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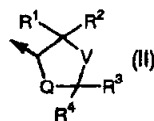
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权利要求书 7 页 说明书 126 页 附图页数 2 页

[54] 发明名称 具有血栓形成素受体拮抗作用的药物组合物

[57] 摘要

本发明公开了一种药物组合物,该药物组合物包含作为活性成分的通式(I)化合物、其前体药物、所述化合物或前体药物的可药用盐或其溶剂化物,所述药物组合物具有血栓形成素受体拮抗作用;其中 X¹为任选取代的杂芳基等;Y¹为-NR^ACO-(CH₂)₀₋₂-等(其中 R^A为氢等);Z¹为任选取代的亚芳基等;以及 A¹为由通式(II)和(III)表示的环。



或

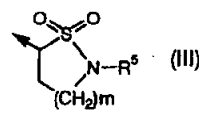


Figure 1 illustrates the experimental design. The process begins with a stimulus (a word) being presented to a subject. The subject then generates a response (a word). This response is compared to the stimulus, leading to a decision (Yes/No). The decision is then compared to the response, resulting in a final score (Yes/No).

1. 一种具有血栓形成素拮抗作用的药物组合物, 该药物组合物含有活性成分式(I)化合物或其药物前体、可药用盐或溶剂化物:



其中 X^1 为任选取代的芳基、任选取代的芳烷基、任选取代的杂芳基、任选取代的杂芳烷基或任选取代的非芳族杂环基团；

Y¹ 为 -NR^ACO-(CH₂)₀₋₂-、-NR^ACO-(CH₂)₀₋₂-W-、-NR^ACO-CH=CH-、-W-
(CH₂)₁₋₅-NR^ACO-(CH₂)₀₋₂-、-W-(CH₂)₁₋₅-CONR^A-(CH₂)₀₋₂-、-CONR^A-
10 (CH₂)₀₋₂-、-(CH₂)₀₋₅-NR^A-SO₂-(CH₂)₀₋₅-、-(CH₂)₀₋₅-SO₂-NR^A-(CH₂)₀₋₅-、
-NR^A-(CH₂)₀₋₂-、-NR^A-CO-NR^A-、-NR^A-CS-NR^A-、-N=C(-SR^A)-NR^A-、-
NR^ACSNR^ACO-、-N=C(-SR^A)-NR^ACO-、-NR^A-(CH₂)₁₋₂-NR^A-CO-、-
NR^ACONR^ANR^FCO-或-N=C(-NR^AR^A)-NR^A-CO-，其中 R^A 各自独立地为氢原子、
任选取代的低级烷基、任选取代的芳基、任选取代的芳烷基、任
15 选取代的杂芳基或任选取代的杂芳烷基，R^F 为氢原子或任选取代的芳
基，W 为氧原子或硫原子；

Z' 为任选取代的亚芳基、任选取代的亚杂芳基、任选取代的非芳族杂环二基或任选取代的环烷二基;

A^1 为由下式表示的环:

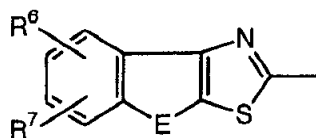


其中 R^1 和 R^2 二者为氢原子或组合在一起形成氧原子或硫原子; R^3 和 R^4 二者为氢原子或组合在一起形成氧原子或硫原子; R^5 为氢原子或低级烷基; Q 和 V 各自独立地为 $-O-$ 、 $-S-$ 、 $-NR^B-$ (其中 R^B 为氢原子或低级烷基) 或 $-CH_2-$; m 为 1、2 或 3;

虚线 (---) 表示存在或不存在的键。

2. 具有血栓形成素拮抗作用的药物组合物, 该药物组合物包含

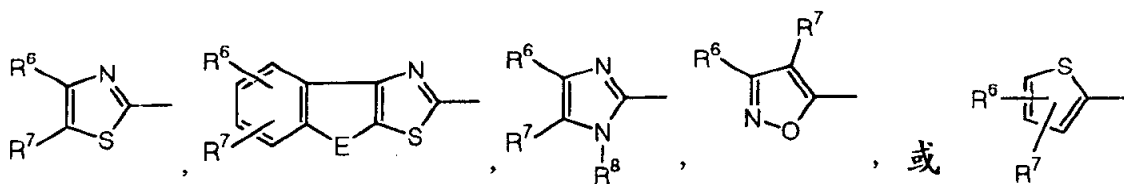
权利要求 1 的化合物, 其中 X^1 为任选取代的 5-元杂芳基或由下式表示的基团:



- 5 其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$; R^6 和 R^7 各自独立地为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、任选取代的噻吩基或任选取代的苯基。

3. 具有血栓形成素拮抗作用的药物组合物, 该药物组合物包含权利要求 1 的化合物, 其中 X^1 为由下式表示的基团:

10



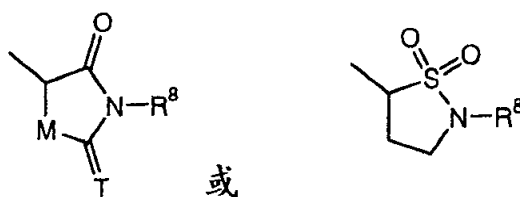
其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$; R^6 和 R^7 各自独立地为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、任选取代的噻吩基或任选取代的苯基; R^8 为氢原子或低级烷基。

- 15 4. 权利要求 1 至 3 任一的药物组合物, 其中 Y^1 为 $-NHCO-$ 、 $-CONH-$ 、 $-NHCH_2-$ 或 $-NHSO_2-$ 。

5. 权利要求 1 至 4 任一的药物组合物, 其中 Z^1 为 1,4-亚苯基。

6. 权利要求 1 至 6 任一的药物组合物, 其中 A^1 为由下式表示的环:

20



其中 R^8 为氢原子或低级烷基; M 为 $-S-$ 、 $-O-$ 、 $-N(R^C)-$ 或 $-CH_2-$ (其中 R^C 为氢原子或低级烷基); T 为氧原子或硫原子。

8. 权利要求 1 至 7 任一的药物组合物, 该药物组合物用于治疗或预防血液病。

8. 权利要求 1 至 7 任一的药物组合物, 该药物组合物用于治疗或预防血液病。

9. 权利要求 1 至 7 任一的药物组合物, 该药物组合物为血小板生成调节剂。

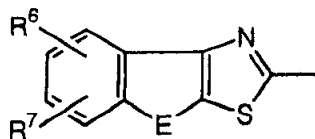
10. 权利要求 1 至 7 任一的化合物的用途, 用于制备治疗血液病的药物组合物。

11. 一种治疗包括人的哺乳动物的血液病的方法，该方法包括对所述哺乳动物给用有效剂量的权利要求 1 至 7 任一化合物。

10 12. 由式 (II) 表示的化合物或其药物前体、可药用盐或溶剂化
物,



其中 X^2 为任选取代的 5-元杂芳基或由下式表示的基团:



其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$; R^6 和 R^7 各自独立地为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、任选取代的噻吩基或任选取代的苯基;

20 Y^2 为 $-NR^GCO-(CH_2)_{0-2}-$ 、 $-NR^GCO-(CH_2)_{0-2}-W-$ 、 $-NR^GCO-CH=CH-$ 、 $-W-$
 $(CH_2)_{1-5}-NR^GCO-(CH_2)_{0-2}-$ 、 $-W-(CH_2)_{1-5}-CONR^G-(CH_2)_{0-2}-$ 、 $-CONR^G-$
 $(CH_2)_{0-2}-$ 、 $-(CH_2)_{0-5}-NR^G-SO_2-(CH_2)_{0-5}-$ 、 $-(CH_2)_{0-5}-SO_2-NR^G-(CH_2)_{0-5}-$ 、
 $-NR^G-(CH_2)_{0-2}-$ 、 $-NR^G-CO-NR^G-$ 、 $-NR^G-CS-NR^G-$ 、 $-N=C(-SR^G)-NR^G-$ 、
 NR^GCSNR^GCO- 、 $-N=C(-SR^G)-NR^GCO-$ 、 $-NR^G-(CH_2)_{1-2}-NR^G-CO-$ 、
25 $NR^GCONR^GNR^FCO-$ 或 $-N=C(-NR^GR^G)-NR^G-CO-$ 、

其中 R^6 各自独立地为氢原子或任选取代的低级烷基, R^f 为氢原子或任选取代的芳基, W 为氧原子或硫原子;

Z^2 为任选取代的亚苯基、任选取代的 2,5-吡啶二基、任选取代的 2,5-噻吩二基或任选取代的 2,5-咪唑二基;

A^2 为由下式表示的环:



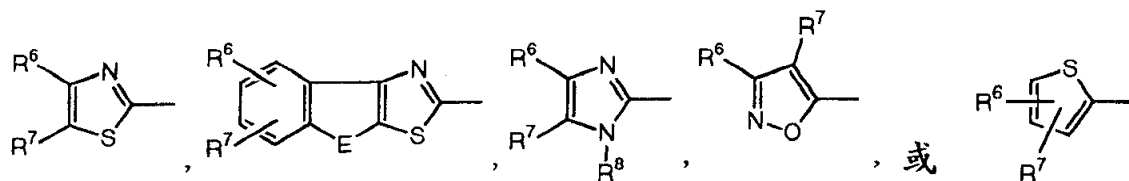
5

其中 R^1 和 R^2 二者为氢原子或组合在一起形成氧原子或硫原子; R^3 和 R^4 二者为氢原子或组合在一起形成氧原子或硫原子; R^5 为氢原子或低级烷基; Q 和 V 各自独立地为 $-O-$ 、 $-S-$ 、 $-NR^B-$ (其中 R^B 为氢原子或低级烷基) 或 $-CH_2-$; m 为 1、2 或 3;

10 虚线 (---) 表示存在或不存在的键,

条件是 X^2 不是噁唑。

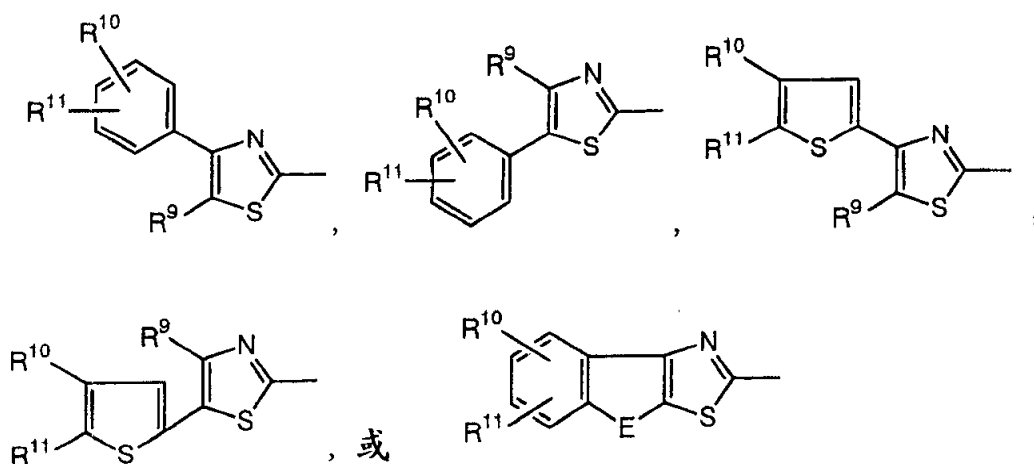
13. 权利要求 12 的化合物或其药物前体、可药用盐或溶剂化物, 其中 X^2 为由下式表示的基团:



15

其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$; R^6 和 R^7 各自独立地为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、任选取代的噻吩基或任选取代的苯基; R^8 为氢原子或低级烷基。

14. 权利要求 12 的化合物或其药物前体、可药用盐或溶剂化物, 20 其中 X^2 为由下式表示的基团:



其中 E 如权利要求 12 定义;

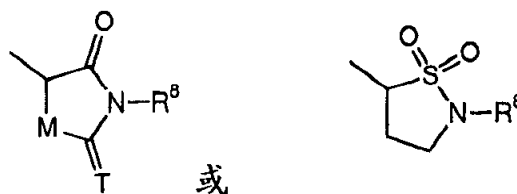
R⁹ 为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基或任选取代的氨基羰基;

R¹⁰ 和 R¹¹ 各自独立地为氢原子、卤素、羧基、低级烷氧基羰基、任选取代的氨基羰基、硝基或任选取代的氨基。

15. 权利要求 12 至 14 任一的化合物或其药物前体、可药用盐或溶剂化物, 其中 Y² 为 -NHCO-、-CONH-、-NHCH₂- 或 -NHSO₂-。

16. 权利要求 12 至 15 任一的化合物或其药物前体、可药用盐或溶剂化物, 其中 Z² 为 1,4-亚苯基。

17. 权利要求 12 至 16 任一的化合物或其药物前体、可药用盐或溶剂化物, 其中 A² 为由下式表示的环:

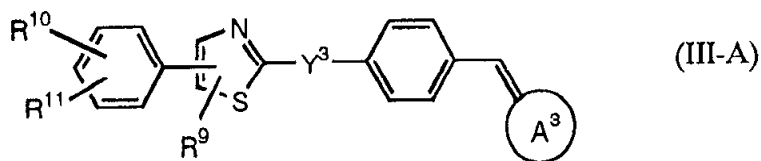


其中 R⁸ 为氢原子或低级烷基; M 为 -S-、-O-、-N(R^c)- 或 -CH₂- (其中 R^c 为氢原子或低级烷基); T 为氧原子或硫原子。

18. 权利要求 12 至 17 任一的化合物或其药物前体、可药用盐或溶剂化物, 其中虚线表示存在的键。

19. 由式 III-A 表示的化合物或其药物前体、可药用盐或溶剂化

物,



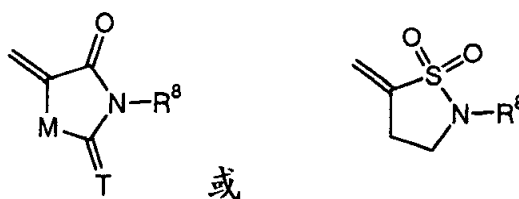
其中 R^9 为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基或任
5 选取代的氨基羰基;

R^{10} 和 R^{11} 各自独立地为氢原子、卤素、羧基、低级烷氧基羰基、任选取代的氨基羰基、硝基或任选取代的氨基;

Y^3 为 $-NHCO-$ 或 $-CONH-$;

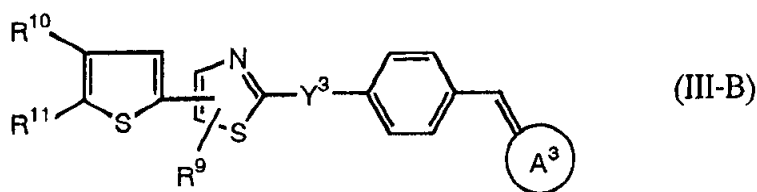
A^3 为由下式表示的环:

10



其中 R^8 为氢原子或低级烷基; M 为 $-S-$ 、 $-O-$ 、 $-N(R^c)-$ 或 $-CH_2-$ (其中 R^c 为氢原子或低级烷基); T 为氧原子或硫原子。

