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**Norwegian Industrial Property Office**

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(54) Title **BORON CONTAINING PDE4 INHIBITORS**

(56) References Cited:

WO-A2-2006/089067
US-A1- 2009 291 917
TREVOR W. BUTCHER ET AL: "Regioselective Copper-Catalyzed Boracarboxylation of Vinyl Arenes", ORGANIC LETTERS, vol. 18, no. 24, 16 December 2016 (2016-12-16), pages 6428-6431, XP055640413, US ISSN: 1523-7060, DOI: 10.1021/acs.orglett.6b03326

**Patentkrav**

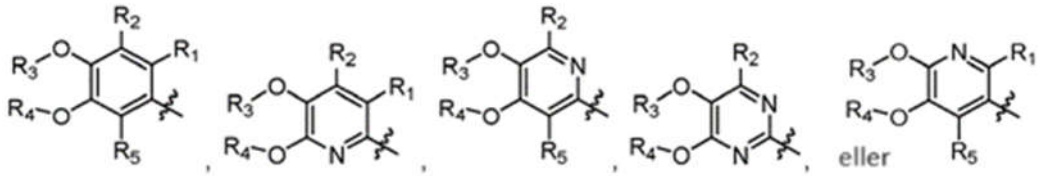
1. Forbindelse med formel I

X-Y-Z

Formel I

eller et farmasøytisk akseptabelt salt derav, hvor

X er

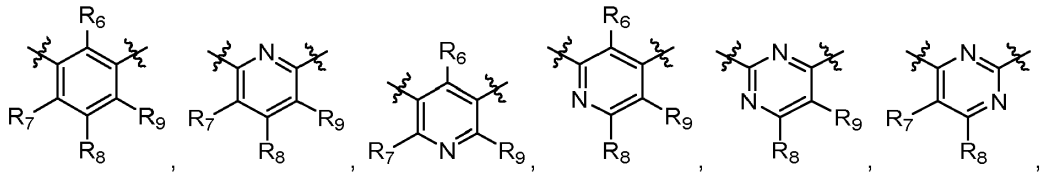


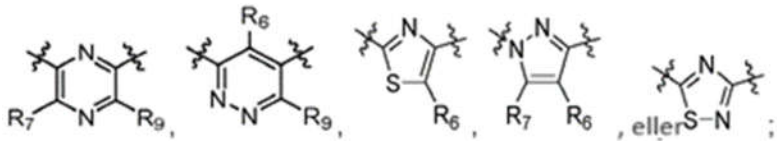

;

$R_1$, $R_2$ og $R_5$ uavhengig er H, cyano, halogen eller halo($C_1$-$C_6$)alkyl;

$R_3$ og $R_4$ uavhengig er ($C_1$-$C_6$)alkyl, ($C_3$-$C_8$)sykloalkyl, halo($C_1$-$C_6$)alkyl eller hydroksy($C_1$-$C_6$)alkyl;

Y er

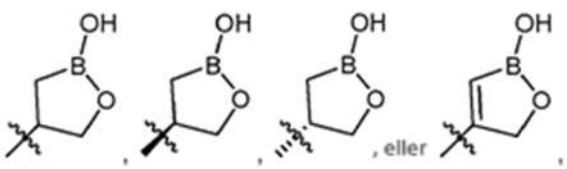





;

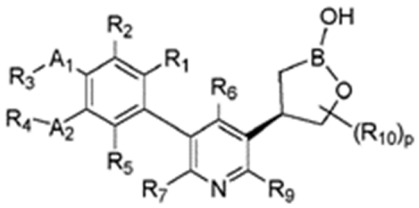
$R_6$, $R_7$, $R_8$ og $R_9$ uavhengig er H, ($C_1$-$C_6$)alkoksy, ($C_1$-$C_6$)alkyl, ($C_1$-$C_6$)alkyltio, cyano, ($C_3$-$C_8$)sykloalkyloksy, halogen, halo($C_1$-$C_6$)alkoksy, halo($C_1$-$C_6$)alkyl, (4-7-leddet)heterosykleoksy eller hydroksy($C_1$-$C_6$)alkoksy; og

Z er



hvor B er bor.

