

# Pyrimidines

Pyrimidine derivatives have applications in many areas of chemistry, such as ligands<sup>1</sup>, compounds with therapeutic and agrochemical properties,<sup>2</sup> and in organic light-emitting devices.<sup>3</sup> A number of new pyrimidines are now available through Alfa Aesar, many of which have already been extensively cited in scientific literature.

Patents have reported 4-amino-2-bromopyrimidine-5-carbonitrile (H52776) and other such pyrimidine derivatives to be useful in the treatment of diseases associated with inappropriate ErbB family kinase. Trifluoropyrimidine derivatives such as H31822 are the starting point for a series of trifluoromethylpyrimidine-based inhibitors of proline-rich tyrosine kinase 2 (PYK2).<sup>4</sup>

The pyrimidine, 5-amino-2,4-dichloropyrimidine (H32606) has been employed of in the synthesis of piperidine-4-yl-aminopyrimidines derivatives, which are HIV-1 reverse transcriptase inhibitors.<sup>5</sup> Researchers from the US reported the improved synthesis of functionalized 5,6-dihydro-pyrimido[4,5-b][1,4]oxazepines<sup>6</sup> which have been described as potent EGFR inhibitors.<sup>7</sup>

2-Chloro-4-methylpyrimidine (H31903) is commonly used as a building block for more complex molecules such as imidazo[1,2-a]pyridine inhibitors,<sup>8</sup> 3-aryl-2,2-dimethylpropanoates via Negishi coupling,<sup>9</sup> and ortho monoacetoxylated arylpyrimidines via Suzuki coupling,<sup>10</sup> and all prepared in good yields. Pyrimidine-5-boronic acid (H52984) has been shown to be very useful in a number of Suzuki coupling reactions as a route to complex molecules, for example as analogues of Leukotriene B4 receptor antagonists<sup>11</sup> and heteroarylpyrimidine derivatives.<sup>12</sup>

<sup>1</sup>(a) S. Leininger, B. Olenyuk and P. J. Stang, *Chem. Rev.*, 2000, **100**, 853; (b) M. Yoshizawa, et al., *Chem. Commun.*, 2003, 1808.

<sup>2</sup>(a) S. R. Piettre, et al., *J. Med. Chem.*, 1997, **40**, 4208; (b) T. Wang, Z. Zhang, N. Meanwell, J. F. Kadow and Z. Yin, WO 02/062423/2002.

<sup>3</sup>(a) K-T. Wong, T. S. Hung, Y. Lin, C-C. Wu, G-H. Lee, S-M. Peng, C. H. Chou and Y. O. Su, *Org. Lett.*, 2002, **4**, 513; (b) C. Wang, et al., *J. Mater. Chem.*, 2002, **12**, 173; (c) G. Hughes, et al., *Org. Biomol. Chem.*, 2003, **1**, 3069.

<sup>4</sup>D. P. Walker, et al., *Bioorg. & Med. Chem. Lett.*, 2008, **18**, 6071.

<sup>5</sup>G. Tang, et al., *Bioorg. & Med. Chem. Lett.*, 2010, **20**, 6020.

<sup>6</sup>Y.-J. Xu, H. Liu, W. Pan, X. Chen, W. C. Wong, and M. Labelle, *Tet. Lett.*, 2005, **46**, 7523.

<sup>7</sup>L. M. Smith II, and Y. Hadari, Patent WO 2005009384, 200. *Chem. Abstr.*, 2005, **142**, 172179.

<sup>8</sup>K. A. Emmitte, et al., *Bioorg. & Med. Chem. Lett.*, 2009, **19**, 1004 – 1008.

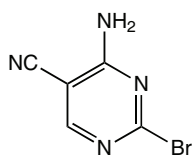
<sup>9</sup>Y.-S. Kwak, A. D. Kanter, B. Wang, and Y. Liu, *Chem. Comm.*, 2009, 2145.

<sup>10</sup>X. Zheng, B. Song, and B. Xu, *Euro. J. Org. Chem.*, 2010, 4376.