20. 由式 III-B 表示的化合物或其药物前体、可药用盐或溶剂化
15 物,



其中 R^9 、 R^{10} 、 R^{11} 、 Y^3 和 A^3 环如权利要求 19 定义。

21. 一种药物组合物, 该药物组合物包含权利要求 12 至 20 任一
20 的化合物作为活性成分。

22. 一种包含权利要求 12 至 20 任一的化合物作为活性成分的药物组合物, 该药物组合物具有血栓形成素拮抗作用。

23. 用于治疗或预防血液病的药物，该药物包含权利要求 12 至 20 任一的化合物作为活性成分。

24. 一种包含权利要求 12 至 20 任一的化合物作为活性成分的药物组合物，该药物组合物是血小板生成调节剂。

5 25. 权利要求 12 至 20 任一化合物用于制备治疗血液病的药物组合物的用途。

26. 一种治疗包括人的哺乳动物血液病的方法，该方法包括使所述哺乳动物服用有效药物剂量的权利要求 12 至 20 任一化合物。

说明书

具有血栓形成素受体拮抗作用的药物组合物

技术领域

5 本发明涉及具有血栓形成素受体拮抗作用的药物组合物。

背景技术

血栓形成素，即由 332 种氨基酸组成的多肽细胞因子，可以通过促进经由受体的巨核细胞的差异和增殖而激活血小板的产生，人们期望它是一种治疗伴随有非正常数量血小板的血液病的药物，所述血液病如血小板减少症等。编码血栓形成素受体的 DNA 序列描述在 Pro. Natl. Acad. Sci., 89:5640-5644 (1992) 中。对血栓形成素具有亲合力的低分子量肽也是公知的 (JP98/72492A 和 W096/40750)，但是这些肽衍生物一般不适用于经口服给药。

15 作为对血栓形成素具有亲合力的低分子量化合物，1,4-苯并二氮杂草描述在 JP99/1477A 中。

具有与本发明化合物类似结构的化合物描述在 JP92/99770A、Chem. Parm. Bull., 1982, 30, 3580、JP94/172339A (EP512899)、JP90/308240A、W097/32863、Arzneim. Forsch/Drug Res., 1998, 48, 651、JP95/173143A、JP93/85551A、JP85/443A、JP96/245602A、20 JP96/157462A、JP96/143556A 等中，但对血栓形成素受体的亲合力没有描述在其中。

发明公开

本发明的目的在于制备具有血栓形成素受体拮抗作用的药物组合物并提供可以经口给药的血小板生成调节剂。

25 在上述情形中，本发明的发明人已经发现下述化合物具有强大的血栓形成素受体拮抗作用。

本发明涉及：

I) 具有血栓形成素拮抗作用的药物组合物，该药物组合物含有活性成分式 (I) 化合物或其药物前体、可药用盐或溶剂化物：

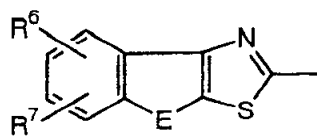

$$\begin{aligned} Y^1 \text{ 为 } & -NR^A CO-(CH_2)_{0-2}-, \quad -NR^A CO-(CH_2)_{0-2}-W-, \quad -NR^A CO-CH=CH-, \quad -W- \\ & (CH_2)_{1-5}-NR^A CO-(CH_2)_{0-2}-, \quad -W-(CH_2)_{1-5}-CONR^A-(CH_2)_{0-2}-, \quad -CONR^A- \\ & (CH_2)_{0-2}-, \quad -(CH_2)_{0-5}-NR^A-SO_2-(CH_2)_{0-5}-, \quad -(CH_2)_{0-5}-SO_2-NR^A-(CH_2)_{0-5}-, \\ & -NR^A-(CH_2)_{0-2}-, \quad -NR^A-CO-NR^A-, \quad -NR^A-CS-NR^A-, \quad -N=C(-SR^A)-NR^A-, \quad - \\ & NR^A CSNR^A CO-, \quad -N=C(-SR^A)-NR^A CO-, \quad -NR^A-(CH_2)_{1-2}-NR^A-CO-, \quad - \end{aligned}$$

Z' 为任选取代的亚芳基、任选取代的亚杂芳基、任选取代的非芳族杂环二基或任选取代的环烷二基；




虚线(---)表示存在或不存在的键。

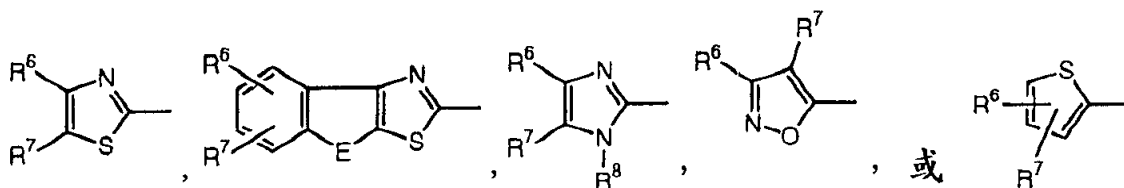
25 II) 具有血栓形成素拮抗作用的药物组合物, 该药物组合物包含 I) 化合物, 其中 X^1 为任选取代的 5-元杂芳基或由下式表示的基团:



- 其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$; R^6 和 R^7 各自独立地为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、
5 任选取代的噻吩基或任选取代的苯基。

优选的具有血栓形成素拮抗作用的药物组合物包含 I) 化合物，其中 X^1 为被选自下述一个或多个基团任选取代的苯基：低级烷基、低级烷氧基、低级烷硫基、偶氮芳基、芳烷氧基、芳基、卤代（低级）烷基、卤素和羟基。

- 10 III) 具有血栓形成素拮抗作用的药物组合物，该药物组合物包含 I) 化合物，其中 X^1 为由下式表示的基团：

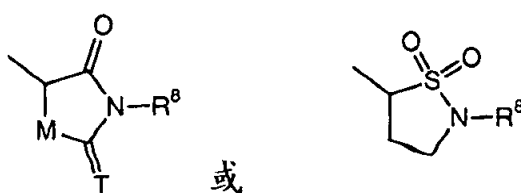


- 其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$; R^6 和 R^7 各自独立地为氢原子、
15 任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、任选取代的噻吩基或任选取代的苯基; R^8 为氢原子或低级烷基。

IV) I) 至 III) 任一的药物组合物，其中 Y^1 为 $-NHCO-$ 、 $-CONH-$ 、 $-NHCH_2-$ 或 $-NHSO_2-$ 。

V) I) 至 (IV) 任一的药物组合物，其中 Z^1 为 1,4-亚苯基。

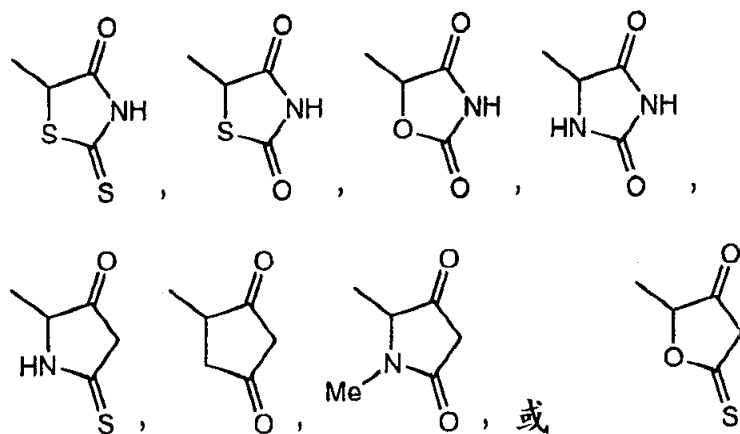
- 20 VI) I) 至 V) 任一的药物组合物，其中 A^1 为由下式表示的环：



其中 R^8 为氢原子或低级烷基；M 为 $-S-$ 、 $-O-$ 、 $-N(R^C)-$ 或 $-CH_2-$ （其中 R^C 为氢原子或低级烷基）；T 为氧原子或硫原子。

优选的 I) 至 V) 任一具有血栓形成素拮抗作用的药物组合物，其中 A^1 为由下式表示的环：

5



VII) I) 至 VI) 任一药物组合物，其中虚线表示存在的键。

VIII) I) 至 VII) 任一具有血栓形成素拮抗作用的药物组合物，该药物组合物用于治疗或预防血液病。

10 IX) I) 至 VII) 任一具有血栓形成素拮抗作用的药物组合物，该药物组合物为血小板生成调节剂。

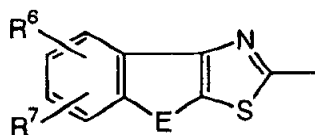
X) I) 至 VII) 任一化合物用于制备治疗血液病的药物组合物的用途。

XI) 治疗包括人的哺乳动物血液病的方法，该方法包括使所述哺乳动物服用有效药物剂量的 I) 至 VII) 任一化合物。

15 XII) 由式 (II) 表示的化合物或其药物前体、可药用盐或溶剂化物，



其中 X^2 为任选取代的 5-元杂芳基或由下式表示的基团：



其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$; R^6 和 R^7 各自独立地为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、任选取代的噻吩基或任选取代的苯基;

- 5 Y^2 为 $-NR^GCO-(CH_2)_{0-2}-$ 、 $-NR^GCO-(CH_2)_{0-2}-W-$ 、 $-NR^GCO-CH=CH-$ 、 $-W-$
 $(CH_2)_{1-5}-NR^GCO-(CH_2)_{0-2}-$ 、 $-W-(CH_2)_{1-5}-CONR^G-(CH_2)_{0-2}-$ 、 $-CONR^G-$
 $(CH_2)_{0-2}-$ 、 $-(CH_2)_{0-5}-NR^G-SO_2-(CH_2)_{0-5}-$ 、 $-(CH_2)_{0-5}-SO_2-NR^G-(CH_2)_{0-5}-$ 、
 $-NR^G-(CH_2)_{0-2}-$ 、 $-NR^G-CO-NR^G-$ 、 $-NR^G-CS-NR^G-$ 、 $-N=C(-SR^G)-NR^G-$ 、 $-$
 NR^GCSNR^GCO- 、 $-N=C(-SR^G)-NR^GCO-$ 、 $-NR^G-(CH_2)_{1-2}-NR^G-CO-$ 、 $-$
 $NR^GCONR^GNR^GCO-$ 或 $-N=C(-NR^GR^G)-NR^G-CO-$,
 10 其中 R^G 各自独立地为氢原子或任选取代的低级烷基, R^F 为氢原子或任选取代的芳基, W 为氧原子或硫原子;

Z^2 为任选取代的亚苯基、任选取代的 2,5-吡啶二基、任选取代的 2,5-噻吩二基或任选取代的 2,5-呋喃二基;

A^2 为由下式表示的环:

15

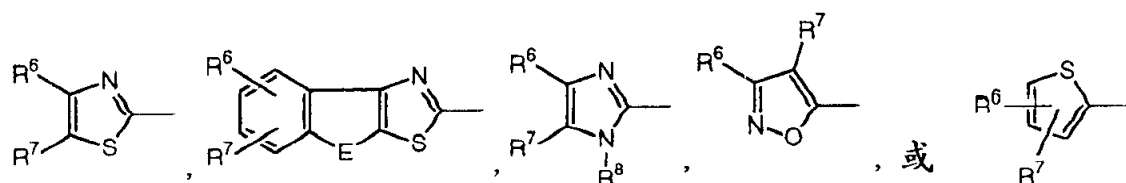


- 其中 R^1 和 R^2 二者为氢原子或组合在一起形成氧原子或硫原子; R^3 和 R^4 二者为氢原子或组合在一起形成氧原子或硫原子; R^5 为氢原子或低级烷基; Q 和 V 各自独立地为 $-O-$ 、 $-S-$ 、 $-NR^B-$ (其中 R^B 为氢原子或低级烷基) 或 $-CH_2-$; m 为 1、2 或 3;

虚线 (---) 表示存在或不存在的键,

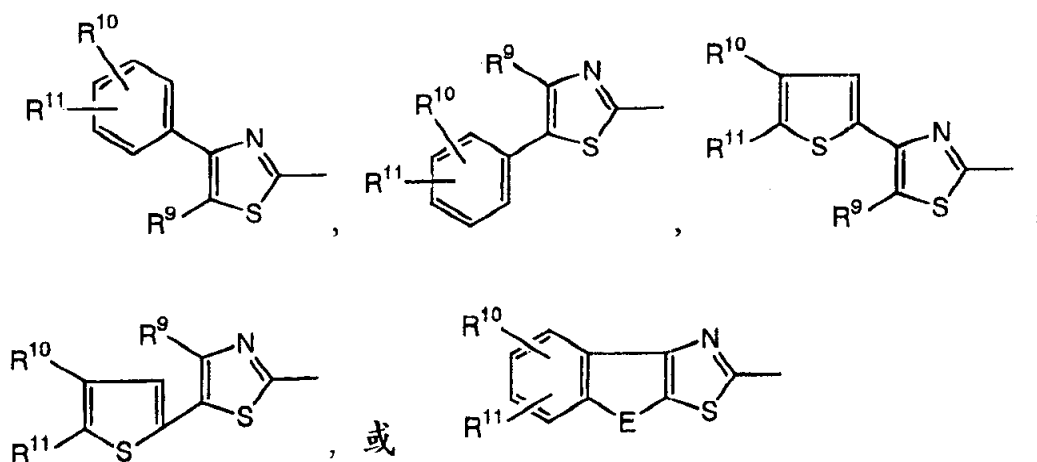
条件是 X^2 不是噁唑。

XIII) XII) 化合物或其药物前体、可药用盐或溶剂化物, 其中 X^2 为由下式表示的基团:



其中 E 为 $-(CH_2)_{1-3}-$ 、 $-O-CH_2-$ 或 $-S-CH_2-$ ； R^6 和 R^7 各自独立地为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基、任选取代的氨基羰基、任选取代的噻吩基或任选取代的苯基； R^8 为氢原子或低级烷基。

XIV) XII) 化合物或其药物前体、可药用盐或溶剂化物，其中 X^2 为由
5 下式表示的基团：



其中 E 如 XII 定义；

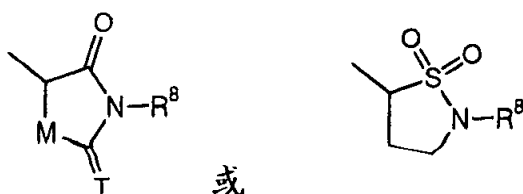
R^9 为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基或任选取
10 代的氨基羰基；

R^{10} 和 R^{11} 各自独立地为氢原子、卤素、羧基、低级烷氧基羰基、任选取代的氨基羰基、硝基或任选取代的氨基。

XV) XII) 至 XIV) 任一的化合物或其药物前体、可药用盐或溶剂化物，其中 Y^2 为 $-NHCO-$ 、 $-CONH-$ 、 $-NHCH_2-$ 或 $-NHSO_2-$ 。

15 XVI) XII) 至 XIV) 任一的化合物或其药物前体、可药用盐或溶剂化物，其中 Z^2 为 1,4-亚苯基。

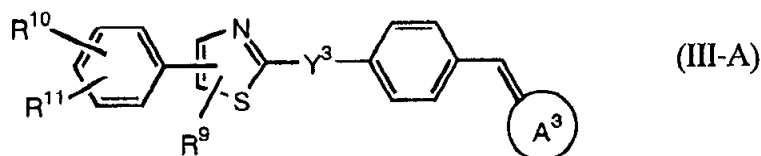
XVII) XII) 至 XVI) 任一的化合物或其药物前体、可药用盐或溶剂化物，其中 A^2 为由下式表示的环：



其中 R^8 为氢原子或低级烷基；M 为 $-S-$ 、 $-O-$ 、 $-N(R^c)-$ 或 $-CH_2-$ （其中 R^c 为氢原子或低级烷基）；T 为氧原子或硫原子。