2. Forbindelse ifølge krav 1 som er en forbindelse med formel (IA)



Formel(IA)

eller et farmasøytisk akseptabelt salt derav, hvor

B er bor;

$A_1$ og $A_2$ er O;

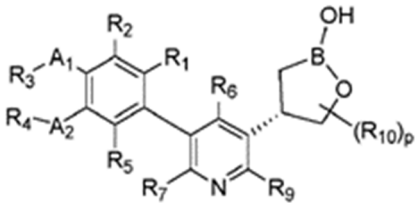
$R_1$, $R_2$ og $R_5$ er H;

$R_3$ og $R_4$ uavhengig er $(C_1$-$C_3)$alkyl;

$R_6$, $R_7$ og $R_9$ uavhengig er H eller $(C_1$-$C_3)$alkyl; og

p er 0.

3. Forbindelse ifølge krav 1 som er en forbindelse med formel (IB)



Formel (IB)

eller et farmasøytisk akseptabelt salt derav, hvor

B er bor;

$A_1$ og $A_2$ er O;

$R_1$, $R_2$ og $R_5$ er H;

$R_3$ og $R_4$ er $(C_1$-$C_3)$alkyl;

$R_6$, $R_7$ og $R_9$ uavhengig er H eller $(C_1$-$C_3)$alkyl; og p er 0.

4. Forbindelse ifølge krav 1 valgt fra gruppen bestående av

(R) 4-(5-(3,4-dimetoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3,4-dimetoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-isopropoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-isopropoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-syklopropoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-syklopropoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-(2-hydroksyetoksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-(2-hydroksyetoksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-(3-hydroksypropoksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-(3-hydroksypropoksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(2-(difluormetyl)-3-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(2-(difluormetyl)-3-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-5-fluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-5-fluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-klor-5-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-klor-5-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(5-etoksy-2-fluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(5-etoksy-2-fluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(2-klor-5-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(2-klor-5-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3-fluor-5-metoksy-6-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3-fluor-5-metoksy-6-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(4-(difluormetoksy)-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(4-(difluormetoksy)-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6'-metoksy-5'-propoksy-[3,3'-bipyridin]-5-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6'-metoksy-5'-propoksy-[3,3'-bipyridin]-5-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-4-metoksyfenyl)-6-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-4-metoksyfenyl)-6-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-4-metoksyfenyl)-4-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-4-metoksyfenyl)-4-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(4-metoksy-3-propoksyfenyl)-6-metylpyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(4-metoksy-3-propoksyfenyl)-6-metylpyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(4-metoksy-3-propoksyfenyl)-6-(trifluormetyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(4-metoksy-3-propoksyfenyl)-6-(trifluormetyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(3-etoksy-4-metoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(3-etoksy-4-metoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

4-(5-(4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborol-2(5H)-ol;

(R) 4-(5-(3-(2-fluoretoksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-(2-fluoretoksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3'-(3-fluorpropoksy)-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3'-(3-fluorpropoksy)-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 3'-(2-hydroksy-1,2-oksaborolan-4-yl)-4-metoksy-3-propoksy-[1,1'-bifenyl]-2-karbonitril;

(S) 3'-(2-hydroksy-1,2-oksaborolan-4-yl)-4-metoksy-3-propoksy-[1,1'-bifenyl]-2-karbonitril;

(R) 3'-(2-hydroksy-2,5-dihydro-1,2-oksaborol-4-yl)-4-metoksy-3-propoksy-[1,1'-bifenyl]-2-karbonitril;

(S) 3'-(2-hydroksy-2,5-dihydro-1,2-oksaborol-4-yl)-4-metoksy-3-propoksy-[1,1'-bifenyl]-2-karbonitril;

(R) 4-(5-(2-fluor-4-metoksy-5-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(2-fluor-4-metoksy-5-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(3-etoksy-4-metoksyfenyl)tiazol-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(3-etoksy-4-metoksyfenyl)tiazol-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-metoksy-6-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol:

