

## Supplementary Material

### Synthesis, neurotropic activity and SAR of new S-alkyl derivatives of 8-pyrazol-1-yl pyrano[3,4-c]pyridines

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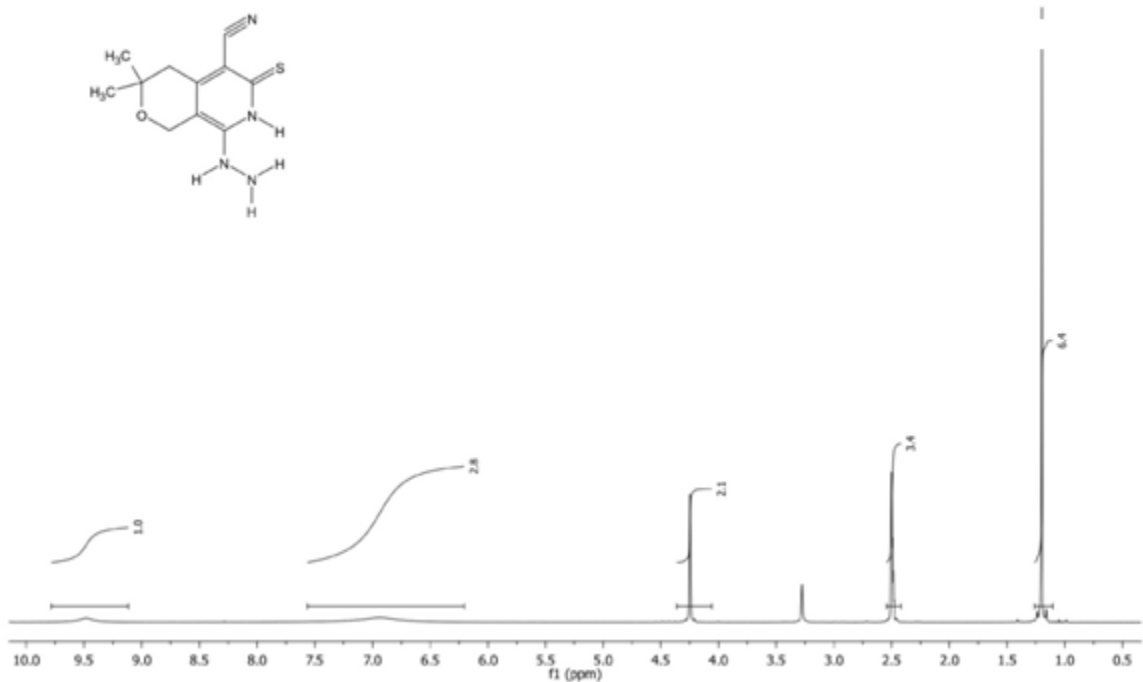
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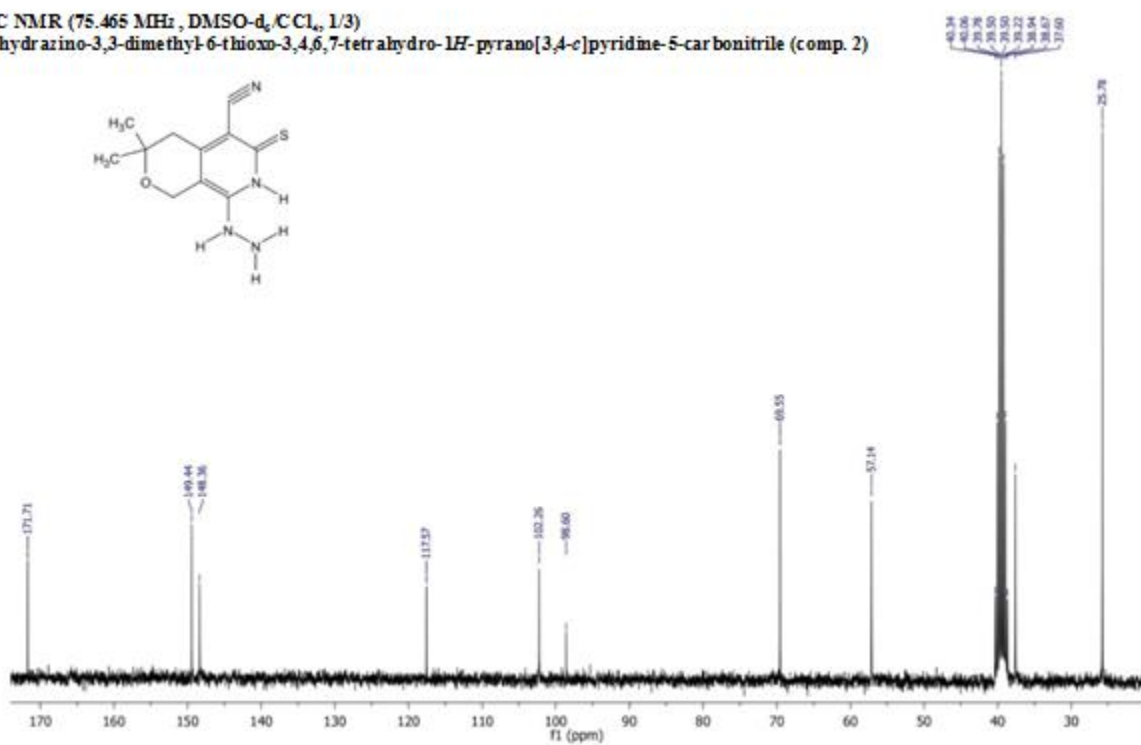
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<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)  
 8-hydrazino-3,3-dimethyl-6-thioxo-3,4,6,7-tetrahydro-1H-pyrano[3,4-c]pyridine-5-carbonitrile (comp. 2)