XVIII) XII) 至 XVII) 任一的化合物或其药物前体、可药用盐或溶剂化物，其中虚线表示存在的键。

5 XIX) 由式 III-A 表示的化合物或其药物前体、可药用盐或溶剂化物，

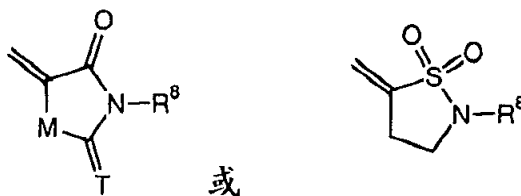


其中 R^9 为氢原子、任选取代的低级烷基、羧基、低级烷氧基羰基或任选取代的氨基羰基；

10 R^{10} 和 R^{11} 各自独立地为氢原子、卤素、羧基、低级烷氧基羰基、任选取代的氨基羰基、硝基或任选取代的氨基；

Y^3 为 $-NHCO-$ 或 $-CONH-$ ；

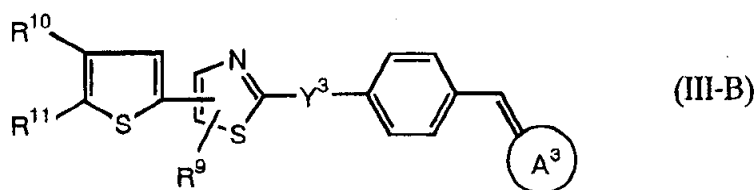
A^3 为由下式表示的环：



15

其中 R^8 为氢原子或低级烷基；M 为 $-S-$ 、 $-O-$ 、 $-N(R^c)-$ 或 $-CH_2-$ （其中 R^c 为氢原子或低级烷基）；T 为氧原子或硫原子。

XX) 由式 III-B 表示的化合物或其药物前体、可药用盐或溶剂化物，



20

其中 R^9 、 R^{10} 、 R^{11} 、 Y^3 和 A^3 环如 XIX 定义。

XXI) 一种药物组合物，该药物组合物包含 XII) 至 XX) 任一的化合

物作为活性成分。

XXII) 一种药物组合物, 该药物组合物包含活性成分 XII) 至 XX) 任一的化合物, 所述药物组合物具有血栓形成素拮抗作用。

5 XXIII) 一种药物组合物, 该药物组合物包含活性成分 XII) 至 XX) 任一的化合物, 所述药物组合物是血小板生成调节剂。

XXIV) 一种血小板生成调节剂, 该血小板生成调节剂包含 XII) 至 XX) 任一的化合物作为活性成分。

XXV) XII) 至 XX) 任一化合物用于制备治疗血液病的药物组合物的用途。

10 XXVI) 治疗包括人的哺乳动物血液病的方法, 该方法包括使所述哺乳动物服用有效药物剂量的 XII) 至 XX) 任一化合物。

在本说明书中, 术语“卤素”是指氟、氯、溴和碘。

在本说明书中, 单独使用或与其它术语结合使用的术语“低级烷基”是指包含 1 至 8 个碳原子的直链或支链单价烃。烷基的实例包括
15 甲基、乙基、正丙基、异丙基、正丁基、异丁基、仲丁基、叔丁基、正戊基、异戊基、新戊基、正己基、异己基、正庚基、正辛基等。优选 C1 至 C6 烷基, 更优选 C1 至 C3 烷基。

本说明书中的术语“链烯基”是指具有 2 至 8 个碳原子且具有至少一个双键的直链或支链单价烃。链烯基的实例包括乙烯基、烯丙
20 基、1-丙烯基、2-丙烯基、巴豆基、异戊烯基、多种丁烯基异构体等。优选 C2 至 C6 链烯基, 更优选 C2 至 C4 链烯基。

本说明书中使用的术语“低级炔基”是指具有 2 至 8 个碳原子且具有至少一个三键的直链或支链单价烃。炔基可以含有双键。炔基的实例包括乙炔基、2-丙炔基、6-庚炔基、7-辛炔基等。

25 在本说明书中, 单独使用或与其它术语结合使用的术语“环烷基”是指包含 3 至 8 个碳原子的环烷基基团。环烷基的实例包括环丙基、环丁基、环戊基、环己基、环庚基、环辛基等。优选 C3 至 C6 环烷基。

在本说明书中, 单独使用或与其它术语结合使用的术语“芳基”
30 是指芳烃单环或稠合环。芳基的实例包括苯基、1-萘基、2-萘基、蒽基等。

这里使用的术语“芳烷基”是指在可能的位置上由上述“芳基”

取代的“低级烷基”。芳烷基的实例包括苄基、苯乙基（如 2-苯乙基等）、苯基丙基（如 3-苯基丙基等）、萘基甲基（如 1-萘基甲基和 2-萘基甲基等）、蒽基甲基（如 9-蒽基甲基等）等。优选苄基和苯乙基。

5 在本说明书中，单独使用或与其它术语结合使用的术语“杂芳基”是指在环中包含一个或多个选自氧、硫和氮的杂原子且在可能的位置上与环烷基、芳基、非芳族杂环基团或其它杂芳基稠合的 5 至 6 元芳族杂环基团。杂芳基的实例包括吡咯烷基（如 1-吡咯烷基、2-吡咯烷基、3-吡咯烷基）、呋喃基（如 2-呋喃基、3-呋喃基）、噻吩基（如 2-噻吩基、3-噻吩基）、咪唑基（如 2-咪唑基、4-咪唑基）
10 吡唑基（如 1-吡唑基、3-吡唑基）、异噻唑基（如 3-异噻唑基）、异噁唑基（如 3-异噁唑基）、噁唑基（如 2-噁唑基）、噻唑基（如 2-噻唑基）、吡啶基（如 2-吡啶基、3-吡啶基、4-吡啶基）、吡嗪基（如 2-吡嗪基）、嘧啶基（如 2-嘧啶基、4-嘧啶基）、哒嗪基（如 3-哒嗪基）、四唑基（如 1H-四唑基）、噁二唑基（如 1,3,4-噁二唑基）、噻二唑基（如 1,3,4-噻二唑基）、吡咯并[1,2- α]吡啶基（indoliziny1）（如 2-吡咯并[1,2- α]吡啶基、6-吡咯并[1,2- α]吡啶基）、异喹啉基（2-异喹啉基）、喹啉基（如 1-喹啉基、2-喹啉基、3-喹啉基）、喹唑基（如 3-喹唑基）、嘌呤基（如 8-嘌呤基）、喹啉基（如 2-喹啉基）、异喹啉基（如 3-异喹啉基）、喹啉基（如 3-喹啉基、5-喹啉基）、2,3-二氮杂萘基（如 1-2,3-二氮杂萘基）、1,5-二氮杂萘基（如 2-1,5-二氮杂萘基）、quinolany1（2-quinolany1）、喹唑啉基（如 2-喹唑啉基）、噌啉基（如 3-噌啉基）、蝶啶基（如 2-蝶啶基）、呋唑基（如 2-呋唑基、4-呋唑基）、菲啶基（如 2-菲啶基、3-菲啶基）、吡啶基（如 1-吡啶基、2-吡啶基）、二苯并呋喃基（如 1-二苯并呋喃基、2-二苯并呋喃基）苯并咪唑基（如 2-苯并咪唑基）、苯丙异噁唑基（如 3-苯丙异噁唑基）、苯并噁唑基（如 2-苯并噁唑基）、苯并噁二唑基（如 4-苯并噁二唑基）、苯丙异噻唑基（如 3-苯丙异噻唑基）、苯并噻唑基（如 2-苯并噻唑基）、
25 苯并呋喃基（如 3-苯并呋喃基）、苯并噻吩基（如 2-苯并噻吩基）等。

作为 X¹ 的“杂芳基”，优选噻唑基、异噁唑基、异噻唑基、噻吩

基、呋喃基、吡咯基、咪唑基、吡啶基、苯并噻唑基、吡啶基和吡唑基。

在本说明书中，术语“5-元杂芳基”是指包含一个或多个选自氧、硫和氮原子的杂原子的 5-元芳族杂环基团。5-元杂芳基的实例为噻吩基、呋喃基、吡咯基、咪唑基、吡啶基、异噻唑基、异噁唑基、噻唑基等。优选噻唑基。

在本说明中使用的术语“杂芳基烷基”是指在任何位置被上述“杂芳基”取代的上述“低级烷基”。杂芳基烷基的实例为噻唑基甲基（如 2-噻唑基甲基）、噻唑基乙基（如 2-噻唑基-2-乙基）、咪唑基甲基（如 4-咪唑基甲基）、吡啶基甲基（如 2-吡啶基甲基、3-吡啶基甲基、4-吡啶基甲基）、吡啶基乙基（如 2-吡啶基乙基）等。

在本说明书中，单独使用或与其它术语结合使用的术语“非芳族杂环基团”是指在环中包含一个或多个选自氧、硫和氮的杂原子的 5 至 7 元非芳族环，该 5 至 7 元非芳族环可与一个或多个选自环烷基、芳基、杂芳基和 5 至 7 元非芳族环的环稠合。非芳族杂环基团的实例为吡咯烷基（如 1-吡咯烷基、2-吡咯烷基）、吡咯啉基（如 3-吡咯啉基）、咪唑烷基（如 2-咪唑烷基）、咪唑啉基（如咪唑啉基）、吡唑烷基（如 1-吡唑烷基、2-吡唑烷基）、吡唑啉基（如吡唑啉基）、哌啶基（如哌啶子基、2-哌啶基）、哌嗪基（如 1-哌嗪基）、吲哚炔基（indolynyl）（如 1-吲哚炔基）、异二氢氮杂茛基（如异二氢氮杂茛基）、吗啉基（如吗啉代、3-吗啉基）、茛并噻唑（如 8H-茛并[1,2-d]噻唑）、二氢茛并噻唑（如 4,5-二氢茛并[1,2-d]噻唑）、dihydrothiazabenzazulene（如 5,6-dihydro-4H-3-thia-1-aza-benzo[e]azulene）、苯并吡喃并噻唑（如 4H-苯并吡喃并[4,3-d]噻唑）、苯并硫吡喃并噻唑（如 4H-苯并硫吡喃并[4,3-d]噻唑）等。

这里使用的术语“亚芳基”是指上述“芳基”的二价基团。亚芳基的实例为亚苯基、亚萘基等。更具体的实例为 1,2-亚苯基、1,3-亚苯基、1,4-亚苯基等。优选 1,4-亚苯基。

这里使用的术语“亚杂芳基”是指上述“杂芳基”的二价基团。亚杂芳基的实例为噻吩二基、呋喃二基、吡啶二基等。更具体的实例为 2,5-噻吩二基、2,5-呋喃二基、2,5-吡啶二基等。

这里使用的术语“非芳族杂环二基”是指上述“非芳族杂环基团”

的二价基团。非芳族杂环二基的实例为吡咯烷二基、哌啶二基、哌嗪二基等。

这里使用的术语“环烷二基”是指上述“环烷基”的二价基团。环烷二基的实例为环戊二基、环己二基等。

5 这里使用的术语“低级烷氧基羰基”是指甲氧基羰基、乙氧基羰基、正丙氧基羰基、乙丙氧基羰基、正丁氧基羰基、叔丁氧基羰基、正戊氧基羰基等。

在本说明书中，单独使用或与其它术语结合使用的术语“酰基”是指其中烷基为上述“低级烷基”的烷基羰基和其中芳基为上述“芳基”的芳基羰基。酰基的实例为乙酰基、丙酰基、苯甲酰基等。“低级烷基”和“芳基”可分别被下述取代基取代。

这里使用的术语“低级烷氧基”是指甲氧基、乙氧基、正丙氧基、异丙氧基、正丁氧基、异丁氧基、仲丁氧基、叔丁氧基等。优选甲氧基、乙氧基、正丙氧基、异乙丙氧基和正丁氧基。

15 这里使用的术语“低级烷硫基”是指甲硫基、乙硫基等。

在本说明书中，单独使用或与其它术语结合使用的术语“卤代(低级)烷基”是指在1至8位上被上述“卤素”取代的上述“低级烷基”，优选在1至5位上被取代。卤代(低级)烷基的实例为三氟甲基、三氯甲基、二氟乙基、三氟乙基、二氯乙基、三氯乙基等。优选三氟甲

20 基。这里使用的术语“酰氧基”的实例为乙酰氧基、丙酰氧基、苯甲酰氧基等。

在本说明书中，单独使用或与其它术语结合使用的术语“任选取代的氨基”包括被一个或两个上述“低级烷基”、“芳烷基”、“杂芳烷基”或“酰基”取代的氨基。任选取代的氨基的实例为氨基、甲氨基、二甲氨基、乙基甲基氨基、二乙氨基、苯甲氨基、乙酰氨基、苯甲酰氨基等。优选氨基、甲氨基、二甲氨基、乙基甲基氨基、二乙氨基和乙酰氨基等。

30 这里使用的术语“任选取代的氨基羰基”为氨基羰基、甲氨基羰基、二甲氨基羰基、乙基甲基氨基羰基、二乙氨基羰基等。优选氨基羰基、甲氨基羰基和二甲氨基羰基。

“任选取代的低级烷基”的取代基为环烷基、低级链烯基、低级

alkyliden、羟基、低级烷氧基、巯基、低级烷硫基、卤素、硝基、
氰基、羧基、低级烷氧基羰基、卤代（低级）烷基、卤代（低级）烷
氧基、取代或未取代的氨基、取代或未取代的氨基羰基、酰基、酰氧
基、任选取代的非芳族杂环基、芳氧基（如苯氧基）、芳烷氧基（如
5 苄氧基）、低级烷基磺酰基、胍基、偶氮基、任选取代的酰脲、=N-
O-（酰基）等。这些取代基可位于任何位置的其中一个或多个位置上。

作为 R^6 、 R^7 和 R^9 的“任选取代的低级烷基”的取代基，优选低级
烷氧基羰基、ethyliden 或 $=N-O-COCH_3$ 。

作为 R^A 的“任选取代的低级烷基”，优选为取代烷基。作为取代
10 基低级烷氧羰基是优选的。

这里使用的“任选取代的亚芳基”、“任选取代的亚苯基”、“任
选取代的亚杂芳基”、“任选取代的 2,5-吡啶二基”、“任选取代
的 2,5-噻吩二基”、“任选取代的 2,5-咪唑二基”、“任选取代的
非芳族杂环二基”“任选取代的环烷二基”、“任选取代的芳基”、
15 “任选取代的噻吩基”、“任选取代的苯基”、“任选取代的杂
芳基”、“任选取代的 5-元杂芳基”、“任选取代的芳烷基”、“任
选取代的杂芳烷基”、“任选取代的非芳族杂环基团”和“任选取
代的酰脲”的取代基为任选取代的低级烷基、环烷基、低级链烯基、
低级炔基、羟基、低级烷氧基、芳烷氧基、巯基、低级烷硫基、卤素、
20 硝基、氰基、羧基、低级烷氧基羰基、卤代（低级）烷基、卤代（低
级）烷氧基、取代或未取代的氨基、取代或未取代的氨基羰基、酰基、
酰氧基、任选取代的芳基、任选取代的杂芳基、任选取代的非芳族杂
环基、任选取代的芳烷基、低级烷基磺酰基、胍基、偶氮基、 $-N=N-$
（任选取代的苯基）或任选取代的酰脲等。这些取代基可位于任何位
25 置的其中一个或多个位置上。

作为“任选取代的亚芳基”、“任选取代的亚苯基”、“任选取
代的亚杂芳基”、“任选取代的 2,5-吡啶二基”、“任选取代的 2,5-
噻吩二基”、“任选取代的 2,5-咪唑二基”、“任选取代的非芳族
杂环二基”“任选取代的环烷二基”、的取代基，优选为取代基团。
30 优选作为取代基的卤素、硝基、氰基、低级烷基、低级烷氧基。

