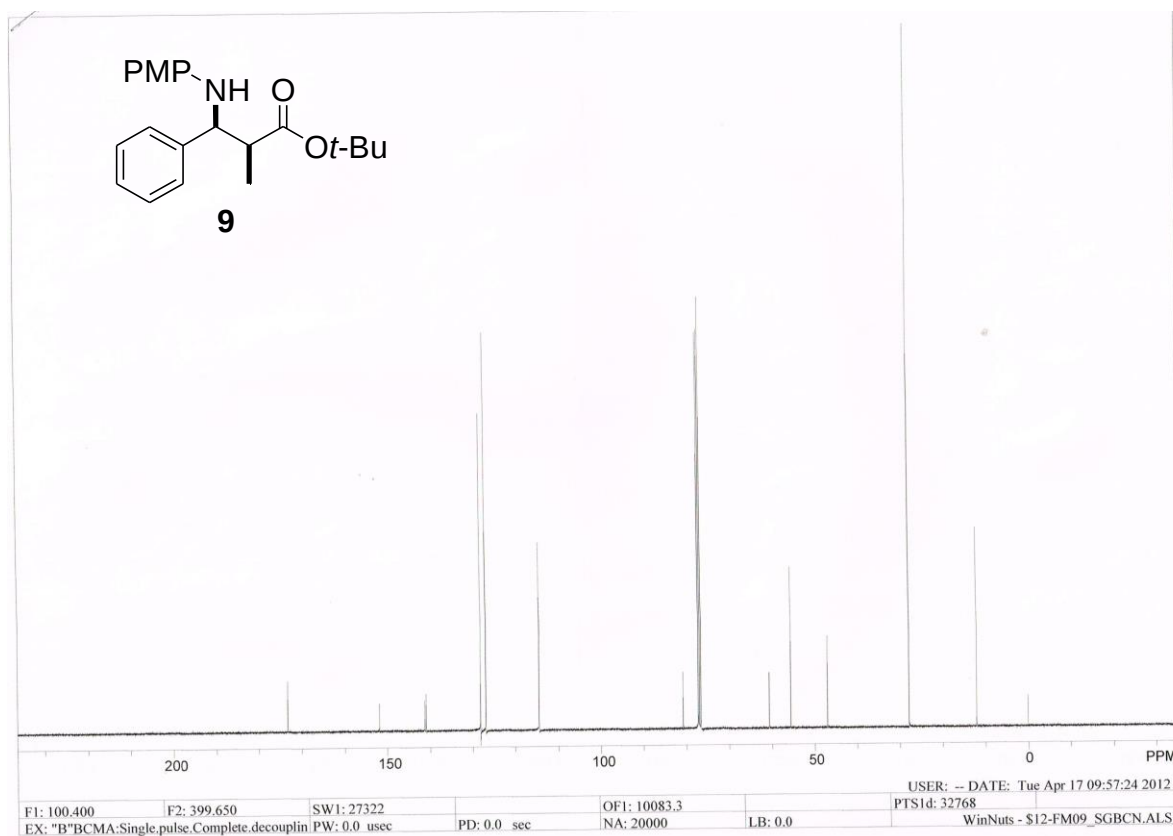


syn-9

¹H-NMR

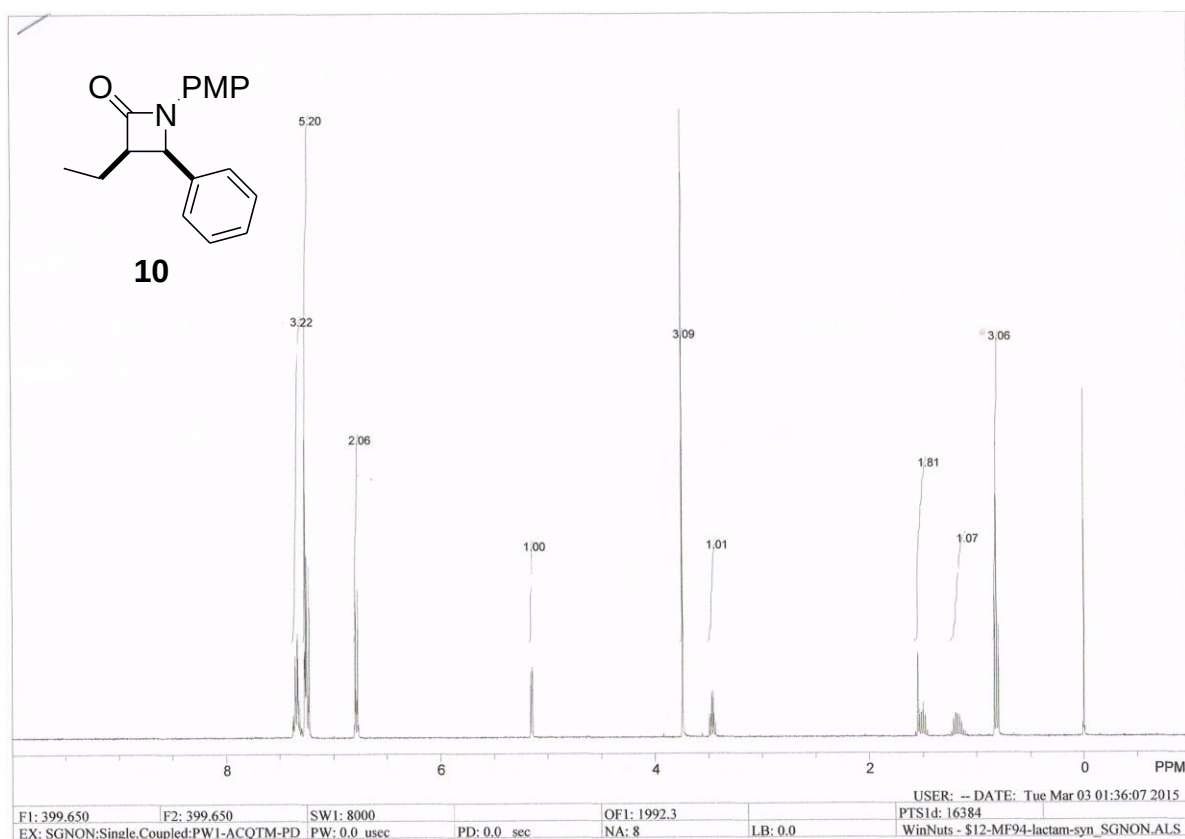