(S) 4-(5-metoksy-6-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(3-(syklopentyloksy)-4-metoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(3-(syklopentyloksy)-4-metoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-4-metoksyfenyl)-1,2,4-thiadiazol-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-4-metoksyfenyl)-1,2,4-thiadiazol-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-2-fluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-2-fluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3'-isopropoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3'-isopropoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3'-etoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3'-etoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(2-fluor-4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(2-fluor-4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(4-metoksy-3-propoksyfenyl)-4-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(4-metoksy-3-propoksyfenyl)-4-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 6-(6-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-2-yl)-3-metoksy-2-propoksybenzonitril;

(S) 6-(6-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-2-yl)-3-metoksy-2-propoksybenzonitril;

(R) 4-(4'-metoksy-3'-propoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(4'-metoksy-3'-propoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(5-etoksy-2-fluor-4-metoksyfenyl)tiazol-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(5-etoksy-2-fluor-4-metoksyfenyl)tiazol-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3-(4-(syklopentyloksy)-5-metoksypyrimidin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(S) 4-(3-(4-(syklopentyloksy)-5-metoksypyrimidin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-4-metoksy-2-(trifluormetyl)fenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-4-metoksy-2-(trifluormetyl)fenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3,4-dietoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3,4-dietoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(4-etoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(4-etoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(2-fluor-3,4-dimetoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(2-fluor-3,4-dimetoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(4'-metoksy-3'-(pentyloksy)-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(4'-metoksy-3'-(pentyloksy)-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(4-metoksy-3-propoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(4-metoksy-3-propoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2'-fluor-4'-metoksy-3'-propoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2'-fluor-4'-metoksy-3'-propoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 3'-(2-hydroksy-1,2-oksaborolan-4-yl)-4,5-dimetoksy-[1,1'-bifenyl]-3-karbonitril;

(S) 3'-(2-hydroksy-1,2-oksaborolan-4-yl)-4,5-dimetoksy-[1,1'-bifenyl]-3-karbonitril;

(R) 3-etoksy-5-(5-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-3-yl)-2-metoksybenzonitril;

(S) 3-etoksy-5-(5-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-3-yl)-2-metoksybenzonitril;

4-(3-(6-etoksy-5-metoksypyridin-2-yl)fenyl)-1,2-oksaborol-2(5H)-ol;

(R) 4-(3-(6-etoksy-5-metoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(S) 4-(3-(6-etoksy-5-metoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(R) 4-(3-(4,5-dimetoksypyrimidin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(S) 4-(3-(4,5-dimetoksypyrimidin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(3-(syklopentyloksy)-4-metoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(3-(syklopentyloksy)-4-metoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

4-(3'-(syklopentyloksy)-4'-metoksy-[1,1 '-bifenyl]-3-yl)-1,2-oksaborol-2(5H)-ol;

(R) 4-(3'-(syklopentyloksy)-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3'-(syklopentyloksy)-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol

(R) 4-(6-(3-(syklopentyloksy)-4-metoksyfenyl)-5-fluorpyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(3-(syklopentyloksy)-4-metoksyfenyl)-5-fluorpyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(3-(syklopentyloksy)-4-metoksyfenyl)-6-metoksypyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(3-(syklopentyloksy)-4-metoksyfenyl)-6-metoksypyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-fluor-6-(4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-fluor-6-(4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(4-metoksy-3-propoksyfenyl)pyridazin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(4-metoksy-3-propoksyfenyl)pyridazin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(4-(difluormetyl)-5-(3-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(4-(difluormetyl)-5-(3-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(5-etoksy-2-fluor-4-metoksyfenyl)-4-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(5-etoksy-2-fluor-4-metoksyfenyl)-4-metylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(4-metoksy-3-propoksyfenyl)-1,2,4-thiadiazol-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(4-metoksy-3-propoksyfenyl)-1,2,4-thiadiazol-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-(syklopentyloksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-(syklopentyloksy)-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2'-fluor-4',5'-dimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2'-fluor-4',5'-dimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 2-etoksy-6-(6-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-2-yl)-3-metoksybenzonitril;