对于 X^1 ，“任选取代的芳基”和“任选取代的芳烷基”的取代基
的实例为低级烷基、羟基低级烷基、羟基、低级烷氧基、低级烷硫基、

卤素、硝基、氰基、羧基、低级卤代（低级）烷基、卤代（低级）烷氧基、芳烷氧基、未取代或取代氨基、未取代或取代氨基羰基、芳基、杂芳基、非芳族杂环基、芳基偶氮（如苯偶氮）等。优选的取代基为低级烷基、羟基、低级烷氧基、低级烷硫基、卤素、卤代（低级）烷基、卤代（低级）烷氧基、芳烷氧基、 $-N=N-$ （苯基）、亚烷基二氧基等。

对于 X^1 ，“任选取代的芳基”的实例为苯基、2-甲基苯基、3-甲基苯基、4-甲基苯基、3,4-二甲基苯基、4-乙基苯基、4-叔丁基苯基、4-正丁基苯基、4-正己基苯基、4-正辛基苯基、3,5-二叔丁基-4-羟基苯基、4-乙氧基苯基、4-氟苯基、3,4-二氟苯基、3,5-二氟苯基、4-碘苯基、4-三氟甲基苯基、4-甲硫基苯基、4-苯基甲氧基苯基、4-苯偶氮苯基、4-苯基苯基、2-萘基、苯并二氧代基（如1,3-苯并二氧代基）等。

对于 R^6 和 R^7 ，“任选取代的噻吩基”和“任选取代的苯基”的取代基为低级烷基、被未取代或取代的氨基取代的低级烷基、低级链烯基、低级炔基、羟基、低级烷氧基、巯基、低级烷硫基、卤素、硝基、氰基羧基、低级烷氧基羰基、卤代（低级）烷基、卤代（低级）烷氧基、未取代或取代的氨基、未取代或取代的氨基羰基、酰基、甲酰基、酰氧基、任选取代的苯基、芳基（如苯基）、杂芳基（咪唑基）、非芳族杂环基（如吗啉代、哌嗪基）、芳烷基、芳基偶氮等。优选低级烷基、低级烷氧基、卤素、硝基、羧基、低级烷氧基羰基、卤代（低级）烷基、卤代（低级）烷氧基、未取代或取代的氨基、未取代或取代的氨基羰基、芳基、芳基偶氮等。

对于 R^6 和 R^7 ，“任选取代苯基”的实例为苯基、3-甲基苯基、4-甲基苯基、4-叔丁基苯基、4-正戊基苯基、3-甲氧基苯基、4-甲氧基苯基、4-羧基苯基、4-甲氧基羰基苯基、4-乙氧基羰基苯基、4-异丙氧基羰基、4-正丁氧基羰基、4-叔丁氧基羰基、2-氟苯基、3-氟苯基、4-氟苯基、2,4-二氟苯基、2,6-二氟苯基、3,4-二氟苯基、2,4,5-三氟苯基、2,3,4,5,6-五氟苯基、4-氯苯基、2,4-二氯苯基、3,4-二氯苯基、3,5-二氯苯基、3-溴苯基、4-溴苯基、4-碘苯基、3-氟-4-甲氧基苯基、3-三氟甲基苯基、4-三氟甲基苯基、2-三氟甲氧基苯基、4-乙酰氨基苯基、4-氨基羰基苯基、4-N-甲氨基羰基苯基、4-N,N-

二甲氨基羰基、2-硝基苯基、4-硝基苯基、4-苯基苯基、4-苯基偶氮苯基等。

作为 R^A 的“任选取代芳基”、“任选取代杂芳基”、“任选取代芳烷基”和“任选取代杂芳烷基”的取代基，优选低级烷基、环烷基、
5 低级链烯基、低级炔基、羟基、低级烷氧基、芳烷氧基、巯基、低级烷硫基、卤素、硝基、氰基、羧基、低级烷氧基羰基、卤代（低级）烷基、卤代（低级）烷氧基、未取代或取代氨基、未取代或取代氨基羰基、酰基、酰氧基、胍基、偶氮基等。这些取代基能够位于一个或多个任选可能的位置上。

10 对于 R^F ，作为“任选取代芳基”，优选苯基。

对于 X^1 ，“任选取代杂芳基”、“任选取代杂芳基烷基”、“任选取代非芳族杂环基团”的取代基，以及对于 X^2 ，“任选取代5-元杂芳基”的取代基，可以是任选取代的低级烷基、低级链烯基（如
=CH-CH₃）、低级炔基、羟基、低级烷氧基、巯基、低级烷硫基、卤素、
15 硝基、氰基、羧基、低级烷氧基羰基、卤代（低级）烷基、卤代（低级）烷氧基、取代或未取代氨基、取代或未取代氨基羰基、酰基（如被卤素、硝基、氰基等任选取代的芳氧基羰基）、酰氧基、任选取代的苯基、芳基、任选取代的杂芳基（如2-吡啶基、3-吡啶基、4-吡啶基、3-噻吩基、5-甲基吡啶-2-基、3-喹啉基、5-氯噻吩-2-基、5-
20 溴噻吩-2-基）、非芳族杂环基团、芳烷基、=N-O-（酰基）等。优选任选取代的低级烷基、低级链烯基、低级烷氧基羰基、任选取代的苯基、杂芳基、=N-O-（酰基）等。

当杂原子为单原子时，但原子可被烷基、氧代等取代。

在本说明书中，术语“血液病”是指伴随有血小板数量不正常的
25 血液病。例如血液病可以是血小板减少症（骨髓移植之后、化疗之后、整形术贫血症、骨髓发育异常综合症、难治的突发性血小板紫癜等伴随的血小板减少症、血栓形成素缺乏的先天性血小板减少症等）。

附图简要说明

图 1：该图表示通过计数由人骨髓细胞产生的巨核细胞，得到的本发
30 明增殖刺激活性及巨核细胞前驱细胞的差异。

图 2：该图表示通过本发明化合物表明人 TPO 受体的人 TPO 从属细胞的增殖，其中 x-轴为本发明化合物的浓度，y-轴为细胞增殖指示剂的

吸收。白圈为人 TPO 响应，黑圈为化合物 (B-17) 响应。

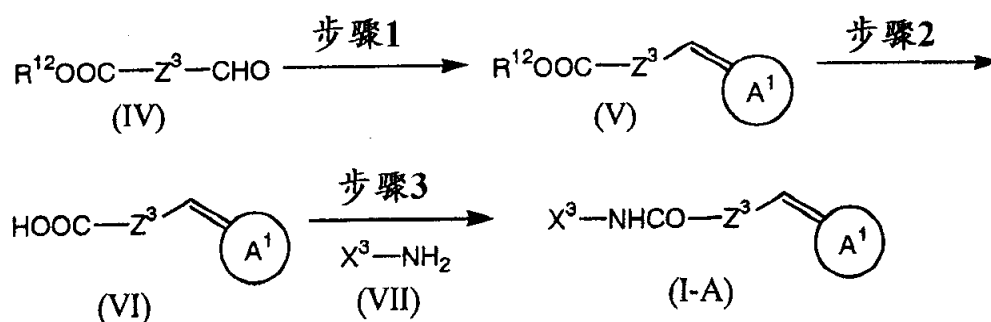
图 3: 该图表示通过本发明化合物表明无人 TPO 受体的人 TPO 从属细胞的增殖, 其中 x-轴为本发明化合物的浓度, y-轴为细胞增殖指示剂的吸收。白圈为人 TPO 响应, 黑圈为化合物 (B-17) 响应。

5 图 4: 该图表示通过本发明化合物表明鼠科动物 TPO 受体的鼠科动物 TPO 从属细胞的增殖, 其中 x-轴为本发明化合物的浓度, y-轴为细胞增殖指示剂的吸收。白圈为人 TPO 响应, 黑圈为化合物 (B-17) 响应。

完成本发明的最佳方式

本发明化合物 (I) 可通过方法 A-C 及类似的步骤合成。根据
10 W097/05135 及 W097/39737 描述的方法, 也可制备化合物。

(方法 A)



其中 A^1 如上文定义, Z^3 为任选取代的亚芳基、任选取代的亚杂芳基、
15 任选取代的非芳族杂环基团或任选取代的环烷二基, X^3 为任选取代的芳基、任选取代的芳烷基、任选取代的杂芳基或任选取代的杂芳烷基, R^{12} 是低级烷基。

(步骤 1)

将含有低级烷氧基羰基和醛基作为取代基的可市购化合物 Z^1 (化
20 合物 (IV)) 用作起始原料。

化合物 (IV) 也可通过下述方法 1)-3) 得到。1) 利用二氯碳酸乙酯处理含有低级烷氧基羰基和羧基作为取代基的化合物的羧基, 得到混合酸酐。2) 常规还原反应 (如与硼氢化钠的还原反应) 得到含有低级烷氧基羰基和羟基的化合物。3) 常规氧化反应 (如 Swern 氧化反应、
25 Dess-Martin 氧化反应等) 得到含有烷氧基羰基和醛基的化合物 (IV)。

这是一个通过醛衍生物与 2,4-噻唑烷二酮反应得到亚苄基衍生物的步骤。在溶剂如苯、甲苯中，在存在乙酸和哌啶为催化剂的条件下，于回流下利用 2,4-噻唑烷二酮处理化合物(IV)，得到所需化合物。(Knoevenagel 反应)

- 5 在任何适当的步骤中，通过常规还原反应，可还原所得到的双键。在存在可能干扰反应的官能团的情况下，可根据“Protective Groups in Organic Synthesis” (Theodora W. Green (John Wiley & Sons)) 等中描述的方法进行基团保护，然后再在适当的步骤中脱保护。

10 (步骤 2)

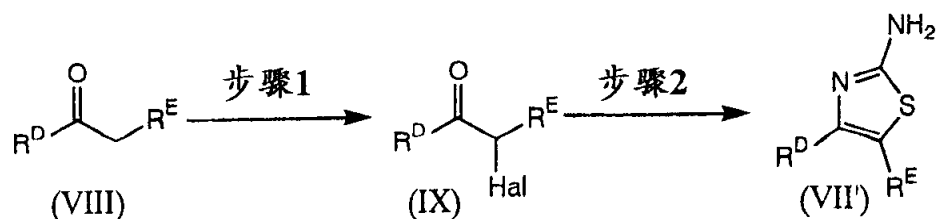
这是一个通过水解将烷氧基衍生物转变成羧酸衍生物的转化反应，它可通过常规的水解反应进行。例如，化合物(V)在存在乙酸、盐酸等的条件下反应，可得到羧酸衍生物(化合物(VI))。

(步骤 3)

- 15 该步骤是通过活性酯方法、酰氯方法、混合酸酐方法等，将羧酸衍生物(VI)与胺衍生物(VII)反应得到酰胺衍生物(I-A)的反应。该步骤在溶剂中进行，所述溶剂如四氢呋喃、二噁烷、二氯甲烷、甲苯、苯。活性酯方法可通过使用 1-羟基苯并三唑、羟基琥珀酰亚胺、二甲氨基吡啶等以及作为缩合剂的二环己基碳化二亚胺 1-乙基-3-(二甲基氨基丙基)碳化二亚胺盐酸盐而进行。酰氯方法通过将含有反应
- 20 试剂亚硫酸二氯、草酰氯的游离羧酸转变成酰氯而进行。混合酸酐方法可通过将羧酸与氯甲酸乙酯、氯甲酸异丁酯等反应得到混合酸酐而进行。如果必要的话，在反应中可使用碱，如三乙胺、吡啶。

- 25 含有低级烷氧基羰基和醛基作为取代基的可市购化合物 Z^1 (化合物(IV)) 被用作起始原料。

化合物(VII)可以市购，但也可以通过下述方法获得。1) 当 X^3 为任选取代芳基、任选取代杂芳基等且当上述取代基为芳基或杂芳基时，含有两个连续环的化合物(VII)可通过 Suzuki 反应获得。2) 当 X^3 为任选取代噻唑时，化合物(VII') 可通过下述方法得到：



其中 R^D 和 R^E 为氢原子、任选取代低级烷基、低级烷氧基羰基、任选取代氨基羰基或任选取代苯基等，Hal 为卤素。

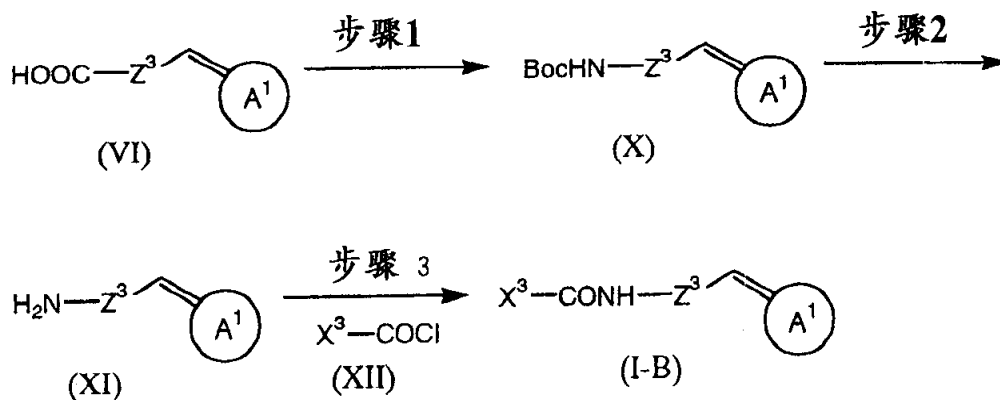
5 (步骤 1)

该步骤为卤化反应，它可通过常规的卤化反应进行。例如，溴化反应可在甲醇和氯仿的混合溶剂中与溴反应而进行。

(步骤 2)

这是一个构成噻唑环的步骤。例如，所需的噻唑(VII')衍生物
10 可通过在溶剂(如甲醇)中与硫脲反应获得。

(方法 B)



其中 A^1 、 X^3 和 Z^3 如上文定义，Boc 为叔丁氧基羰基。

15 (步骤 1)

该步骤为将羧基转变成由 Boc 保护的氨基的转化反应。例如，所需化合物可以通过在存在叔丁醇和碱(如三乙胺)下，于溶剂(如二甲基甲酰胺、甲苯、乙醚、二噁烷)中，将化合物(IV)与二苯基磷酰叠氮化物反应获得。

20 (步骤 2)

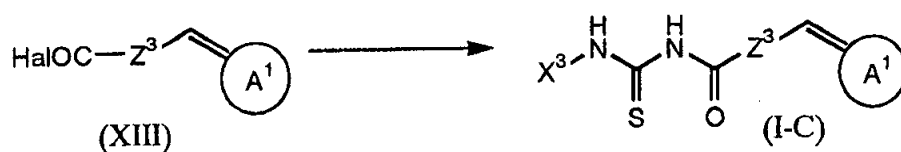
该步骤为 Boc 脱保护，它可根据 Protective Groups in Organic

Synthesis, Theodora W Green (John Wiley & Sons) 等中描述的方法进行脱保护。例如，利用三氟乙酸处理化合物 (X)，可得到所需的脱保护化合物 (XI)。

(步骤 3)

5 该步骤可通过方法 A 步骤 3 中描述的相同方法进行。

(方法 C)