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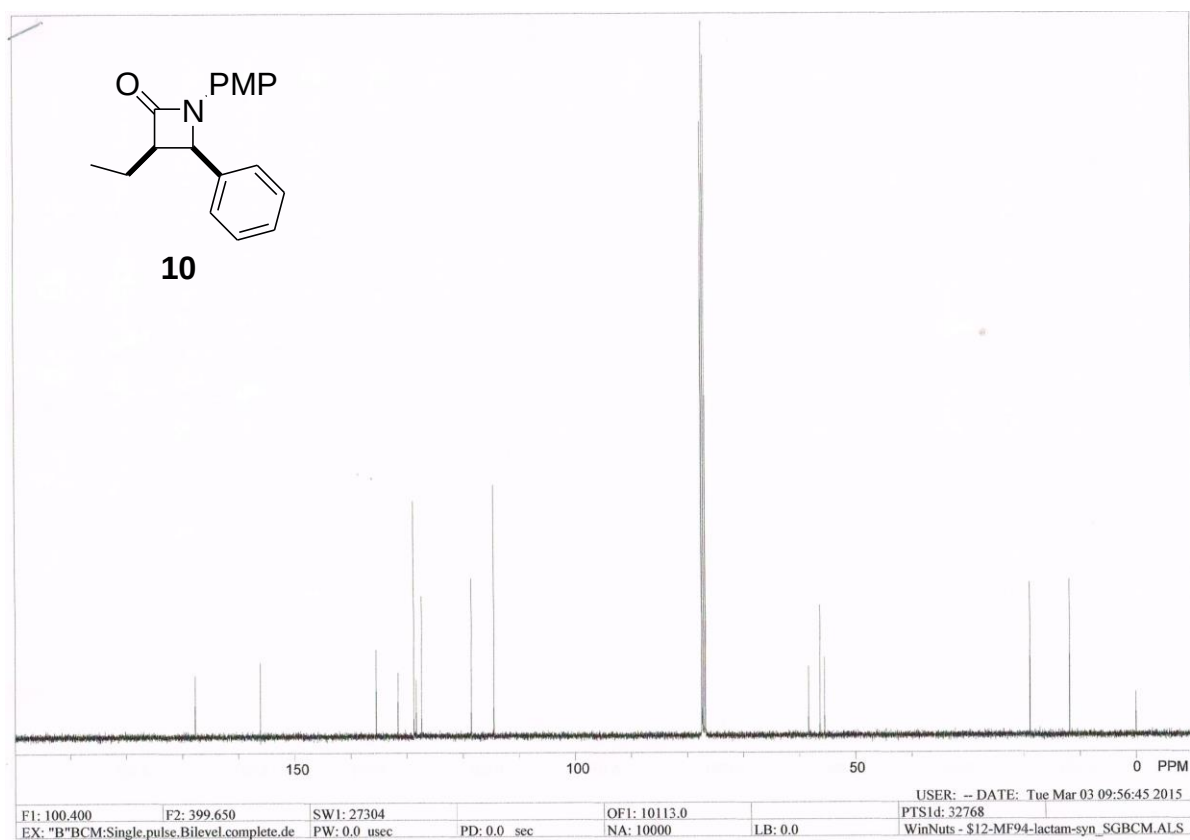