<sup>11</sup>R. A. Goodnow, et al., *J. Med. Chem.*, 2010, **53**, 3502.

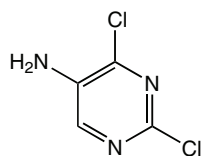
<sup>12</sup>N. Saygili, A. Batsanov, and M. R. Bryce, *Org. Biomol. Chem.*, 2004, **2**, 852.

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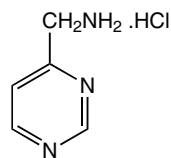
**H52776**

4-Amino-2-bromopyrimidine-5-carbonitrile, 97%  
[94741-70-5]



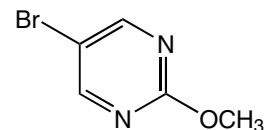
**H32606**

5-Amino-2,4-dichloropyrimidine, 97%  
[5177-27-5]



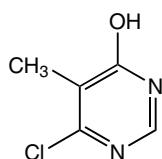
**H32582**

4-(Aminomethyl)pyrimidine hydrochloride, 97%  
[45588-79-2]



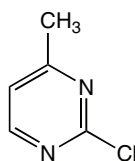
**H31918**

5-Bromo-2-methoxypyrimidine, 95%  
[14001-66-2]



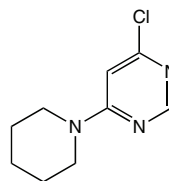
**H32440**

6-Chloro-4-hydroxy-5-methylpyrimidine, 95%



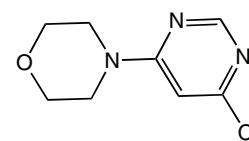
**H31903**

2-Chloro-4-methylpyrimidine, 99%  
[13036-57-2]



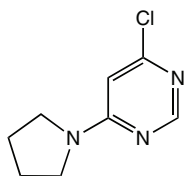
**H32973**

4-Chloro-6-(1-piperidinyl)pyrimidine, 98%  
[1722-14-1]



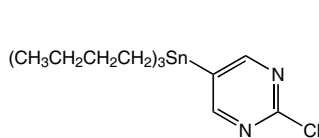
**H32140**

4-(6-Chloro-4-pyrimidinyl)morpholine, 98%  
[22177-92-0]



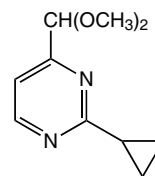
**H32100**

4-Chloro-6-(1-pyrrolidinyl)pyrimidine, 98%  
[939986-64-8]



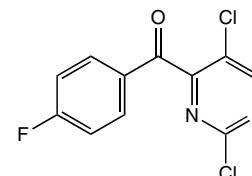
**H51512**

2-Chloro-5-(tri-n-butylstannyl)pyrimidine, 95%  
[155191-68-7]



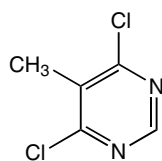
**H52800**

2-Cyclopropyl-4-dimethoxymethylpyrimidine, 97%  
[914348-07-5]



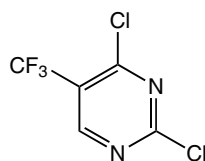
**H32374**

2,6-Dichloro-4-(4-fluorobenzoyl)pyrimidine, 95%



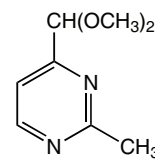
**H32012**

4,6-Dichloro-5-methylpyrimidine, 95%  
[4316-97-6]



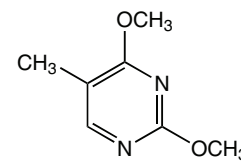
**H31822**

2,4-Dichloro-5-(trifluoromethyl)pyrimidine, 97%  
[3932-97-6]



**H52426**

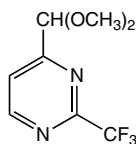
4-Dimethoxymethyl-2-methylpyrimidine, 97%  
[175277-33-5]