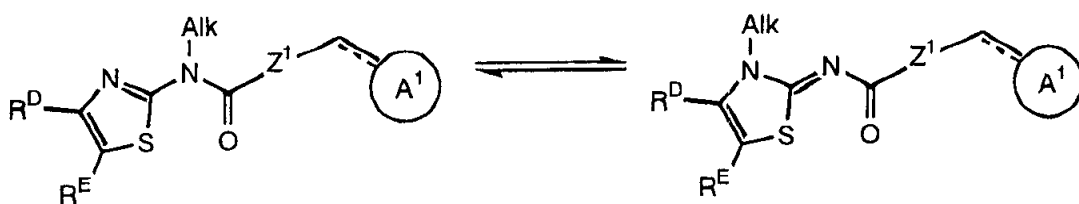


其中 A^1 、 X^3 、 Z^3 和 Hal 如上文定义。

10 该步骤为利用异硫氰酸铵处理化合物 (VI) 的酰卤 (XIII)，接着与上述化合物 (VII) 反应，得到所需化合物 (I-C)。

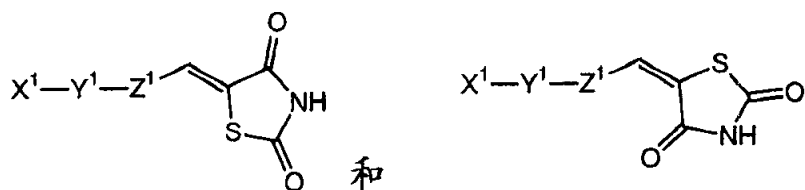
其中 Y^1 不是 $-\text{CONH}-$ 、 $-\text{NHCO}-$ 或 $-\text{NHC}(=\text{S})\text{NHC}(=\text{O})-$ 的式 (I) 化合物可以通过上述方法 A-C 描述的相同方法合成。N-烷基化可通过常规的烷基化反应进行。

15 当 Y^1 为 $-\text{N}(-\text{烷基})-\text{CO}-$ ， Z^1 为任选取代噻唑时，所述化合物可通过下述平衡表示。



(A^1 、 Z^1 、 R^D 、 R^E 和虚线如上文定义，Alk 为烷基)

20 当虚线表示式 (I)、(II) 和 (III) 中存在的键时，顺式异构体和反式异构体二者均包括在其中。例如，当 A^1 环为噻唑烷二酮时，顺式异构体和反式异构体如下：



其中 X^1 、 Y^1 和 Z^1 如上文定义。

- 术语“溶剂化物”包括如与有机溶剂、水合物等形成的溶剂化物。
- 5 这里使用的术语“本发明化合物”包括其可药用盐或溶剂化物。盐的实例包括与碱金属（如锂、钠、钾等）、碱土金属（如镁、钙等）、铵、有机碱、氨基酸、无机酸（如盐酸、氢溴酸、磷酸、硫酸等）或有机酸（如乙酸、柠檬酸、马来酸、富马酸、苯磺酸、对甲苯磺酸等）形成的盐。这些盐可通过常规的方法生成。当形成水合物时，这些水
- 10 合物与任选水分子配位。

- 前药是指含有能够化学分解或代谢分解基团的化合物的衍生物；根据本发明，这种前药是通过溶剂分解或通过生理条件下将化合物置于体内，从而变得具有药物活性的化合物。选择和制造适当前药衍生物的方法描述在如 *Design of Prodrugs*, Elsevier,
- 15 *Amsterdam*, 1985 中。例如，当本发明化合物含有羧基时，前药的实例为通过将基础酸化合物与适当的醇反应制备的酯衍生物，或通过基础酸与适当的胺反应制备的酰胺衍生物。作为前药，特别优选的酯为甲基酯、乙基酯、正丙基酯、异丙基酯、正丁基酯、异丁基酯、叔丁基酯、吗啉代乙基酯及 N,N -二乙基乙二醇氨基酯等。当本发明化合物
- 20 含有羟基时，前药的实例为通过将基础羟基化合物与适当的酰卤或适当的酸酐反应制备的酰氧基衍生物，或通过将基础酸化合物与适当的胺反应制备的酰胺衍生物。作为前药，特别优选的酰氧基衍生物为 $-OCOC_2H_5$ 、 $-OCO(t-Bu)$ 、 $-OCOC_{15}H_{31}$ 、 $-OCO(m-COONa-Ph)$ 、 $-COCH_2CH_2COONa$ 、 $-OCOCH(NH_2)CH_3$ 、 $-OCOCH_2N(CH_3)_2$ 等。例如，当本
- 25 发明化合物含有氨基时，前药的实例为通过将基础氨基化合物与适当的酰卤或适当的酸酐反应制备的酰胺衍生物。作为前药，特别优选的酰胺为 $-NHCO(CH_2)_{20}CH_3$ 、 $-NHCOCH(NH_2)CH_3$ 等。

本发明化合物不限于任何特定的异构体，包括所有可能的异构

体和外消旋改性。

如下文提到的实施例所述，本发明化合物显示出了优良的血栓形成素受体拮抗作用，可用作药物组合物（血小板生成改进剂），用于治疗伴随有非正常数量血小板的血液病，所述血液病如血小板减少症等。本发明化合物还可以用作末梢血瘤细胞释放促进剂、巨核白血病细胞的差异诱导剂、血小板捐赠人的血小板增加剂等。

为了治疗上述疾病，当对人给用本发明化合物时，可以经口服给药，如粉剂、颗粒剂、片剂、胶囊剂、丸剂及液体药剂，或者进行非肠道给药，如注射剂、栓剂、皮下制剂、吸入剂等。如果必要的话，可通过与适当的药物添加剂（如赋形剂、结合剂、渗入剂、崩解剂、润滑剂等）混合得到化合物的有效剂量。非肠道注射剂可通过将化合物与适当的载体一起杀菌制得。

给药剂量取决于患者的病况、给药路径、年龄及体重。对于成年人，在口服给药情况下，剂量一般在 0.1 至 100mg/kg/天之间，优选 1 至 20mg/kg/天。

下述实施例是用来进一步阐述本发明，而不是用来限制其范围。

下述缩略语用于实施例中：

Me: 甲基

Et: 乙基

20 iPr: 异丙基

nBu: 丁基

tBu: 叔丁基

iBu: 异丁基

nPen: 正戊基

25 nHex: 正己基

nOct: 正辛基

Ph: 苯基

Bn: 苄基

Bz: 苯甲酰基

30 Py: 吡啶基

Ac: 乙酰基

Boc: 叔丁氧基羰基

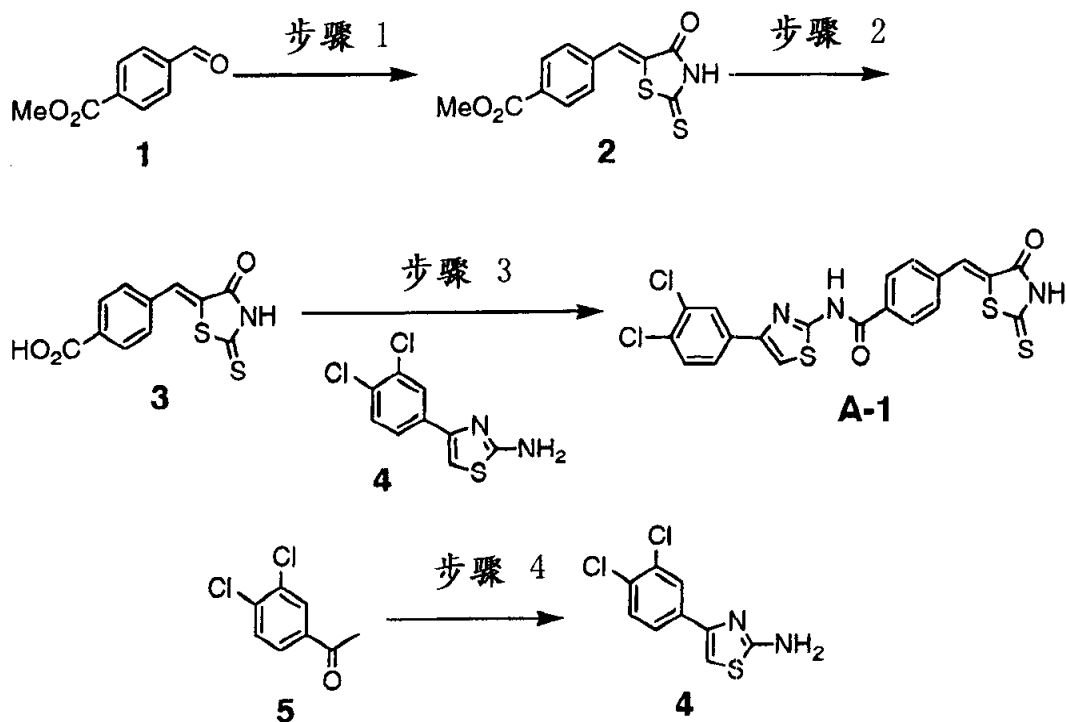
DMF: 二甲基甲酰胺

DMSO: 二甲基亚砜

实施例

实施例 1 制备化合物 (A-1)

5



(步骤 1)

向脱水对苯二甲酸甲酯 (25g) 和若丹宁 (23.3g) 的甲苯溶液中加入 1M 哌嗪-甲苯溶液 (6.2ml) 和 1M 乙酸-甲苯溶液 (6.2ml), 所得溶液回流加热过夜。冷却后过滤所得晶体, 得到化合物 (2) (34.6g)。

$^1\text{H NMR}$ (DMSO- d_6 , δ ppm) 13.18 (bs, 1H), 8.07 (d, 2H, $J = 8.7$ Hz), 7.73 (d, 2H, $J = 8.7$ Hz), 7.68 (s, 1H), 3.88 (s, 1H).

(步骤 2)

在 120°C 下回流于二噁烷 (160ml)、乙酸 (250ml) 和 6N 盐酸 (88ml) 中的化合物 (2) (34.6g) 的悬浮液 5 小时。向反应混合物中注入水 (350ml), 冷却后过滤晶体, 得到化合物 (3) (30.0g)。

^1H NMR ($\text{DMSO}-d_6$, δ ppm): 13.95 (bs, 1H), 13.24 (bs, 1H), 8.06 (d, 2H, $J = 8.4$ Hz), 7.72 (d, 2H, $J = 8.4$ Hz), 7.69 (s, 1H).

(步骤 3)

在 100°C 下加热溶解于二噁烷 (20ml) 和亚硫酸氯 (10ml) 中的化合物 (3) (3g) 的混合物。减压蒸发溶剂, 得到酰氯。所得酰氯在进一步反应前不进行纯化。向酰氯 (286mg) 和由步骤 4 合成得到的化合物 (4) (368mg) 的二噁烷 (50ml) 的溶液中加入吡啶 (162 μl), 在 100°C 下加热反应混合物 2 小时。冷却并减压蒸发溶剂后, 向残留物中添加水 (2ml), 然后过滤所得晶体, 由 DMF 重结晶, 得到 220ml 化合物 (A-1)。

^1H NMR ($\text{DMSO}-d_6$, δ ppm): 13.94 (bs, 1H), 12.93 (s, 1H), 8.23 (d, 2H, $J = 8.5$ Hz), 8.21 (d, 1H, $J = 2.1$ Hz), 7.91 – 7.97 (m, 1H), 7.93 (s, 1H), 7.76 (d, 2H, $J = 8.5$ Hz), 7.73 (s, 1H), 7.70 (s, 1H).

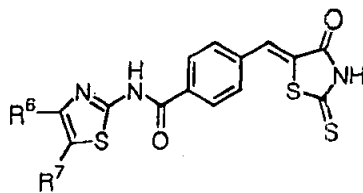
(步骤 4)

向 3', 4' -二氯苯乙酮 (5) (5.67g) 的 10% 甲醇-氯仿溶液中加入溴 (1.52ml), 然后在室温下搅拌反应溶液, 直至溴的颜色消失。在减压蒸发溶剂后, 将残留物溶解在乙醇中, 加入硫脲 (2.28g), 回流混合物 2 小时。在通过减压蒸发分离溶剂之后, 向残留物中加入乙酸乙酯-水, 然后通过过滤收集沉淀的晶体。向该晶体中加入乙酸乙酯-饱和碳酸钠溶液, 分离乙酸乙酯层, 干燥并蒸发, 得到 3.38g 化合物 (4)。

^1H NMR (CDCl_3 , δ ppm): 7.89 (d, 1H, $J = 2.2$ Hz), 7.69 (dd, 1H, $J = 8.5$ Hz, 2.2 Hz), 7.43 (d, 1H, $J = 8.2$ Hz), 6.74 (s, 1H), 5.06 (bs, 1H).

根据实施例 1 类似的方法合成化合物 (A-2) 至化合物 (A-73)。它们的物理数据示于表 1 至 8 中。

表1



实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
2	A-2		H	13.90 (bs, 1H), 12.94 (s, 1H), 8.25 (d, 2H, J = 8.1 Hz), 7.96 (d, 1H, J = 6.9 Hz), 7.77 (d, 1H, J = 8.1 Hz), 7.73 (s, 1H), 7.71 (s, 1H), 7.46 (t, 2H, J = 7.5 Hz), 7.35 (t, 2H, J = 6.9 Hz)
3	A-3		H	13.95 (bs, 1H), 12.92 (s, 1H), 8.24 (d, 2H, J = 8.1 Hz), 7.97 - 8.02 (m, 2H), 7.76 (d, 1H, J = 8.1 Hz), 7.72 (s, 1H), 7.70 (s, 1H), 7.26 - 7.31 (m, 2H)
4	A-4		H	13.90 (bs, 1H), 12.95 (s, 1H), 8.24 (d, 2H, J = 8.4 Hz), 7.92 (d, 2H, J = 8.7 Hz), 7.80 (s, 1H), 7.76 (d, 2H, J = 8.4 Hz), 7.70 (s, 1H), 7.66 (d, 2H, J = 8.7 Hz)
5	A-5		H	13.90 (bs, 1H), 12.92 (s, 1H), 8.24 (d, 2H, J = 7.8 Hz), 7.98 (d, 2H, J = 8.7 Hz), 7.79 (s, 1H), 7.76 (d, 2H, J = 8.4 Hz), 7.71 (s, 1H), 7.52 (d, 2H, J = 7.8 Hz)
6	A-6		H	13.92 (bs, 1H), 12.89 (s, 1H), 8.25 (d, 2H, J = 8.2 Hz), 7.76 (d, 1H, J = 8.2 Hz), 7.71 (s, 1H), 7.26 (d, 2H, J = 8.5 Hz), 2.34 (s, 3H)
7	A-7		H	13.90 (bs, 1H), 12.95 (s, 1H), 8.26 (d, 2H, J = 8.4 Hz), 8.06 (d, 2H, J = 7.5 Hz), 7.92 - 8.12 (m, 8H), 7.47 - 7.52 (m, 2H), 7.36 - 7.41 (m, 2H)
8	A-8		H	13.90 (bs, 1H), 12.88 (s, 1H), 8.24 (d, 2H, J = 8.4 Hz), 7.89 (d, 2H, J = 7.8 Hz), 7.76 (d, 2H, J = 7.8 Hz), 7.70 (s, 1H), 7.55 (s, 1H), 7.01 (d, 2H, J = 8.4 Hz), 3.80 (s, 3H)
9	A-9		H	13.90 (bs, 1H), 12.93 (s, 1H), 8.21 (d, 2H, J = 8.1 Hz), 7.94 (d, 1H, J = 7.5 Hz), 7.79 - 7.83 (m, 2H), 7.75 (d, 2H, J = 8.1 Hz), 7.70 (s, 1H), 7.61 - 7.66 (m, 1H), 7.59 (s, 1H)
10	A-10	t-Bu	H	13.85 (bs, 1H), 12.30 (s, 1H), 8.21 (d, 2H, J = 8.1 Hz), 7.73 (d, 2H, J = 8.1 Hz), 7.70 (s, 1H), 6.84 (s, 1H), 1.31 (s, 9H)