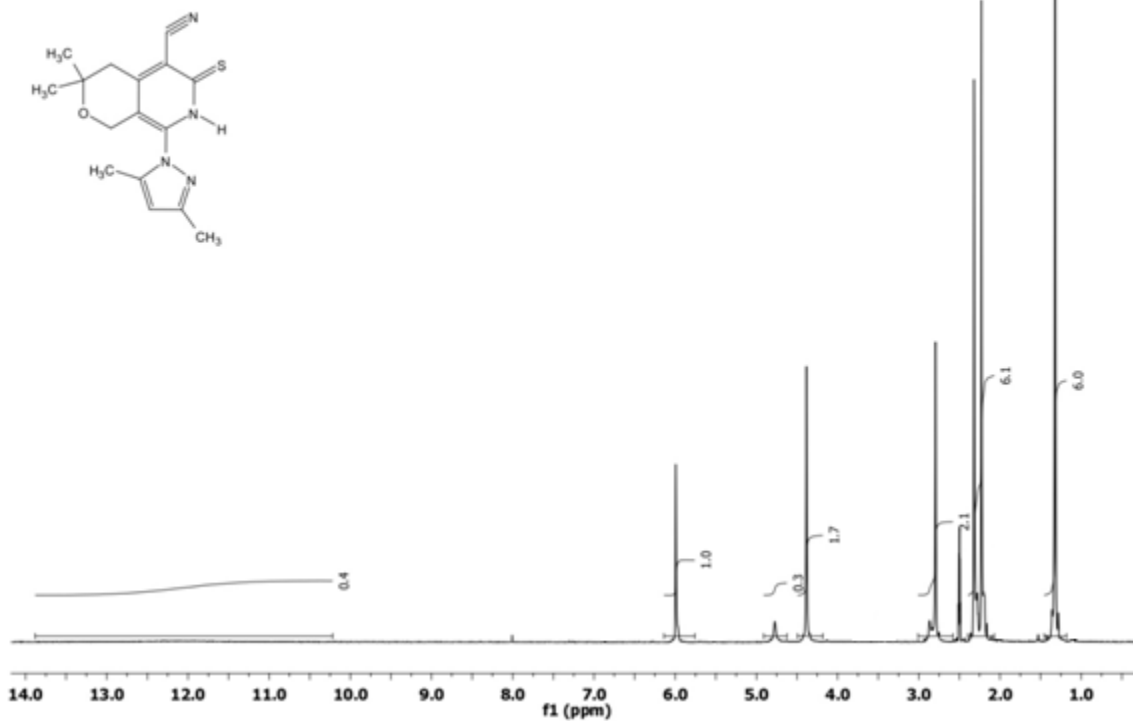


<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)  
 8-hydrazino-3,3-dimethyl-6-thioxo-3,4,6,7-tetrahydro-1H-pyrano[3,4-c]pyridine-5-carbonitrile (comp. 2)



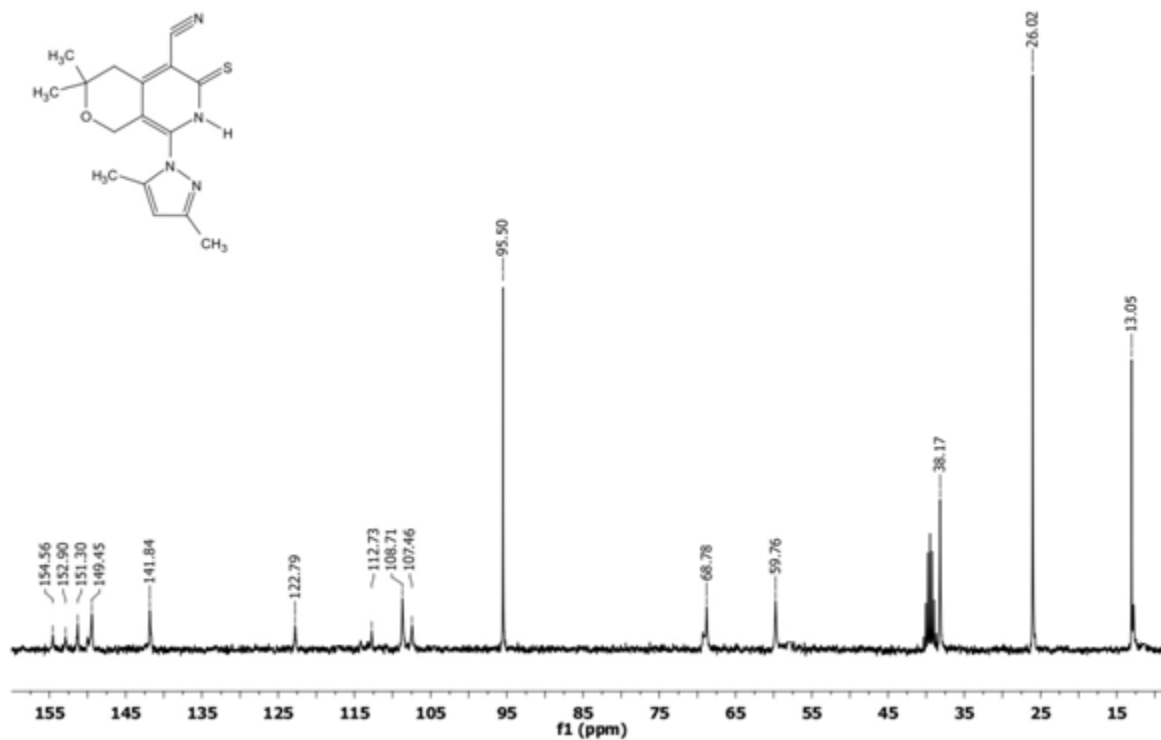
<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-6-thioxo-3,4,6,7-tetrahydro-1*H*-pyrano[3,4-*c*]pyridine-5-carbonitrile (comp. 3)