**H51088**

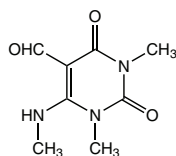
2,4-Dimethoxy-5-methylpyrimidine, 97%  
[5151-34-8]

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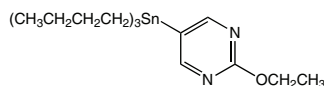
**H52736**

4-Dimethoxymethyl-2-(trifluoromethyl)pyrimidine, 97%  
[878760-47-5]



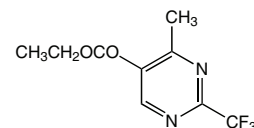
**H31650**

1,3-Dimethyl-6-methylamino-2,4-dioxo-1,2,3,4-tetrahydropyrimidine-5-carboxaldehyde, 96%  
[89549-92-8]



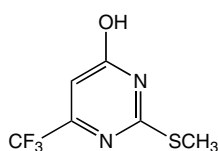
**H51500**

32-Ethoxy-5-(tri-n-butylstannyl)pyrimidine  
[1025746-10-4]



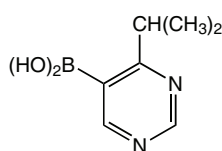
**H32065**

Ethyl 2-trifluoromethyl-4-methylpyrimidine-5-carboxylate, 97%  
[306960-67-8]



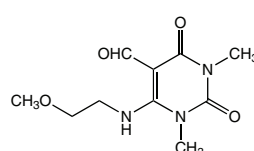
**H53382**

4-Hydroxy-2-methylthio-6-(trifluoromethyl)pyrimidine, 97%  
[16097-62-4]



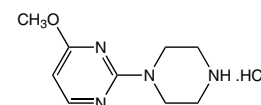
**H53118**

4-Isopropylpyrimidine-5-boronic acid, 95%  
[913835-27-5]



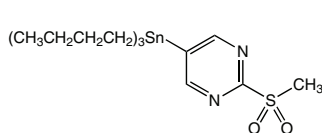
**H31619**

6-[(2-Methoxyethyl)amino]-1,3-dimethyl-2,4-dioxo-1,2,3,4-tetrahydropyrimidine-5-carboxaldehyde, 96%  
[1018301-05-7]



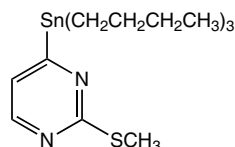
**H51678**

4-Methoxy-2-(1-piperazinyl)pyrimidine hydrochloride, 96%



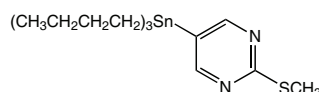
**H51574**

2-Methylsulfonyl-5-(tri-n-butylstannyl)pyrimidine, 96%  
[122476-85-1]



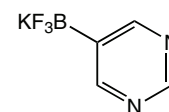
**H51465**

2-Methylthio-4-(tri-n-butylstannyl)pyrimidine, 96%  
[123061-49-4]



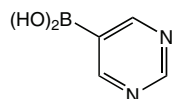
**H51477**

2-Methylthio-5-(tri-n-butylstannyl)pyrimidine, 96%  
[120717-37-5]



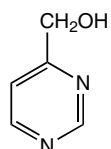
**H31906**

Potassium pyrimidine-5-trifluoroborate, 95%



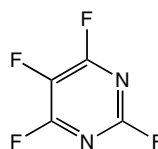
**H52984**

Pyrimidine-5-boronic acid, 98%  
[109299-78-7]



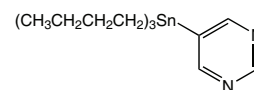
**H31754**

4-Pyrimidinemethanol, 98%  
[33581-98-5]



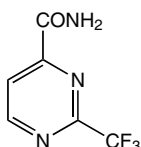
**H32453**

2,4,5,6-Tetrafluoropyrimidine, 95%  
[767-79-3]



**H51458**

5-(Tri-n-butylstannyl)pyrimidine, 96%  
[144173-85-3]



**H52803**

2-(Trifluoromethyl)pyrimidine-4-carboxamide, 97%  
[914348-10-0]