表 2

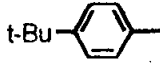
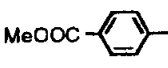
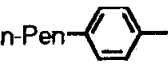
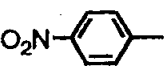
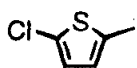
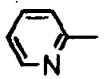
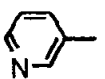
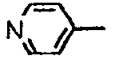
实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
11	A-11		H	13.92 (bs, 1H), 12.93 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 7.87 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 7.65 (s, 1H), 7.47 (d, 2H, J = 8.5 Hz), 1.32 (s, 9H)
12	A-12		H	13.97 (bs, 1H), 13.00 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.08 (dd, 4H, J = 19.2 Hz, 8.5 Hz), 7.94 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 3.81 (s, 3H)
13	A-13		H	13.88 (bs, 1H), 12.91 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.86 (d, 2H, J = 8.1 Hz), 7.76 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 7.64 (s, 1H), 7.27 (d, 2H, J = 8.1 Hz), 2.60 (t, 2H, J = 7.8 Hz), 1.60 (q, 2H, J = 6.6 Hz), 1.27 - 1.36 (m, 2H), 0.87 (t, 3H, J = 6.6 Hz)
14	A-14		H	13.90 (bs, 1H), 13.05 (s, 1H), 8.34 (d, 2H, J = 8.5 Hz), 8.24 (t, 4H, J = 8.2 Hz), 8.10 (s, 1H), 7.77 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H)
15	A-15		H	13.92 (bs, 1H), 12.99 (s, 1H), 8.23 (d, 2H, J = 8.5 Hz), 7.75 (d, 1H, J = 8.5 Hz), 7.71 (s, 1H), 7.64 (s, 1H), 7.44 (d, 1H, J = 4.1 Hz), 7.14 (d, 1H, J = 4.1 Hz)
16	A-16		H	13.90 (bs, 1H), 12.93 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.84 (bs, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 7.61 - 7.62 (m, 2H), 7.56 (s, 2H)
17	A-17		H	13.95 (bs, 1H), 13.00 (s, 1H), 8.65 - 8.67 (m, 1H), 8.26 (d, 2H, J = 8.4 Hz), 8.09 - 8.12 (m, 1H), 7.80 - 8.05 (m, 1H), 8.03 (s, 1H), 7.78 (d, 2H, J = 8.4 Hz), 7.70 (s, 1H), 7.55 (s, 1H), 7.73 (s, 1H), 7.43 - 7.47 (m, 3H)
18	A-18		H	13.01 (s, 1H), 9.22 (d, 1H, J = 2.1 Hz), 8.62 (dd, 1H, J = 5.1 Hz, 1.2 Hz), 8.45 (d, 1H, J = 8.4 Hz), 8.25 (d, 2H, J = 8.1 Hz), 7.98 (s, 1H), 7.77 (d, 2H, J = 8.1 Hz), 7.72 (s, 1H), 7.64 (dd, 1H, J = 8.1 Hz, 5.1 Hz)
19	A-19		H	13.15 (s, 1H), 8.92 (d, 2H, J = 6.3 Hz), 8.56 (s, 1H), 8.40 (d, 2H, J = 6.3 Hz), 8.25 (d, 2H, J = 8.5 Hz), 7.77 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H)

表 3

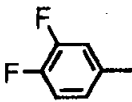
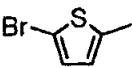
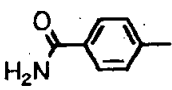
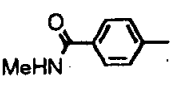
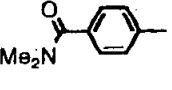
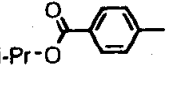
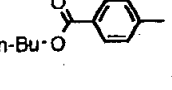
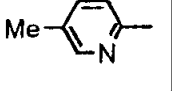
实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
20	A-20		H	13.93 (bs, 1H), 12.93 (s, 1H), 8.23 (d, 2H, J = 8.4 Hz), 7.93 - 8.01 (m, 1H), 7.82 (s, 1H), 7.80 - 7.82 (m, 1H), 7.76 (d, 2H, J = 8.4 Hz), 7.71 (s, 1H)
21	A-21		H	13.97 (bs, 1H), 13.00 (s, 1H), 8.23 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.64 (s, 1H), 7.41 (d, 1H, J = 3.8 Hz), 7.24 (d, 1H, J = 3.8 Hz)
22	A-22		H	13.94 (bs, 1H), 12.97 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.04 (d, 2H, J = 8.7 Hz), 7.96 (d, 2H, J = 8.7 Hz), 7.99 (bs, 2H), 7.88 (s, 1H), 7.77 (d, 2H, J = 8.5 Hz), 7.73 (s, 1H)
23	A-23		H	13.94 (bs, 1H), 12.97 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.04 (d, 2H, J = 8.7 Hz), 7.96 (d, 2H, J = 8.7 Hz), 7.99 (bs, 2H), 7.88 (s, 1H), 7.77 (d, 2H, J = 8.5 Hz), 7.73 (s, 1H), 2.81 (d, 3H, J = 4.2 Hz)
24	A-24		H	14.01 (bs, 1H), 12.94 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.01 (d, 2H, J = 8.2 Hz), 7.82 (s, 1H), 7.77 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 7.49 (d, 2H, J = 8.2 Hz), 2.98 (s, 6H)
25	A-25		H	13.90 (bs, 1H), 13.01 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.01 - 8.12 (m, 4H), 7.93 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 5.16 (quint, 1H, J = 6.0 Hz), 1.35 (d, 6H, J = 6.0 Hz)
26	A-26		H	13.92 (bs, 1H), 13.01 (s, 1H), 8.25 (d, 2H, J = 8.4 Hz), 8.03 - 8.12 (m, 4H), 7.93 (s, 1H), 7.77 (d, 2H, J = 8.4 Hz), 7.72 (s, 1H), 4.30 (t, 2H, J = 6.6 Hz), 1.67 - 1.76 (m, 2H), 1.41 - 1.51 (2-m., 2H), 0.95 (t, 3H, J = 7.2 Hz)
27	A-27		H	13.05 (s, 1H), 9.16 (s, 1H), 8.80 (d, 1H, J = 7.8 Hz), 8.24 (d, 2H, J = 8.4 Hz), 7.16 (s, 1H), 7.90 (d, 1H, J = 8.7 Hz), 7.77 (d, 2H, J = 8.4 Hz), 7.72 (s, 1H), 2.74 (d, 3H)
28	A-28	-CH ₂ COOEt	H	13.94 (bs, 1H), 12.82 (s, 1H), 8.21 (d, 2H, J = 8.7 Hz), 7.74 (d, 2H, J = 8.7 Hz), 7.71 (s, 1H), 7.08 (s, 1H), 4.09 (q, 2H, J = 6.9 Hz), 3.75 (s, 2H), 1.20 (t, 3H, J = 7.2 Hz)

表 4

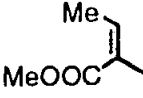
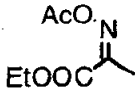
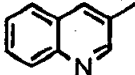
实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
29	A-29		H	13.91 (bs, 1H), 12.86 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.22 (s, 1H), 7.09 (q, 1H, J = 6.9 Hz), 3.68 (s, 3H), 1.89 (d, 3H, J = 6.9 Hz)
30	A-30		H	13.94 (bs, 1H), 13.23 (s, 1H), 8.24 (d, 2H, J = 8.1 Hz), 7.98 (s, 1H), 7.75 (d, 2H, J = 8.1 Hz), 7.71 (s, 1H), 4.46 (q, 1H, J = 7.2 Hz), 2.10 (s, 3H), 1.35 (t, 3H, J = 7.2 Hz)
31	A-31		H	13.90 (bs, 1H), 13.08 (s, 1H), 9.64 (d, 1H, J = 2.1 Hz), 9.10 (s, 1H), 8.27 (d, 2H, J = 8.5 Hz), 8.20 (d, 2H, J = 8.1 Hz), 8.17 (s, 1H), 7.92 (td, 1H, J = 8.7 Hz, 1.8 Hz), 7.76 - 7.81 (m, 3H), 7.72 (s, 1H)
32	A-32		-COOEt	14.04 (bs, 1H), 13.30 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 7.73 - 7.76 (m, 4H), 7.70 (s, 1H), 7.44 - 7.46 (m, 3H), 4.22 (q, 2H, J = 6.9 Hz), 1.23 (t, 3H, J = 6.9 Hz)
33	A-33		-COOMe	13.97 (bs, 1H), 13.31 (s, 1H), 8.24 (d, 2H, J = 8.4 Hz), 8.76 (d, 2H, J = 8.4 Hz), 7.73 - 7.76 (m, 2H), 7.70 (s, 1H), 7.44 - 7.46 (m, 3H), 3.75 (s, 1H)
34	A-34		-CH ₂ COOMe	13.88 (bs, 1H), 12.89 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.76 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.60 - 7.63 (m, 2H), 7.38 - 7.51 (d, 3H), 3.99 (s, 2H), 3.68 (s, 3H)
35	A-35		-(CH ₂) ₂ CO ₂ Me	13.93 (bs, 1H), 12.80 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.46 - 7.51 (m, 2H), 7.46 - 7.51 (m, 2H), 7.36 - 7.42 (m, 1H), 3.6 (s, 3H), 3.17 (t, 2H, J = 7.4 Hz), 2.72 (t, 2H, J = 7.4 Hz)
36	A-36		-(CH ₂) ₂ CO ₂ Et	13.93 (bs, 1H), 12.80 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.46 - 7.51 (m, 2H), 7.46 - 7.51 (m, 2H), 7.36 - 7.42 (m, 1H), 4.05 (q, 2H, J = 7.1 Hz), 3.17 (t, 2H, J = 7.4 Hz), 2.72 (t, 2H, J = 7.4 Hz), 1.16 (t, 2H, J = 7.1 Hz)

表 5

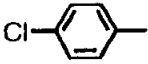
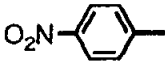
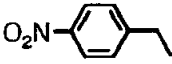
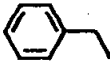
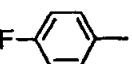
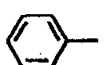
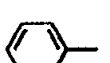
实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
37	A-37		CH ₃	13.90 (bs, 1H), 12.80 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.74 (d, 2H, J = 8.5 Hz), 7.72 (d, 2H, J = 8.2 Hz), 7.71 (s, 1H), 7.53 (d, 2H, J = 8.2 Hz), 2.51 (s, 3H)
38	A-38		Et	13.87 (bs, 1H), 12.76 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.70 (s, 1H), 7.62 - 7.65 (m, 2H), 7.45 - 7.50 (m, 2H), 7.35 - 7.40 (m, 1H), 2.93 (q, 2H, J = 7.7 Hz), 1.29 (t, 3H, J = 7.7 Hz)
39	A-39	Me		13.93 (bs, 1H), 12.98 (s, 1H), 8.30 (d, 2H, J = 9.0 Hz), 8.23 (d, 2H, J = 8.2 Hz), 7.79 (d, 2H, J = 9.0 Hz), 7.75 (d, 2H, J = 8.2 Hz), 7.70 (s, 1H), 2.50 (s, 1H)
40	A-40		H	13.92 (bs, 1H), 12.76 (s, 1H), 8.19 (d, 4H, J = 8.8 Hz), 7.72 (d, 2H, J = 8.2 Hz), 7.69 (s, 1H), 7.54 (d, 2H, J = 8.2 Hz), 7.05 (s, 1H), 4.17 (s, 2H)
41	A-41		Me	13.15 (s, 1H), 8.92 (d, 2H, J = 6.3 Hz), 8.56 (s, 1H), 8.40 (d, 2H, J = 6.3 Hz), 8.25 (d, 2H, J = 8.5 Hz), 7.77 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H)
42	A-42		COOMe	13.90 (bs, 1H), 13.31 (s, 1H), 8.24 (d, 2H, J = 8.7 Hz), 7.80 - 7.84 (m, 2H), 7.75 (d, 1H, J = 8.7 Hz), 7.70 (s, 1H), 7.26 - 7.32 (m, 2H), 3.76 (s, 3H)
43	A-43		CH ₂ CH ₂ Cl	13.92 (bs, 1H), 12.86 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.75 (d, 1H, J = 8.5 Hz), 7.71 (s, 1H), 7.65 - 7.69 (m, 2H), 7.28 - 7.34 (m, 2H), 3.91 (t, 2H, J = 6.6 Hz), 3.33 (t, 2H, J = 6.6 Hz)
44	A-44		Me	13.92 (bs, 1H), 12.81 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.74 (d, 2H, J = 8.5 Hz), 7.70 (s, 1H), 7.52 - 7.63 (m, 2H), 7.28 - 7.34 (m, 2H), 2.38 (s, 3H)
45	A-45		CON(Me) ₂	13.96 (bs, 1H), 13.15 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 7.77 (d, 2H, J = 8.5 Hz), 7.23 (s, 1H), 7.65 - 7.69 (m, 2H), 7.37 - 7.51 (m, 3H), 2.97 (s, 3H), 2.67 (s, 3H)
46	A-46		CONH ₂	13.94 (bs, 1H), 13.10 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 7.72 - 7.81 (m, 5H), 7.52 (bs, 2H), 7.41 - 7.49 (m, 3H)

表 6

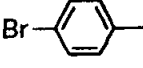
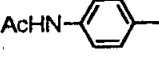
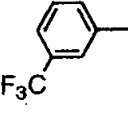
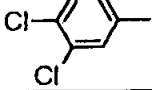
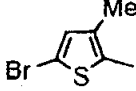
实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
47	A-47		CONHMe	13.90 (bs, 1H), 13.11 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.18 (q, 1H, J = 4.7 Hz), 7.76 (d, 2H, J = 8.5 Hz), 7.71 - 7.74 (m, 3H), 7.37 - 7.48 (m, 3H), 2.71 (d, 3H, J = 4.7 Hz)
48	A-48		*-CH ₂ -	13.95 (bs, 1H), 13.00 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.56 - 7.60 (m, 2H), 7.36 - 7.41 (m, 1H), 7.23 - 7.29 (m, 1H), 3.92 (s, 2H)
49	A-49		*-(CH ₂) ₂ -	13.92 (bs, 1H), 12.85 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.72 - 7.77 (m, 4H), 7.18 - 7.32 (m, 3H), 2.96 - 3.05 (m, 4H)
50	A-50		*-(CH ₂) ₃ -	13.89 (bs, 1H), 12.76 (s, 1H), 8.23 (d, 2H, J = 8.5 Hz), 7.99 (d, 1H, J = 7.1 Hz), 7.75 (d, 2H, J = 8.1 Hz), 7.71 (s, 1H), 7.19 - 7.34 (m, 3H), 72.96 (t, 2H, J = 7.1 Hz), 2.78 - 2.81 (m, 2H), 2.07 - 2.15 (m, 2H)
51	A-51		CH ₂ CH ₂ Cl	13.95 (bs, 1H), 12.90 (s, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.66 - 7.71 (m, 2H), 7.57 - 7.62 (m, 2H), 3.91 (t, 2H, J = 6.8 Hz), 3.33 (t, 2H, J = 6.8 Hz)
52	A-52		H	13.99 (bs, 1H), 12.92 (s, 1H), 10.03 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.88 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 7.66 (d, 2H, J = 8.5 Hz), 7.59 (s, 1H), 2.07 (s, 3H)
53	A-53		H	13.98 (bs, 1H), 12.95 (s, 1H), 8.33 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.23 - 8.27 (m, 1H), 7.98 (s, 1H), 7.77 (d, 2H, J = 8.5 Hz), 7.69 - 7.72 (m, 3H)
54	A-54	H		13.90 (bs, 1H), 8.22 (d, 2H, J = 8.5 Hz), 8.14 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.75 (s, 1H), 7.62 - 7.70 (m, 2H)
55	A-55	H		13.87 (bs, 1H), 12.86 (s, 1H), 8.23 (d, 2H, J = 8.5 Hz), 7.98 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.68 - 7.52 (m, 2H), 7.42 - 7.47 (m, 2H), 7.30 - 7.35 (m, 1H)
56	A-56		H	13.89 (bs, 1H), 12.95 (s, 1H), 8.23 (d, 2H, J = 8.5 Hz), 7.75 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.36 (s, 1H), 7.11 (s, 1H), 2.40 (s, 3H)