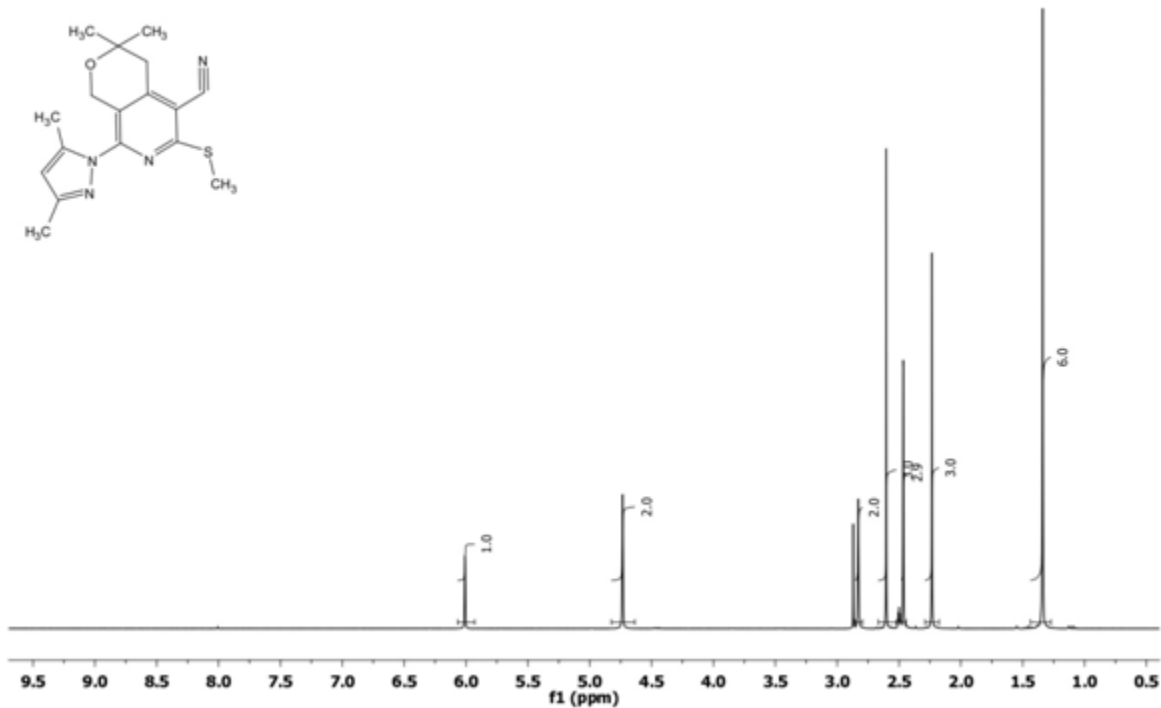
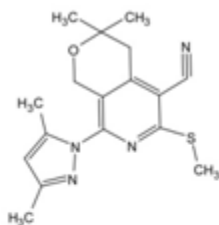
<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-6-thioxo-3,4,6,7-tetrahydro-1*H*-pyrano[3,4-*c*]pyridine-5-carbonitrile (comp. 3)



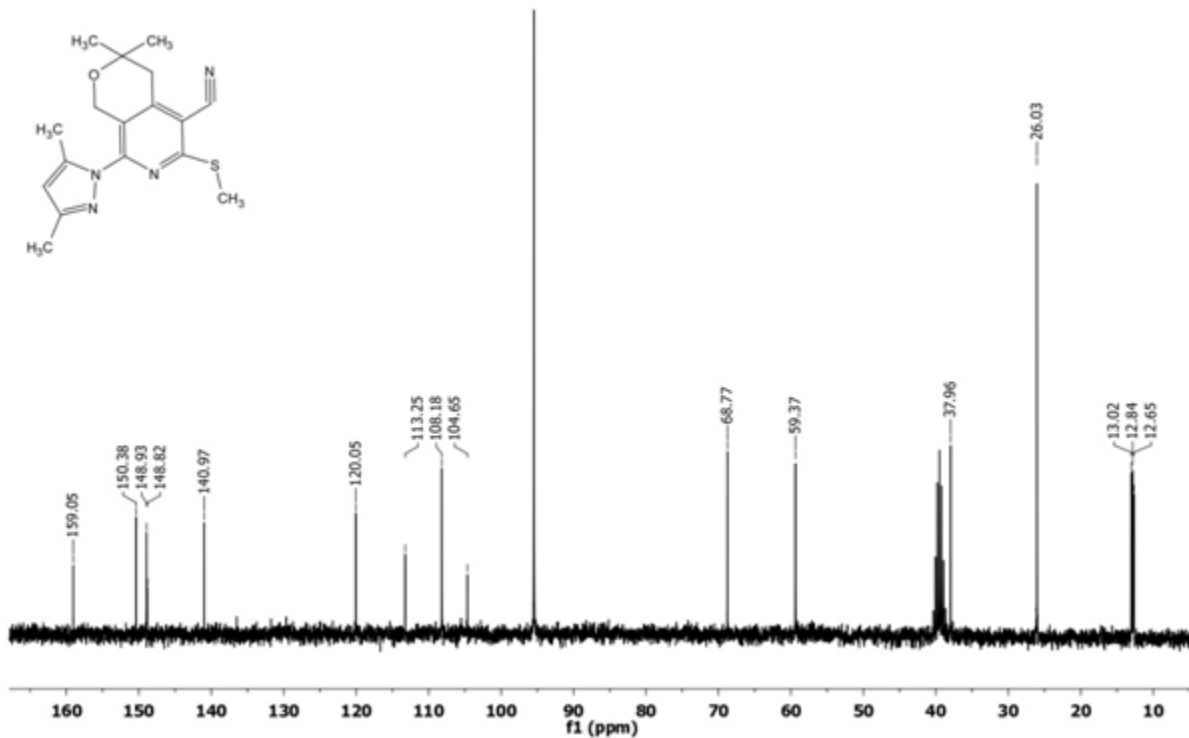
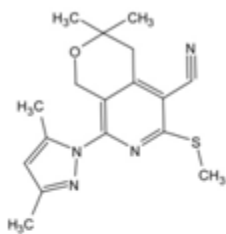
<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-Dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-6-(methylthio)-3,4-dihydro-1*H*-pyrano[3,4-*c*]pyridine-5-carbonitrile (comp. 4a)