syn-10

¹H-NMR

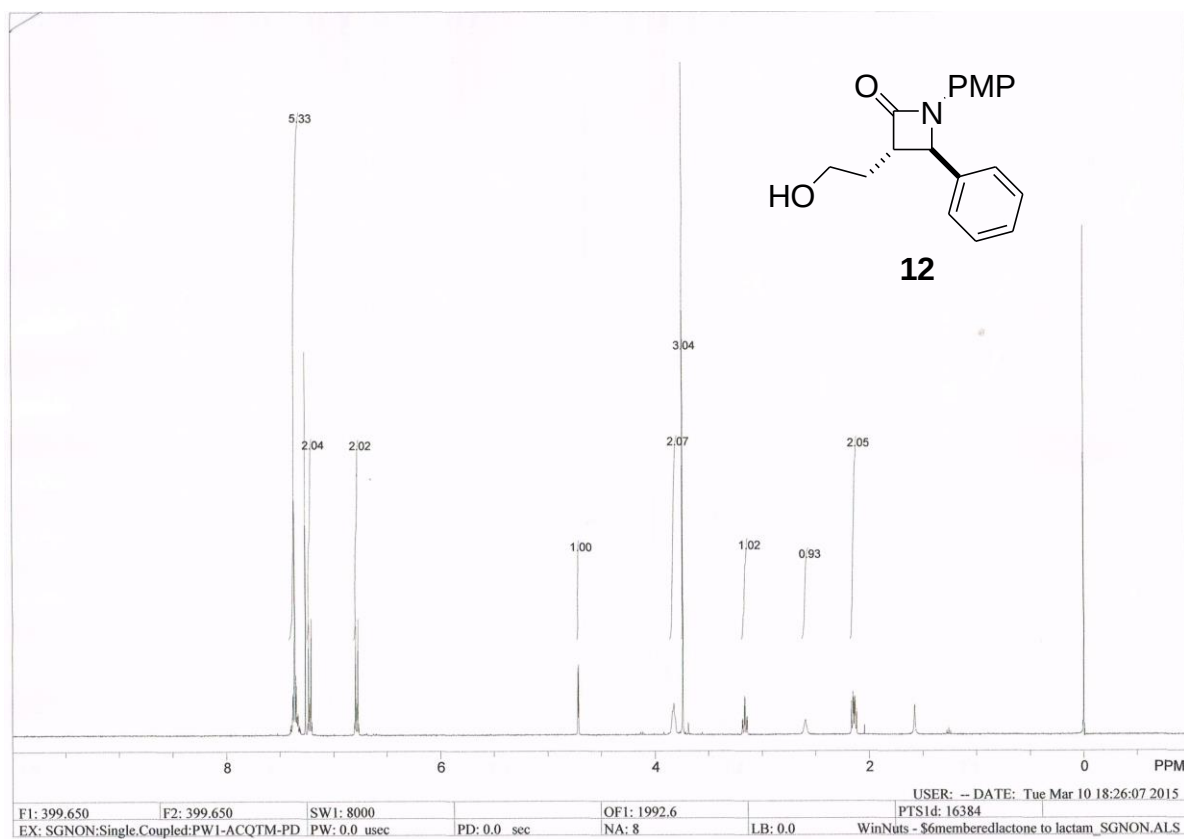