(S) 2-etoksy-6-(6-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-2-yl)-3-metoksybenzonitril;

(R) 4-(3-(5,6-dimetoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(S) 4-(3-(5,6-dimetoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(R) 6-(5-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-3-yl)-2,3-dimetoksybenzonitril;

(S) 6-(5-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-3-yl)-2,3-dimetoksybenzonitril;

4-(3-(5-metoksy-6-propoksypyridin-2-yl)fenyl)-1,2-oksaborol-2(5H)-ol;

(R) 4-(3-(5-metoksy-6-propoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(S) 4-(3-(5-metoksy-6-propoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(R) 4-(3',4',5-trimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3',4',5-trimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(4-metoksy-3-propoksyfenyl)-4-metylpyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(4-metoksy-3-propoksyfenyl)-4-metylpyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(3,4-dimetoksyfenyl)tiazol-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(3,4-dimetoksyfenyl)tiazol-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3-(5,6-dimetoksypyridin-3-yl)fenyl)-1,2-oksaborolan-2-ol;

(S) 4-(3-(5,6-dimetoksypyridin-3-yl)fenyl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(2-fluor-3,4-dimetoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(2-fluor-3,4-dimetoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-2,6-difluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-2,6-difluor-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3'-etoksy-2'-fluor-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3'-etoksy-2'-fluor-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-4-metoksyfenyl)-6-etylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-4-metoksyfenyl)-6-etylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-klor-5-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-klor-5-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3-(4,5-dimetoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(S) 4-(3-(4,5-dimetoksypyridin-2-yl)fenyl)-1,2-oksaborolan-2-ol;

(R) 4-(4-(3-(syklopentyloksy)-4-metoksyfenyl)-6-metoksypyrimidin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(4-(3-(syklopentyloksy)-4-metoksyfenyl)-6-metoksypyrimidin-2-yl)-1,2-oksaborolan-2-ol;

(R) 3'-(2-hydroksy-1,2-oksaborolan-4-yl)-3,4-dimetoksy-[1,1'-bifenyl]-2-karbonitril;

(S) 3'-(2-hydroksy-1,2-oksaborolan-4-yl)-3,4-dimetoksy-[1,1'-bifenyl]-2-karbonitril;

(R) 4-(5-metoksy-4-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-metoksy-4-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-syklopropoksy-4-metoksyfenyl)-1,2,4-thiadiazol-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-syklopropoksy-4-metoksyfenyl)-1,2,4-thiadiazol-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(4'-etoksy-3'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(4'-etoksy-3'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3'-isobutoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3'-isobutoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3'-syklobutoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol:

(S) 4-(3'-syklobutoksy-4'-metoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(3-etoksy-4-metoksyfenyl)-6-metoksypyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(3-etoksy-4-metoksyfenyl)-6-metoksypyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(4-etoksy-3-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(4-etoksy-3-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 3-etoksy-3'-(2-hydroksy-1,2-oksaborolan-4-yl)-4-metoksy-[1,1'-bifenyl]-2-karbonitril;

(S) 3-etoksy-3'-(2-hydroksy-1,2-oksaborolan-4-yl)-4-metoksy-[1,1'-bifenyl]-2-karbonitril;