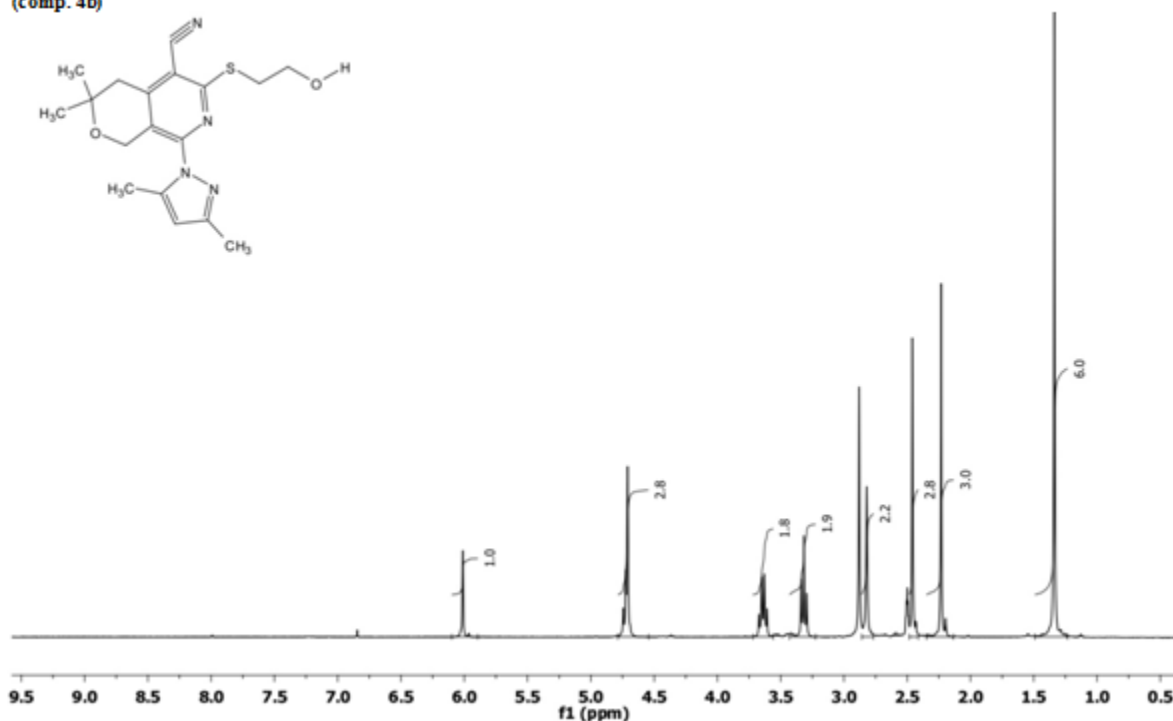
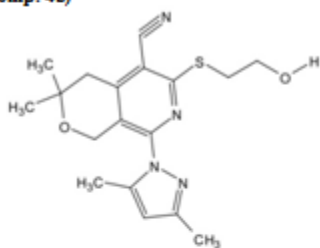
<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-Dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-6-(methylthio)-3,4-dihydro-1*H*-pyrano[3,4-*c*]pyridine-5-carbonitrile (comp. 4a)



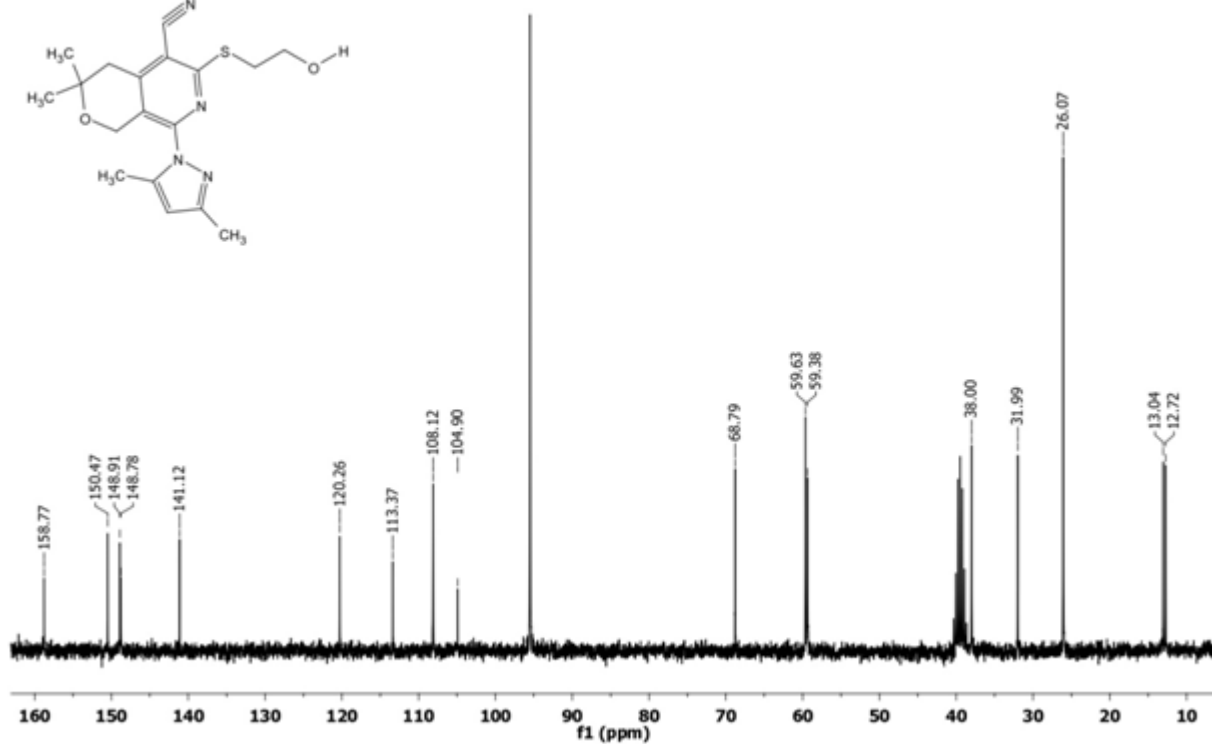
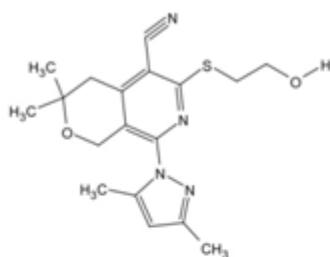
<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-dimethyl-1H-pyrazol-1-yl)-6-[(2-hydroxyethyl)thio]-3,3-dimethyl-3,4-dihydro-1H-pyrano[3,4-c]pyridine-5-carbonitrile (comp. 4b)