表 7

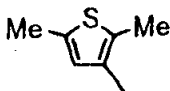
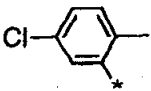
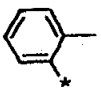
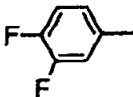
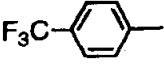
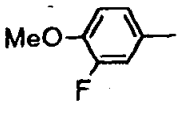
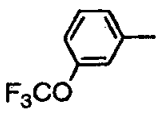
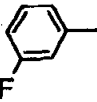
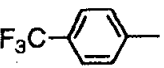
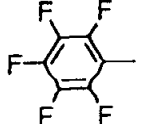
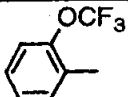
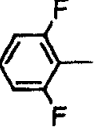
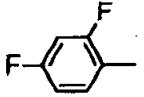
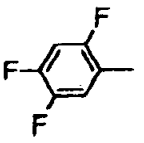
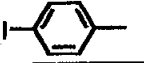
实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
57	A-57		H	13.89 (bs, 1H), 12.77 (s, 1H), 8.23 (d, 2H, J = 8.5 Hz), 7.76 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.29 (s, 1H), 7.07 (d, 1H, J = 1.1 Hz), 2.60 (s, 3H), 2.40 (s, 3H)
58	A-58		*-OCH ₂ -	14.03 (bs, 1H), 12.99 (s, 1H), 8.23 (d, 2H, J = 8.2 Hz), 7.75 (d, 2H, J = 8.2 Hz), 7.69 (s, 1H), 7.54 (d, 1H, J = 2.5 Hz), 7.24 (dd, 1H, J = 8.5 Hz, 2.5 Hz), 6.97 (d, 1H, J = 8.5 Hz), 5.54 (s, 2H)
59	A-59		*-SCH ₂ -	13.84 (bs, 1H), 12.95 (s, 1H), 8.34 (d, 2H, J = 8.5 Hz), 7.86 - 7.90 (m, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 7.34 - 7.37 (m, 1H), 7.19 - 7.30 (m, 2H), 4.32 (s, 2H)
60	A-60		H	13.93 (bs, 1H), 12.93 (s, 1H), 8.23 (d, 2H, J = 8.4 Hz), 7.93 - 8.01 (m, 1H), 7.82 (s, 1H), 7.80 - 7.82 (m, 1H), 7.76 (d, 2H, J = 8.4 Hz), 7.71 (s, 1H)
61	A-61		H	13.94 (bs, 1H), 13.01 (s, 1H), 8.25 (d, 2H, J = 8.2 Hz), 8.18 (d, 2H, J = 8.2 Hz), 7.96 (s, 1H), 7.82 (d, 2H, J = 8.2 Hz), 7.76 (d, 2H, J = 8.2 Hz), 7.71 (s, 1H)
62	A-62		H	13.94 (bs, 1H), 12.91 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.96 (s, 1H), 7.67 - 7.80 (m, 6H), 7.22 - 7.28 (m, 1H), 3.88 (s, 3H)
63	A-63		H	13.95 (bs, 1H), 12.97 (s, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.00 - 8.02 (m, 1H), 7.94 - 7.96 (m, 6H), 7.77 (d, 2H, J = 8.5 Hz), 7.73 (s, 1H), 7.60 (t, 1H, J = 7.8 Hz), 7.34 - 7.36 (m, 1H)
64	A-64		H	13.97 (bs, 1H), 12.97 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.87 (s, 1H), 7.26 - 7.84 (m, 6H), 7.72 (s, 1H), 7.47 - 7.54 (m, 1H), 7.15 - 7.21 (m, 1H)
65	A-65		CO ₂ Me	13.40 (s, 1H), 8.24 (d, 2H, J = 8.2 Hz), 7.97 (d, 2H, J = 8.5 Hz), 7.83 (d, 2H, J = 8.0 Hz), 7.76 (d, 2H, J = 8.0 Hz), 7.70 (s, 1H), 3.77 (s, 3H)
66	A-66		H	8.24 (d, 2H, J = 8.5 Hz), 7.77 (d, 2H, J = 8.5 Hz), 7.73 (s, 1H), 7.72 (s, 1H)

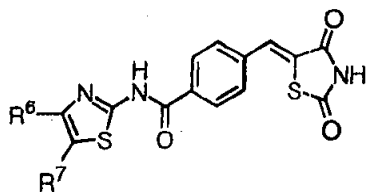
表 8

实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
67	A-67		H	13.96 (bs, 1H), 12.98 (s, 1H), 8.25 (d, 2H, J = 8.2 Hz), 8.09 - 8.15 (m, 1H), 7.77 (d, 2H, J = 8.5 Hz), 7.73 (s, 1H), 7.63 (d, 1H, j = 2.5 Hz), 7.31 - 7.45 (m, 3H)
68	A-68		H	13.96 (bs, 1H), 12.96 (s, 1H), 8.23 (d, 2H, J = 8.2 Hz), 7.86 (d, 1H, J = 7.9 Hz), 7.62 - 7.78 (m, 6H), 7.35 (s, 1H)
69	A-69		H	13.93 (bs, 1H), 13.03 (s, 1H), 8.24 (d, 2H, J = 8.2 Hz), 7.76 (d, 2H, J = 8.5 Hz), 7.72 (s, 1H), 7.47 - 7.57 (m, 1H), 7.55 (s, 1H), 7.17 - 7.28 (m, 2H)
70	A-70		H	13.95 (bs, 1H), 12.97 (s, 1H), 8.25 (d, 2H, J = 8.2 Hz), 8.09 - 7.18 (m, 1H), 7.76 (d, 2H, J = 8.2 Hz), 7.72 (m, 1H), 7.60 (d, 1H, J = 2.7 Hz), 7.36 - 7.44 (m, 1H), 7.20 - 7.27 (m, 1H)
71	A-71		H	13.96 (bs, 1H), 12.94 (s, 1H), 8.23 (d, 2H, J = 8.2 Hz), 7.97 - 8.06 (m, 1H), 7.75 (d, 2H, J = 8.2 Hz), 7.67 - 7.72 (m, 1H), 7.69 (s, 1H), 7.67 (d, 1H, J = 2.5 Hz)
72	A-72		H	13.99 (bs, 1H), 12.92 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 8.19 (t, 2H, J = 1.6 Hz), 7.95 - 7.98 (m, 1H), 7.87 (s, 1H), 7.77 (d, 2H, J = 8.5 Hz), 7.52 - 7.56 (m, 1H), 7.42 (t, 1H, J = 8.0 Hz)
73	A-73		H	13.97 (bs, 1H), 12.95 (s, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.72 - 7.84 (m, 8H),

根据实施例 1 类似的方法, 利用 1,4-噻唑烷二酮替代若丹宁, 合成化合物 (B-1) 至化合物 (B-25)。它们的物理数据示于表 9 至 11

5 中。

表 9



实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
74	B-1		H	12.92 (s, 1H), 12.72 (bs, 1H), 8.24 (d, 2H, J = 8.4 Hz), 7.95 - 7.98 (m, 2H), 7.87 (s, 1H), 7.76 (d, 2H, J = 8.4 Hz), 7.73 (s, 1H), 7.43 - 7.48 (m, 2H), 7.32 - 7.37 (m, 1H)
75	B-2		H	12.89 (s, 1H), 12.75 (bs, 1H), 8.24 (d, 2H, J = 8.4 Hz), 7.97 - 8.02 (m, 2H), 7.87 (s, 1H), 7.76 (d, 2H, J = 8.4 Hz), 7.70 (s, 1H), 7.26 - 7.32 (m, 2H)
76	B-3		H	12.92 (s, 1H), 12.73 (bs, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.94 (d, 2H, J = 7.1 Hz), 7.90 (s, 1H), 7.86 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.65 (d, 2H, J = 7.1 Hz)
77	B-4		H	12.91 (s, 1H), 12.72 (bs, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.98 (d, 2H, J = 8.5 Hz), 7.86 (s, 1H), 7.79 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.52 (d, 2H, J = 8.5 Hz)
78	B-5		H	12.89 (s, 1H), 12.75 (bs, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.87 (s, 1H), 7.85 (d, 1H, J = 8.1 Hz), 7.76 (d, 2H, J = 8.5 Hz), 7.64 (s, 1H), 7.26 (d, 1H, J = 8.1 Hz), 2.34 (s, 3H)
79	B-6		H	12.94 (s, 1H), 12.74 (bs, 1H), 8.25 (d, 2H, J = 8.4 Hz), 8.06 (d, 2H, J = 8.1 Hz), 7.87 (s, 1H), 7.72 - 7.79 (m, 7H), 7.49 (t, 2H, J = 7.5 Hz), 7.38 (t, 2H, J = 7.5 Hz)
80	B-7		H	12.89 (s, 1H), 12.76 (bs, 1H), 8.24 (d, 2H, J = 8.4 Hz), 7.99 (d, 2H, J = 8.7 Hz), 7.86 (s, 1H), 7.76 (d, 2H, J = 8.4 Hz), 7.56 (s, 1H), 7.01 (d, 2H, J = 8.7 Hz), 3.80 (s, 3H)
81	B-8		H	12.85 (s, 1H), 12.73 (bs, 1H), 8.21 (d, 2H, J = 8.7 Hz), 7.94 (dd, 1H, J = 7.8 Hz, 1.2 Hz), 7.86 (s, 1H), 7.78 - 7.83 (m, 2H), 7.74 (d, 2H, J = 8.7 Hz), 7.61 - 7.67 (m, 1H), 7.59 (s, 1H)

表 10

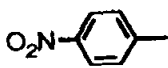
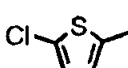
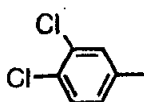
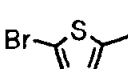
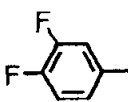
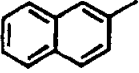
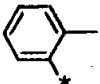
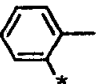
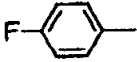
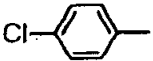
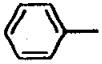
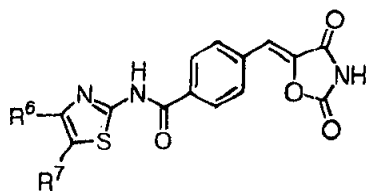
实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
82	B-9	t-Bu	H	12.70 (s, 1H), 8.20 (d, 2H, J = 8.7 Hz), 7.84 (s, 1H), 7.73 (d, 2H, J = 8.7 Hz), 6.84 (s, 1H), 1.31 (s, 9H)
83	B-10	t-Bu- 	H	12.90 (s, 1H), 12.73 (bs, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.88 (d, 2H, J = 8.5 Hz), 7.87 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 7.64 (s, 1H), 7.47 (d, 2H, J = 8.5 Hz), 1.32 (s, 9H)
84	B-11	MeOOC- 	H	12.97 (s, 1H), 12.72 (bs, 1H), 8.25 (d, 2H, J = 8.5 Hz), 8.08 (dd, 4H, J = 18.9 Hz, 8.8 Hz), 7.94 (s, 1H), 7.87 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz), 3.81 (s, 3H)
85	B-12	n-Pen- 	H	12.89 (s, 1H), 12.72 (bs, 1H), 8.24 (d, 2H, J = 8.7 Hz), 7.87 (s, 1H), 7.85 (d, 2H, J = 8.4 Hz), 7.75 (d, 2H, J = 8.4 Hz), 7.63 (s, 1H), 7.26 (d, 2H, J = 8.7 Hz), 2.60 (t, 2H, J = 7.8 Hz), 1.55 - 1.65 (m, 2H), 1.27 - 1.36 (m, 2H), 0.87 (t, 3H, J = 7.8 Hz)
86	B-13	O ₂ N- 	H	13.03 (s, 1H), 12.73 (bs, 1H), 8.34 (d, 2H, J = 8.5 Hz), 8.24 (d, 2H, J = 8.7 Hz), 8.22 (d, 2H, J = 8.7 Hz), 8.09 (s, 1H), 7.86 (s, 1H), 7.76 (d, 2H, J = 8.5 Hz)
87	B-14	Cl- 	H	12.89 (s, 1H), 12.73 (bs, 1H), 8.23 (d, 2H, J = 8.7 Hz), 7.87 (s, 1H), 7.75 (d, 2H, J = 8.7 Hz), 7.64 (s, 1H), 7.44 (d, 1H, J = 3.9 Hz), 7.15 (d, 1H, J = 3.9 Hz)
88	B-15		H	12.89 (s, 1H), 12.72 (bs, 1H), 8.24 (d, 2H, J = 8.5 Hz), 7.87 (s, 1H), 7.83 - 7.84 (m, 1H), 7.75 (d, 2H, J = 8.5 Hz), 7.62 - 7.63 (m, 2H), 7.56 (s, 1H)
89	B-16	Cl- 	H	12.92 (s, 1H), 12.73 (bs, 1H), 8.24 (d, 2H, J = 8.7 Hz), 8.22 (d, 1H, J = 2.4 Hz), 7.95 (dd, 1H, J = 8.4 Hz, 2.4 Hz), 7.94 (s, 1H), 7.86 (s, 1H), 7.77 (d, 2H, J = 8.7 Hz), 7.73 (d, 1H, J = 8.4 Hz)
90	B-17	Br- 	H	12.99 (s, 1H), 12.75 (bs, 1H), 8.38 (m, 1H), 8.25 (m, 2H), 7.99 (m, 2H), 7.87 (s, 1H), 7.77 (d, 2H, J = 8.4 Hz), 7.55 (m, 4H), 7.73 (m, 1H)
91	B-18	F- 	H	12.91 (s, 1H), 12.76 (bs, 1H), 8.86 (s, 1H), 8.23 (d, 2H, J = 8.7 Hz), 7.96 (m, 1H), 7.83 (m, 1H), 7.82 (s, 1H), 7.75 (d, 2H, J = 8.7 Hz), 7.52 (m, 1H)

表 11

实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
92	B-19		H	12.99(s, 1H), 12.75 (bs, 1H), 8.38 (1H, m), 8.26 (d, 2H, J=8.7 Hz), 7.99 (m, 2H), 7.87(s, 1H), 7.77 (d, 2H, J=8.7 Hz), 7.56 (m, 4H), 7.73 (m, 1H)
93	B-20	H	H	12.72 (bs, 2H), 8.22 (d, 2H, J=8.7 Hz), 7.86 (s, 1H), 7.58 (d, 1H, J=3.6 Hz), 7.75 (d, 2H, J=8.7 Hz), 7.31 (d, 1H, J=3.6 Hz),
94	B-21		*-(CH ₂) ₂ -	12.84 (s, 1H), 12.73 (bs, 1H), 8.23 (d, 2H, J = 8.5 Hz), 7.86 (s, 1H), 7.75 (d, 2H, J = 8.5 Hz), 7.74 (d, 1H, J = 6.9 Hz), 7.18 - 7.32 (m, 3H), 2.96 - 3.05 (m, 4H)
95	B-22		*-(CH ₂) ₃ -	12.75 (s, 2H), 8.23 (d, 2H, J = 8.5 Hz), 8.00 (d, 2H, J = 7.4 Hz), 7.86 (s, 1H), 7.75 (d, 2H, J = 8.5 Hz), 7.19 - 7.33 (m, 3H), 2.96 (t, 2H, J = 6.8 Hz), 2.78 - 2.82 (m, 2H), 2.06 - 2.15 (m, 2H)
96	B-23		CH ₂ CH ₂ Cl	12.86 (s, 1H), 12.74 (bs, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.86 (s, 1H), 7.75 (d, 2H, J = 8.5 Hz), 7.65 - 7.69 (m, 2H), 7.29 - 7.35 (m, 2H), 3.91 (t, 2H, J = 6.8 Hz), 3.32 (t, 2H, J = 6.8 Hz)
97	B-24		Me	12.76 (s, 1H), 12.70 (bs, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.85 (s, 1H), 7.74 (d, 2H, J = 8.5 Hz), 7.72 (d, 2H, J = 8.5 Hz), 7.53 (d, 2H, J = 8.5 Hz), 2.51 (s, 1H)
98	B-25		CH ₂ Me	12.77 (s, 1H), 12.70 (bs, 1H), 8.22 (d, 2H, J = 8.5 Hz), 7.86 (s, 1H), 7.75 (d, 2H, J = 8.5 Hz), 7.62 - 7.65 (m, 2H), 7.45 - 7.50 (m, 2H), 7.35 - 7.40 (m, 1H), 2.93 (q, 2H, J = 7.4 Hz), 1.29 (t, 3H, J = 7.4 Hz)