(R) 4-(6-(2-hydroksyetoksy)-2-(4-metoksy-3-propoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(2-hydroksyetoksy)-2-(4-metoksy-3-propoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(3,4-dimetoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(3,4-dimetoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(3-etoksy-2-fluor-4-metoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(3-etoksy-2-fluor-4-metoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(1-(4-metoksy-3-propoksyfenyl)-1H-pyrazol-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(1-(4-metoksy-3-propoksyfenyl)-1H-pyrazol-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(3-etoksy-4-metoksyfenyl)-4,6-dimetylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(3-etoksy-4-metoksyfenyl)-4,6-dimetylpyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3',4'-dimetoksy-5-metyl-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3',4'-dimetoksy-5-metyl-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2'-fluor-3',4'-dimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2'-fluor-3',4'-dimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(3-(syklopentyloksy)-4-metoksyfenyl)pyridin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(3-(syklopentyloksy)-4-metoksyfenyl)pyridin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(2-(4-metoksy-3-propoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(2-(4-metoksy-3-propoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(2-fluor-4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(2-fluor-4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(2-fluor-4-metoksy-3-propoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(2-fluor-4-metoksy-3-propoksyfenyl)pyrazin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-(4-etoksy-2-fluor-3-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-(4-etoksy-2-fluor-3-metoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6'-metoksy-2-metyl-5'-propoksy-[3,3'-bipyridin]-5-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6'-metoksy-2-metyl-5'-propoksy-[3,3'-bipyridin]-5-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-(3-etoksy-4-metoksyfenyl)-4-(trifluormetyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-(3-etoksy-4-metoksyfenyl)-4-(trifluormetyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-etoksy-2-(3-etoksy-4-metoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-etoksy-2-(3-etoksy-4-metoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 4-(6-metoksy-2-(4-metoksy-3-propoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(S) 4-(6-metoksy-2-(4-metoksy-3-propoksyfenyl)pyrimidin-4-yl)-1,2-oksaborolan-2-ol;

(R) 2-(syklopentyloksy)-6-(6-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-2-yl)-3-metoksybenzonitril;

(S) 2-(syklopentyloksy)-6-(6-(2-hydroksy-1,2-oksaborolan-4-yl)pyridin-2-yl)-3-metoksybenzonitril;

4-(2-(3,4-dimetoksyfenyl)pyridin-4-yl)-1,2-oksaborol-2(5H)-ol;

4-(5-(3-etoksy-4-metoksyfenyl)pyridin-3-yl)-1,2-oksaborol-2(5H)-ol;

(R) 4-(3-fluor-6-(4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3-fluor-6-(4-metoksy-3-propoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

(R) 4-(5-metoksy-2'-metyl-6-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol;

(S) 4-(5-metoksy-2'-metyl-6-propoksy-[2,3'-bipyridin]-5'-yl)-1,2-oksaborolan-2-ol;

(R) 4-(3',4'-dimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

(S) 4-(3',4'-dimetoksy-[1,1'-bifenyl]-3-yl)-1,2-oksaborolan-2-ol;

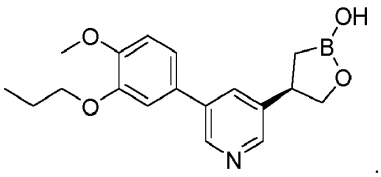
(R) 4-(6-(3-etoksy-4-metoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol; og

(S) 4-(6-(3-etoksy-4-metoksyfenyl)pyridin-2-yl)-1,2-oksaborolan-2-ol;

eller et farmasøytisk akseptabelt salt derav.

5. Forbindelse ifølge krav 1 som er (R)-4-(5-(4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol eller et farmasøytisk akseptabelt salt derav.

6. Forbindelse ifølge krav 1 med strukturen



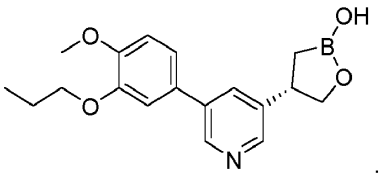

7. Forbindelse ifølge krav 5 som er krystallinsk (R)-4-(5-(4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol.

8. Krystallinsk forbindelse ifølge krav 7 med et røntgen-pulverdiffraksjonsmønster omfattende diffraksjonstopper 11,0 ± 0,2; 22,9 ± 0,2 og 25,1 ± 0,2 grader to theta.

9. Krystallinsk forbindelse ifølge krav 7 med et røntgen-pulverdiffraksjonsmønster omfattende diffraksjonstopper 11,0 ± 0,2; 11,4 ± 0,2; 18,8 ± 0,2; 22,9 ± 0,2; 25,1 ± 0,2 og 26,4 ± 0,2 grader to theta.