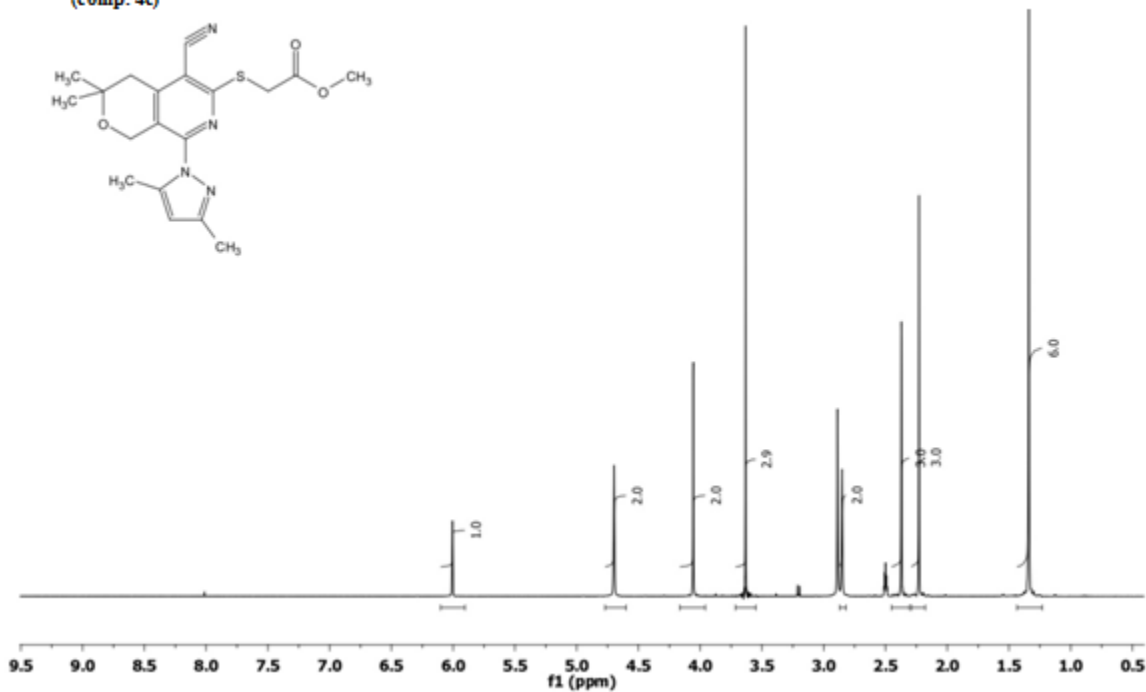
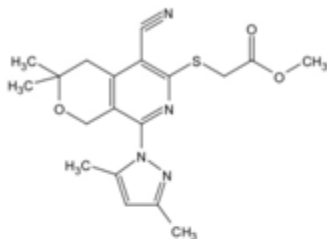
<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-dimethyl-1H-pyrazol-1-yl)-6-[(2-hydroxyethyl)thio]-3,3-dimethyl-3,4-dihydro-1H-pyrano[3,4-c]pyridine-5-carbonitrile (comp. 4b)



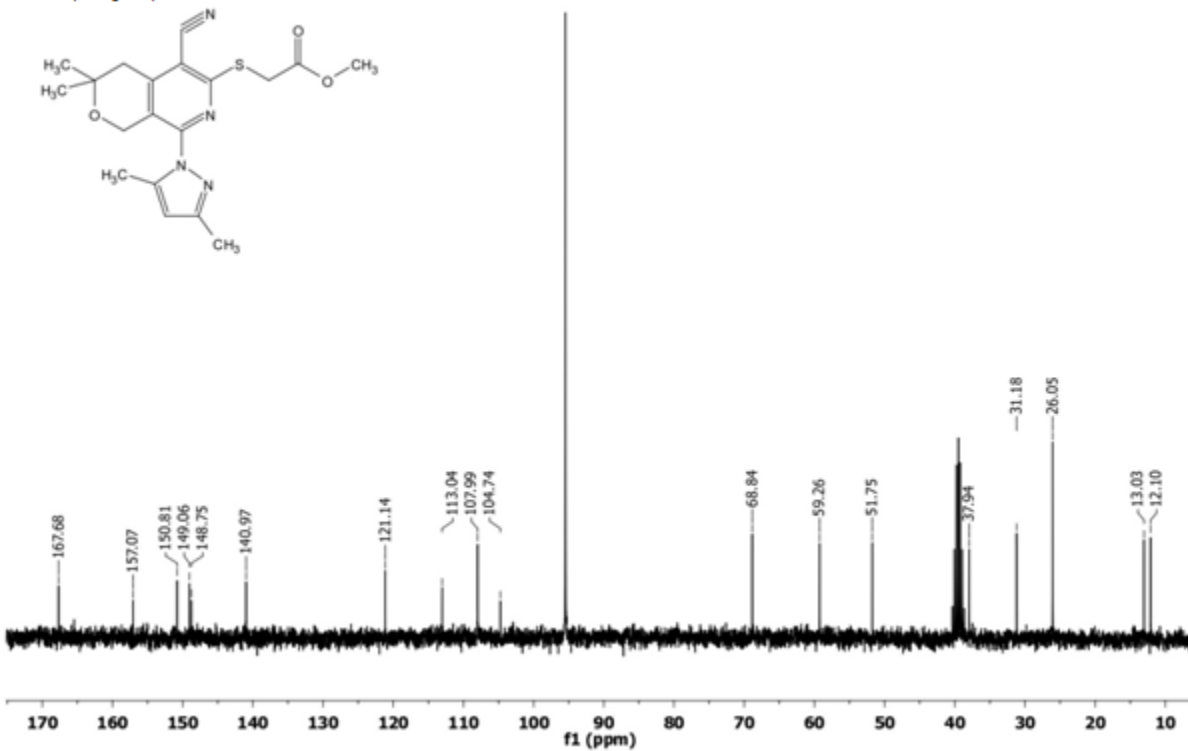
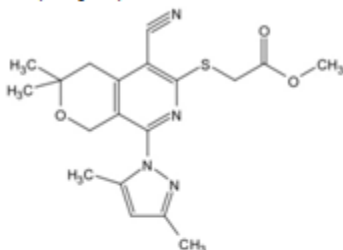
<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