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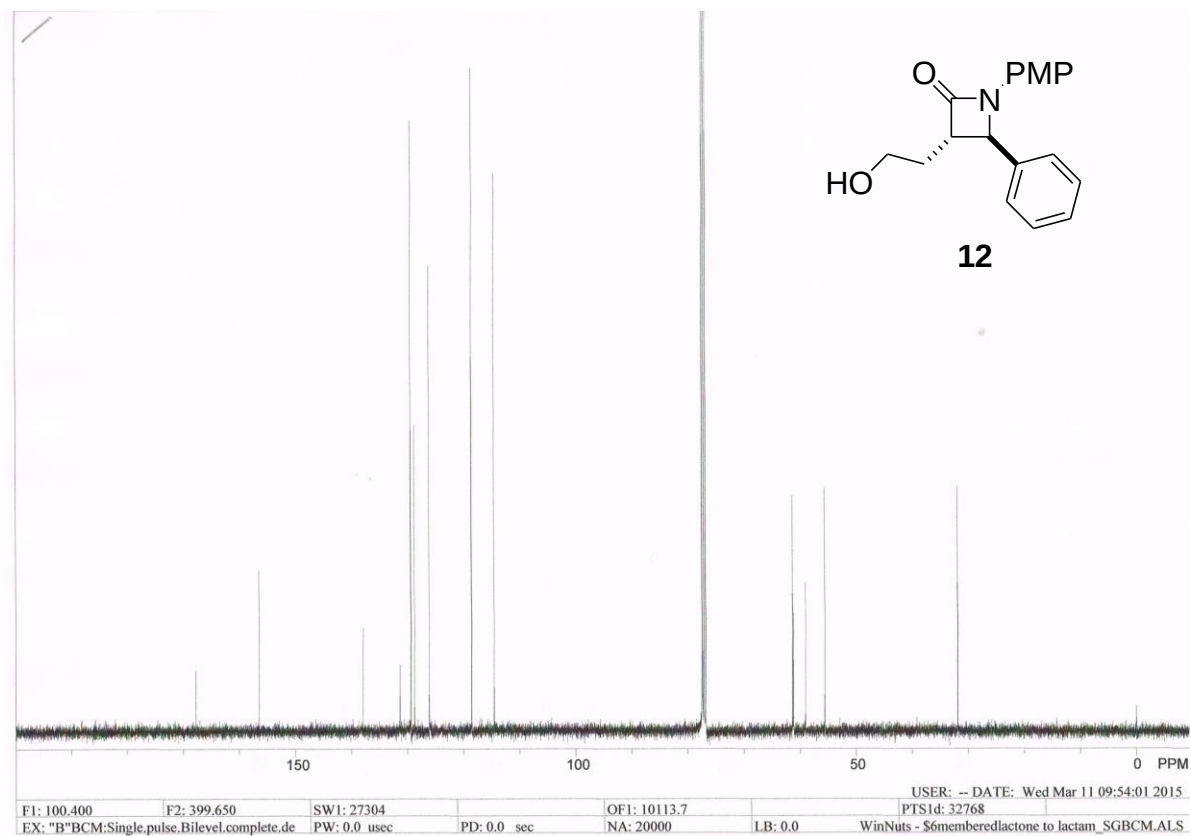