10. Forbindelse ifølge krav 1 som er (S)-4-(5-(4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol eller et farmasøytisk akseptabelt salt derav.

11. Forbindelse ifølge krav 1 med strukturen



12. Forbindelse ifølge krav 10 som er krystallinsk (S)-4-(5-(4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol.

13. Krystallinsk forbindelse ifølge krav 12 med et røntgen-pulverdiffraksjonsmønster omfattende diffraksjonstopper 18,7 ± 0,2; 22,8 ± 0,2 og 25,0 ± 0,2 grader to theta.

14. Krystallinsk forbindelse ifølge krav 12 med et røntgen-pulverdiffraksjonsmønster omfattende diffraksjonstopper 11,0 ± 0,2; 11,4 ± 0,2; 13,2 ± 0,2; 18,7 ± 0,2; 22,8 ± 0,2 og 25,0 ± 0,2, grader to theta.

15. Farmasøytisk sammensetning omfattende en forbindelse ifølge et hvilket som helst av kravene 1-14, eller et farmasøytisk akseptabelt salt derav, og minst én farmasøytisk akseptabel tilsetning, tynner eller bærer.

16. Forbindelse ifølge et hvilket som helst av kravene 1-14, eller et farmasøytisk akseptabelt salt derav, for bruk i en fremgangsmåte ved behandling av en lidelse valgt fra gruppen bestående av atopisk dermatitt, hånddermatitt, kontaktdermatitt, allergisk kontaktdermatitt, irritant kontaktdermatitt, nevrodermatitt, perioral dermatitt, stasedermatitt, dyshidrotisk eksem, xerotisk dermatitt, nummulær dermatitt, seboreisk dermatitt, øyelokkdermatitt, bleiedermatitt, dermatomyositt, lichen planus, lichen sclerosus, alopecia areata, vitiligo, rosacea, epidermolysis bullosa, keratosis pilaris, pityriasis alba, pemfigus, vulvovaginitt, akne, kronisk spontan urtikaria, kronisk idiopatisk urtikaria,

kronisk fysisk urtikaria, Vogt-Koyanagi-Haradas sykdom, sutton nevus/nevi, postinflammatorisk hypopigmentering, aldersrelatert leukoderma, kjemikalie/medikament-indusert leukoderma, kutan lupus erythematosus, diskoid lupus, palmoplantar pustulose, pemfigoid, Sweets syndrom, purulent hidradenitt, psoriasis, plakkpsoriasis, pustulær psoriasis, neglepsoriasis, flexural psoriasis, guttat psoriasis, psoriasisartritt, erytrodermisk psoriasis og invers psoriasis hos et menneske.

17. Forbindelse, eller farmasøytisk akseptabelt salt derav, for bruk i en fremgangsmåte ved behandling ifølge krav 16, hvor forbindelsen er (R)-4-(5-(4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol, eller et farmasøytisk akseptabelt salt derav, og hvor lidelsen er atopisk dermatitt.

18. Farmasøytisk kombinasjon egnet for topikal administrering, omfattende en forbindelse ifølge et hvilket som helst av kravene 1-14, eller et farmasøytisk akseptabelt salt derav, og et farmasøytisk middel som er en PDE4-isoenzymhemmer, et kortikosteroid, en kalsineurinhemmer, en JAK-hemmer, en tyrosin kinasehemmer, en IRAK4-hemmer, et ikke-steroid anti-inflammatorisk middel, et retinsyrederivat, en lever X-reseptor-(LXR)-selektiv agonist, en H4-reseptorantagonist, en NKI-reseptorantagonist(er), en CRTH2-reseptorantagonist, en Chymase-hemmer, en GATA-3-hemmer eller en invers ROR-agonist.

19. Farmasøytisk kombinasjon ifølge krav 18 hvor forbindelsen er (R)-4-(5-(4-metoksy-3-propoksyfenyl)pyridin-3-yl)-1,2-oksaborolan-2-ol, eller et farmasøytisk akseptabelt salt derav, og hvor JAK-hemmeren er tofacitinib.