Methyl [[5-cyano-8-(3,5-dimethyl-1H-pyrazol-1-yl)-3,3-dimethyl-3,4-dihydro-1H-pyrano[3,4-c]pyridin-6-yl]thio]acetate (comp. 4c)



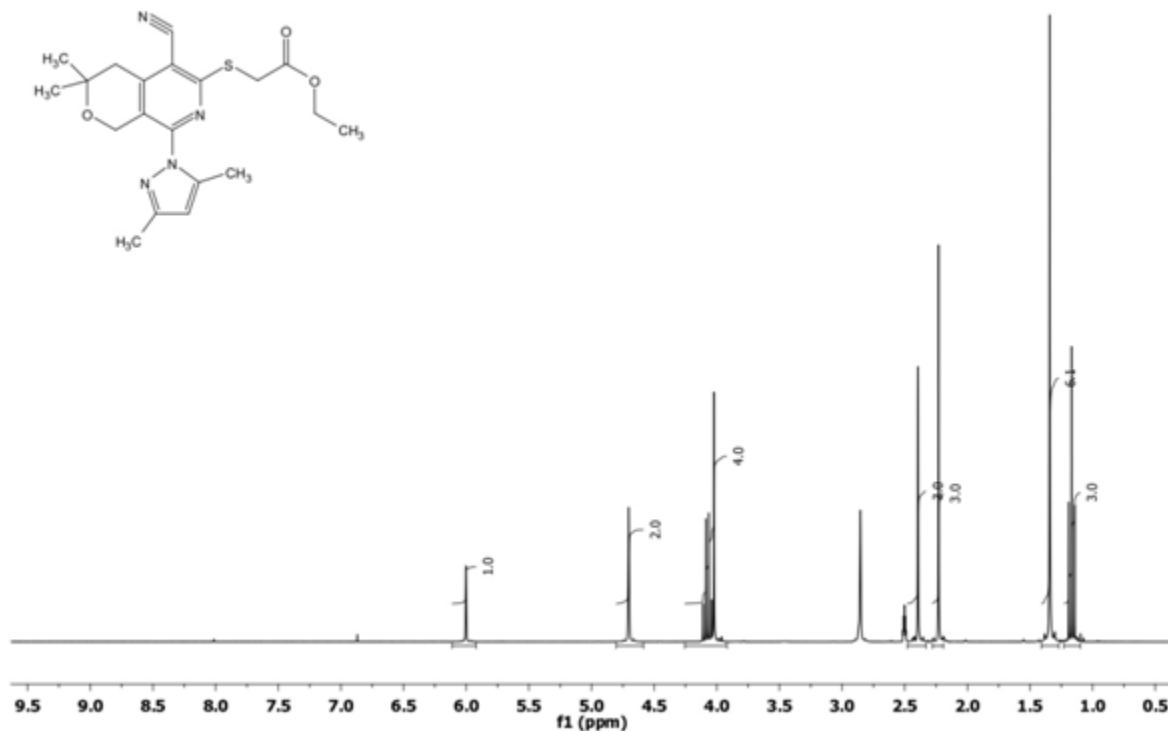
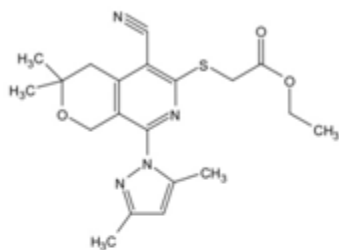
<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

Methyl [[5-cyano-8-(3,5-dimethyl-1H-pyrazol-1-yl)-3,3-dimethyl-3,4-dihydro-1H-pyrano[3,4-c]pyridin-6-yl]thio]acetate (comp. 4c)



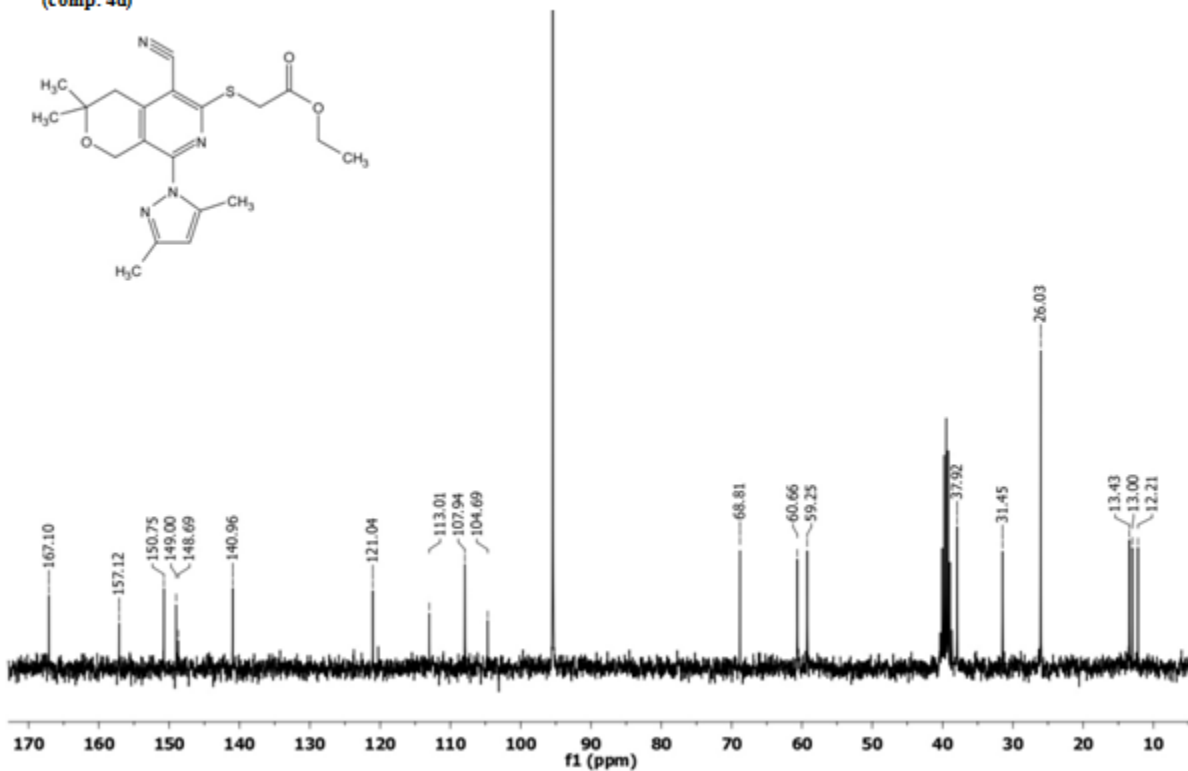
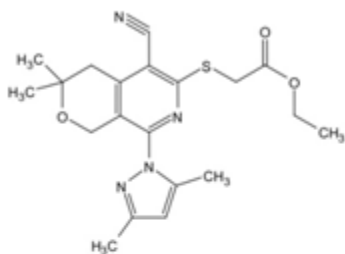
<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