anti-12

¹H-NMR

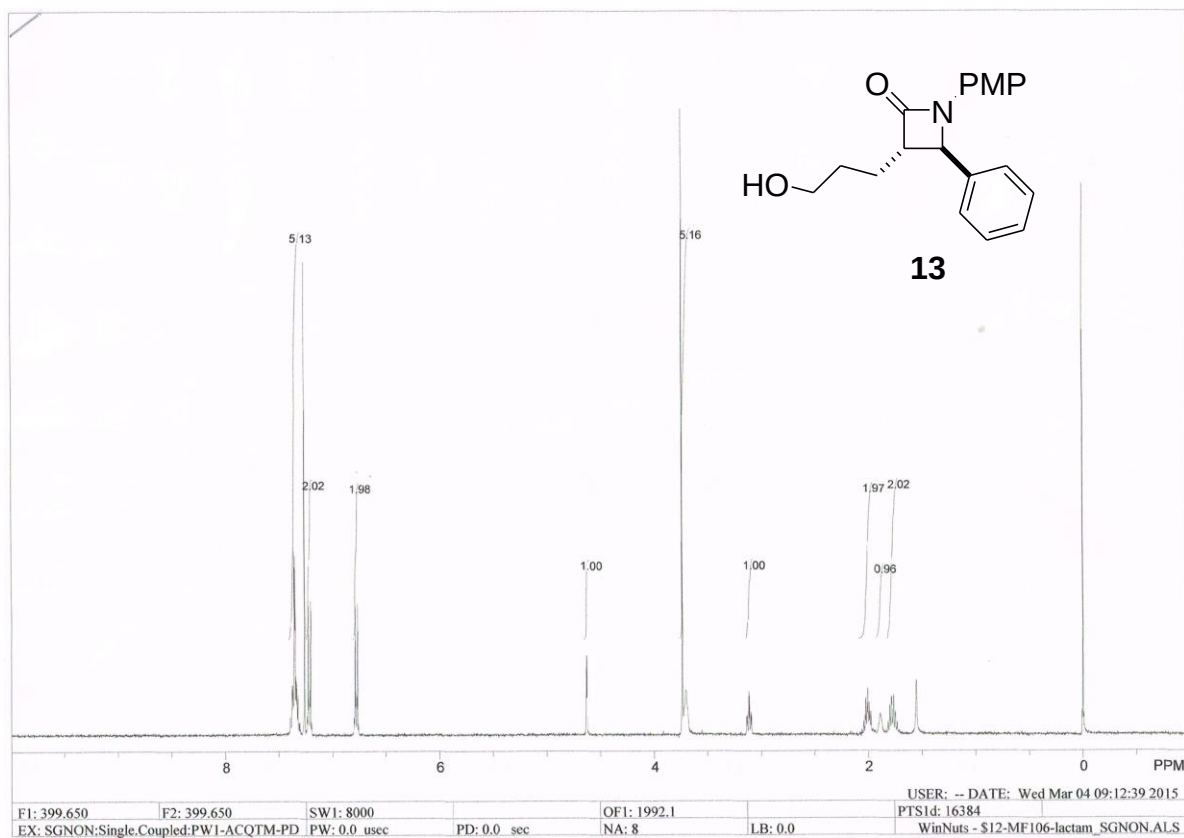


¹³C-NMR



anti-13

¹H-NMR



¹³C-NMR