Ethyl {[5-cyano-8-(3,5-dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-3,4-dihydro-1*H*-pyrano[3,4-*c*]pyridin-6-yl]thio}acetate (comp. 4d)



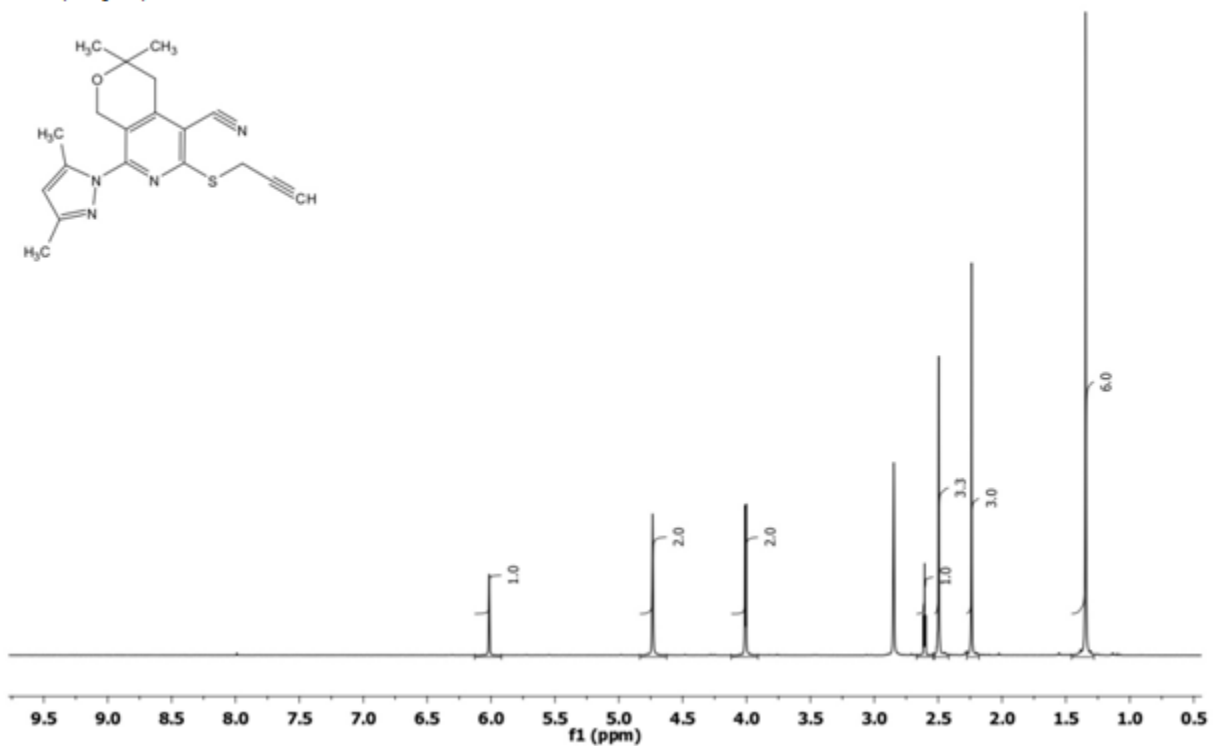
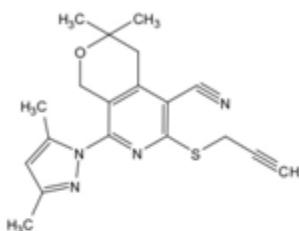
<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

Ethyl {[5-cyano-8-(3,5-dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-3,4-dihydro-1*H*-pyrano[3,4-*c*]pyridin-6-yl]thio}acetate (comp. 4d)



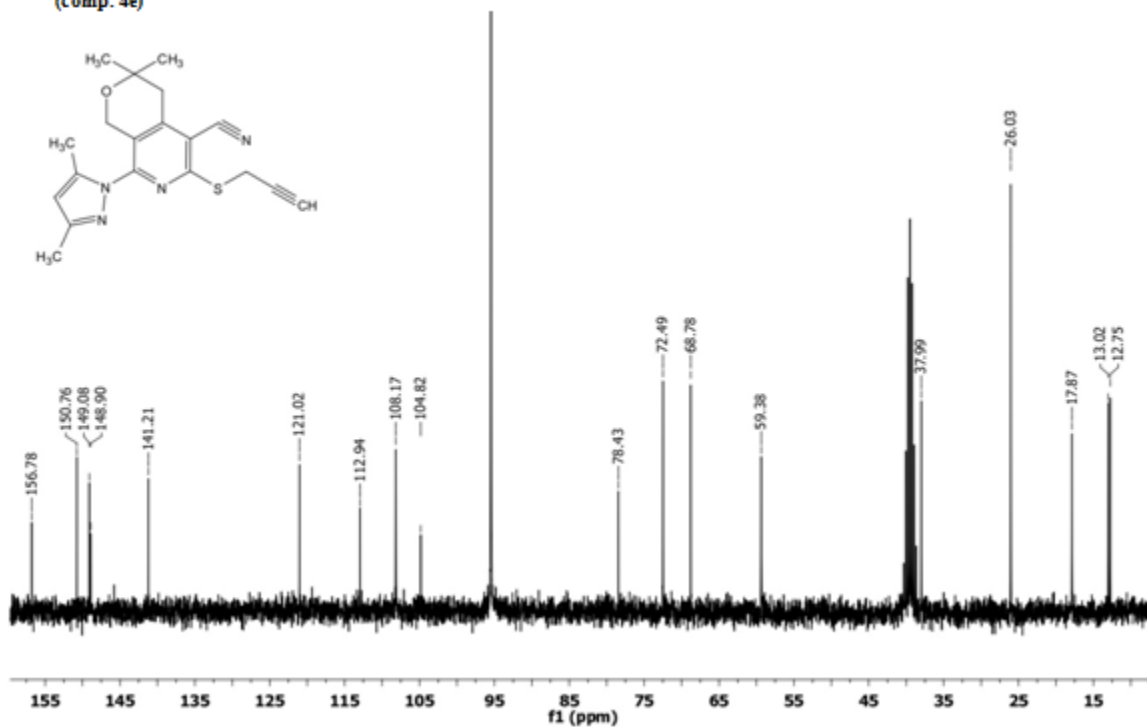
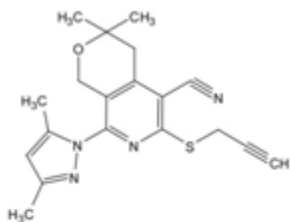
<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-6-(prop-2-yn-1-ylthio)-3,4-dihydro-1*H*-pyrano[3,4-*c*]pyridine-5-carbonitrile (comp. 4e)



<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

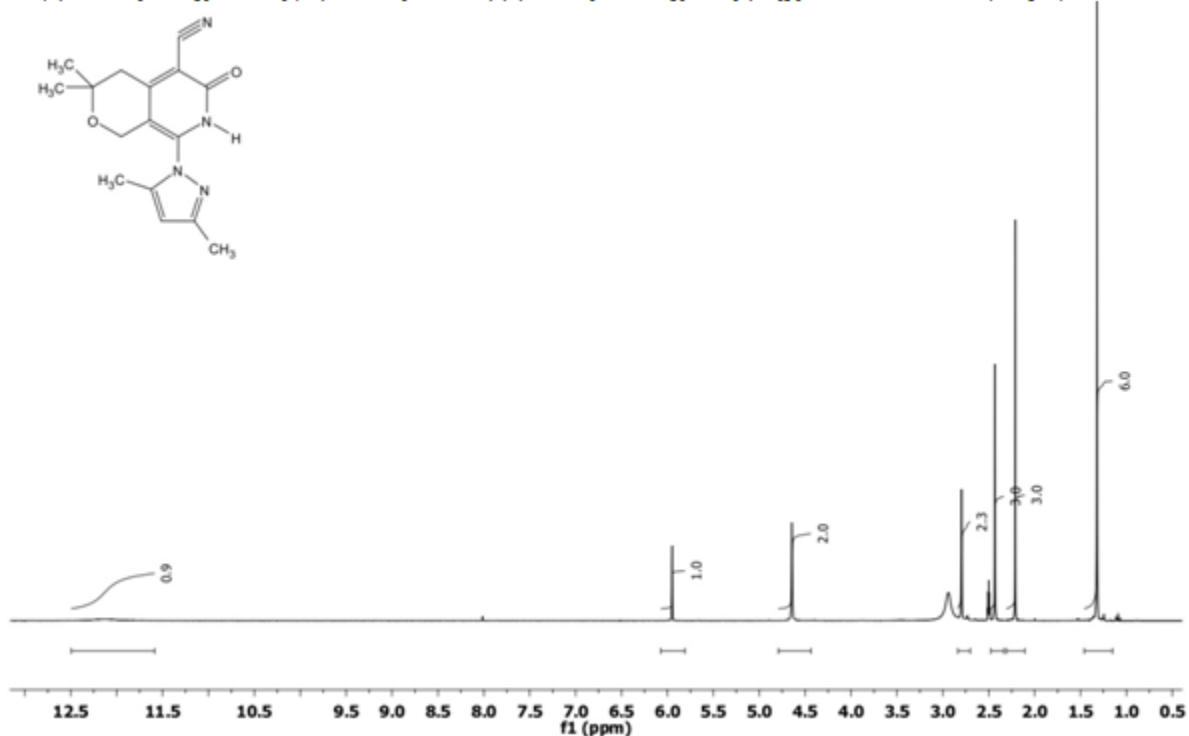
8-(3,5-dimethyl-1*H*-pyrazol-1-yl)-3,3-dimethyl-6-(prop-2-yn-1-ylthio)-3,4-dihydro-1*H*-pyrano[3,4-*c*]pyridine-5-carbonitrile (comp. 4e)





<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-dimethyl-1H-pyrazol-1-yl)-3,3-dimethyl-6-oxo-3,4,6,7-tetrahydro-1H-pyrano[3,4-c]pyridine-5-carbonitrile (comp. 5)



<sup>13</sup>C NMR (75.465 MHz, DMSO-d<sub>6</sub>/CCl<sub>4</sub>, 1/3)

8-(3,5-dimethyl-1H-pyrazol-1-yl)-3,3-dimethyl-6-oxo-3,4,6,7-tetrahydro-1H-pyrano[3,4-c]pyridine-5-carbonitrile (comp. 5)