根据实施例 1 类似的方法, 利用 1, 4-噁唑烷二酮替代若丹宁, 合成化合物 (C-1) 至化合物 (C-9)。它们的物理数据示于表 12 中。

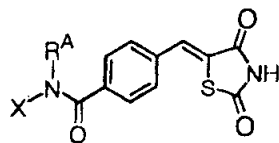
表 12



实施例 序号	化合物 序号	R ⁶	R ⁷	¹ H-NMR (δ) ppm (DMSO d-6)
99	C-1		H	12.88 (s, 1H), 12.54 (bs, 1H), 8.22 (s, 1H), 8.20 (d, 2H, J = 5.8 Hz), 7.91 - 7.97 (m, 4H), 7.72 (d, 1H, J = 8.5 Hz), 6.83 (s, 1H)
100	C-2		H	12.96 (s, 1H), 12.54 (bs, 1H), 8.22 (d, 2H, J = 8.7 Hz), 8.04 - 8.13 (m, 1H), 7.94 (s, 1H), 7.93 (d, 2H, J = 6.9 Hz), 6.84 (s, 1H), 3.88 (s, 3H)
101	C-3		H	12.89 (s, 1H), 12.55 (bs, 1H), 8.21 (d, 2H, J = 8.5 Hz), 7.89 - 8.03 (m, 1H), 7.93 (d, 2H, J = 8.5 Hz), 7.89 - 7.86 (m, 1H), 7.82 (s, 1H), 7.48 - 7.57 (m, 1H), 6.83 (s, 1H)
102	C-4		H	12.96 (s, 1H), 12.55 (bs, 1H), 8.20 (d, 2H, J = 8.5 Hz), 7.92 (d, 2H, J = 8.5 Hz), 7.34 (s, 1H), 7.42 (d, 1H, J = 3.8 Hz), 7.24 (d, 2H, J = 3.8 Hz), 6.83 (s, 1H)
103	C-5		*-(CH ₂) ₂ -	12.81 (s, 1H), 12.54 (bs, 1H), 8.21 (d, 2H, J = 8.5 Hz), 7.92 (d, 2H, J = 8.5 Hz), 7.74 (d, 2H, J = 7.4 Hz), 7.18 - 7.32 (m, 3H), 6.83 (s, 1H), 2.95 - 3.05 (m, 4H)
104	C-6		*-(CH ₂) ₃ -	12.72 (s, 1H), 12.56 (bs, 1H), 8.20 (d, 2H, J = 8.5 Hz), 8.01 (d, 1H, J = 7.4 Hz), 7.92 (d, 2H, J = 8.5 Hz), 7.20 - 7.34 (m, 3H), 6.82 (s, 1H), 2.97 (t, 2H, J = 6.8 Hz), 2.79 - 2.81 (m, 2H), 2.09 - 2.13 (m, 2H)
105	C-7		CH ₂ CH ₂ Cl	12.83 (s, 1H), 12.55 (bs, 1H), 8.19 (d, 2H, J = 8.5 Hz), 7.92 (d, 2H, J = 8.5 Hz), 7.65 - 7.70 (m, 2H), 8.28 - 7.35 (m, 2H), 6.83 (s, 1H), 3.91 (t, 2H, J = 6.9 Hz), 3.34 (t, 2H, J = 6.9 Hz)
106	C-8		Me	12.75 (s, 1H), 12.53 (bs, 1H), 8.19 (d, 2H, J = 8.5 Hz), 7.91 (d, 2H, J = 8.5 Hz), 7.72 (d, 2H, J = 8.5 Hz), 7.53 (d, 2H, J = 8.5 Hz), 6.82 (s, 1H), 2.51 (s, 3H)
107	C-9		CH ₂ Me	12.74 (s, 1H), 12.55 (bs, 1H), 8.19 (d, 2H, J = 8.5 Hz), 7.92 (d, 2H, J = 8.5 Hz), 7.62 - 7.65 (m, 2H), 7.45 - 7.50 (m, 2H), 7.35 - 7.40 (m, 1H), 6.83 (s, 1H), 2.93 (q, 2H, J = 7.4 Hz), 1.30 (t, 3H, J = 7.4 Hz)

根据实施例 1 类似的方法，利用市购胺替代步骤 3 中的化合物 (4)，合成化合物 (D-1) 至化合物 (D-20)。它们的物理数据示于表 13 至 15 中。

表 13

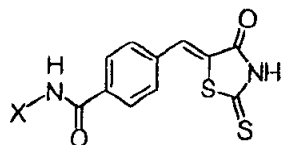


实施例 序号	化合物 序号	X	RA	¹ H-NMR (δ) ppm (DMSO d-6)
108	D-1		H	7.64 (2H, d, J = 8.7 Hz), 7.71 (2H, d, J = 8.7 Hz), 7.74 (2H, d, J = 8.7 Hz), 7.86 (1H, s), 8.06 (2H, d, J = 8.1 Hz), 12.70 (1H, br.s)
109	D-2		H	7.21 (2H, dd, J = 8.7 Hz, J _{H-F} = 8.7 Hz), 7.75 (2H, d, J = 8.7 Hz), 7.80 (2H, m), 7.86 (1H, s), 8.06 (2H, d, J = 8.7 Hz), 10.42 (1H, s), 12.72 (1H, bs)
110	D-3		H	1.33 (3H, t, J = 6.9 Hz), 4.45 (2H, q, J = 6.9 Hz), 7.20 (1H, dd, J = 8.1 Hz, 8.1 Hz), 7.46 (1H, dd, J = 8.1 Hz, 8.1 Hz), 7.60 (2H, m), 7.75 (1H, m), 7.76 (2H, d, J = 8.7 Hz), 7.88 (1H, s), 8.15 (2H, d, J = 8.7 Hz), 8.58 (1H, s), 10.43 (1H, s), 12.72 (1H, bs)
111	D-4		H	1.16 (3H, t, J = 7.2 Hz), 2.30 (3H, s), 3.40 (2H, q, J = 7.2 Hz), 3.56 (2H, t, 5.4 Hz), 3.68 (2H, m), 6.44 (1H, bs), 6.58 (1H, d, J = 7.5 Hz), 6.63 (1H, s), 6.64 (1H, d, J = 7.5 Hz), 7.14 (1H, dd, J = 7.5 Hz, 7.5 Hz), 7.52 (2H, d, J = 8.7 Hz), 7.77 (2H, d, J = 8.7 Hz), 7.83 (1H, s)
112	D-5		Ph	6.95 (1H, dd, J = 7.5 Hz, 7.5 Hz), 7.23 (3H, m), 7.38 (6H, m), 7.60 (2H, m), 7.69 (2H, m), 7.77 (1H, s), 9.02 (1H, s), 9.25 (1H, s), 12.66 (1H, bs)
113	D-6		Me	3.47 (3H, s), 7.41 (2H, d, J = 9.0 Hz), 7.47 (4H, m), 7.58 (3H, m), 7.78 (2H, d, J = 9.0 Hz), 7.84 (2H, m), 12.62 (1H, bs)
114	D-7		H	3.83 (3H, s), 7.07 (1H, dd, J = 2.4 Hz, 9.0 Hz), 7.62 (1H, d, J = 2.4 Hz), 7.68 (1H, d, J = 9.0 Hz), 7.76 (2H, d, J = 8.4 Hz), 7.87 (1H, s), 8.23 (2H, d, J = 8.4 Hz), 12.75 (1H, s), 12.88 (1H, s)
115	D-8		H	7.58 (3H, m), 7.77 (2H, d, J = 8.7 Hz), 7.88 (2H, m), 7.95 (3H, m), 8.06 (2H, m), 8.11 (2H, d, J = 8.7 Hz), 10.72 (1H, s), 12.72 (1H, bs)
116	D-9		H	4.49 (2H, d, J = 6.0 Hz), 7.25 (1H, m), 7.33 (4H, m), 7.69 (2H, d, J = 8.1 Hz), 7.83 (1H, s), 8.01 (2H, d, J = 8.1 Hz), 9.17 (1H, t, J = 6.0 Hz), 12.69 (1H, bs)

表 14

实施例 序号	化合物 序号	X	R ^A	¹ H-NMR (δ) ppm (DMSO d-6)
117	D-10		H	2.47 (3H, s), 7.27 (2H, d, J = 9.0 Hz), 7.74 (4H, m), 7.85 (1H, s), 8.06 (2H, d, J = 9.0 Hz), 12.60 (1H, bs)
118	D-11		H	12.45 (bs, 1H), 10.29 (s, 1H), 8.07 (d, 2H, J = 8.1 Hz), 7.87 (s, 1H), 7.74 (d, 2H, J = 8.1 Hz), 7.67 (d, 2H, 8.7 Hz), 7.18 (d, 2H, J = 8.7 Hz), 2.56 (t, 2H, J = 7.5 Hz), 1.50 - 1.61 (m, 2H), 1.25 - 1.37 (m, 2H), 0.91 (t, 3H, J = 7.5 Hz)
119	D-12		H	13.94 (bs, 1H), 12.25 (s, 1H), 8.17 (d, 2H, J = 8.4 Hz), 7.88 - 7.92 (m, 2H), 7.77 (d, 2H, J = 8.4 Hz), 7.72 (s, 1H), 7.52 - 7.53 (m, 3H), 6.96 (s, 3H)
120	D-13		H	3.893 (3H, s), 7.026 (1H, s), 7.756 (2H, d, J = 8.4 Hz), 7.851 (1H, s), 8.028-8.100 (4H, m), 8.156 (2H, d, J = 8.4 Hz), 12.277 (1H, s), 12.714 (1H, br)
121	D-14		H	7.556 (1H, dd, J = 2.1, 8.4 Hz), 7.730-7.769 (4H, m), 7.865 (1H, s), 7.943 (1H, d, J = 8.4 Hz), 8.236 (2H, d, J = 8.4 Hz), 12.732 (1H, s), 12.963 (1H, br)
122	D-15		H	7.019 (1H, br), 7.332-7.381 (1H, m), 7.467 (2H, t, J = 7.7 Hz), 7.711-7.785 (4H, m), 7.862 (1H, s), 8.147 (2H, d, J = 8.7 Hz), 11.024 (1H, s), 12.5 (1H, br)
123	D-16		H	3.879 (3H, s), 7.107 (1H, s), 7.732 (2H, d, J = 8.4 Hz), 7.861 (1H, s), 7.933 (2H, d, J = 8.7 Hz), 8.036 (2H, d, J = 8.7 Hz), 8.152 (2H, d, J = 8.4 Hz), 11.124 (1H, s), 12.711 (1H, br)
124	D-17		H	7.31-7.37 (2H, m), 7.735 (2H, d, J = 9.0 Hz), 7.86-7.83 (2H, m), 7.871 (1H, s), 8.149-8.178 (3H, m), 8.298 (2H, d, J = 8.7 Hz), 8.73 (1H, s), 11.058 (1H, s), 12.707 (1H, br)
125	D-18		H	1.352 (3H, t, J = 7.2 Hz), 4.350 (2H, q, J = 7.2 Hz), 7.728 (2H, d, J = 8.4 Hz), 7.862 (1H, s), 7.919 (2H, d, J = 8.4 Hz), 8.062 (2H, d, J = 8.4 Hz), 8.164 (2H, d, J = 8.7 Hz), 11.119 (1H, s), 12.716 (1H, br)

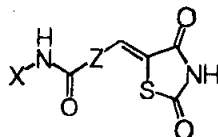
表 15



实施例 序号	化合物 序号	X	¹ H-NMR (δ) ppm (DMSO d-6)
126	D-19		13.98(bs, 1H), 11.82(s, 1H), 8.15(d, 2H, J = 8.2 Hz), 7.80(d, 2H, J = 8.2 Hz), 7.72(s, 1H), 7.65(d, 2H, J = 8.0 Hz), 7.43(t, 2H, J = 8.0 Hz), 7.39(s, 1H), 7.30(t, 1H, J = 8.0 Hz), 7.30(s, 1H).
127	D-20		12.1(bs, 2H), 11.9(bs, 1H), 8.19 (d, 2H, J = 8.5 Hz), 7.79 (d, 2H, J = 8.5 Hz), 7.74 (d, 2H, J = 8.5 Hz), 7.71 (s, 1H), 7.46 (s, 1H), 7.40(d, 2 H, J = 8.5 Hz)

根据实施例 1 类似的方法, 利用 5-甲酰基-咪唑羧酸甲酯、5-甲酰基-噻吩羧酸甲酯和 4-甲酰基-烟酸甲酯替代脱酸对苯二甲酸甲酯, 合成化合物 (E-1) 至化合物 (C-5)。它们的物理数据示于表 16 中。

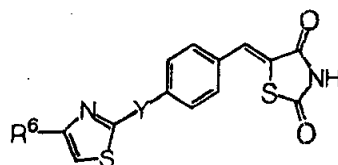
表 16



实施例 序号	化合物 序号	X	Z	¹ H-NMR (δ) ppm (DMSO d-6)
128	E-1			7.23 (1H, d, J = 3.9 Hz), 7.65 (1H, s), 7.71 (1H, d, J = 8.4 Hz), 7.88-7.94 (3H, m), 8.19 (1H, d, J = 2.4 Hz), 12.6 (1H, br), 12.92 (1H, s)
129	E-2			7.69-7.73 (2H, m), 7.90-7.94 (2H, m), 8.05 (1H, s), 8.19 (1H, d, J = 2.1 Hz), 8.33 (1H, d, J = 4.2 Hz), 12.7 (1H, br), 13.06 (1H, s)
130	E-3			3.87 (3H, s), 7.72 (1H, d, J=4.2 Hz), 7.91 (1H, s), 8.02-8.10 (5H, m), 8.34 (1H, d, J = 4.2 Hz), 12.7 (1H, br), 13.11 (1H, s)
131	E-4			13.75 (bs, 1H), 13.08 (s, 1H), 9.37 (d, 1H, J = 2.1 Hz), 8.56 (dd, 1H, J = 8.2 Hz, 2.4 Hz), 8.21 (d, 1H, J = 1.8 Hz), 8.05 (d, 1H, J = 7.9 Hz), 7.95 (s, 1H), 7.94 (dd, 1H, J = 9.1 Hz, 2.1 Hz), 7.75 (s, 1H), 7.33 (d, 1H, J = 8.5 Hz)
132	E-5			13.77 (bs, 1H), 13.15 (s, 1H), 9.48 (d, 1H, J = 2.7 Hz), 8.57 (dd, 1H, J = 8.4 Hz, 2.4 Hz), 8.02 - 8.12 (m, 4H), 7.96 (s, 1H), 7.92 - 8.02 (m, 1H), 7.75 (s, 1H), 3.88 (s, 3H)

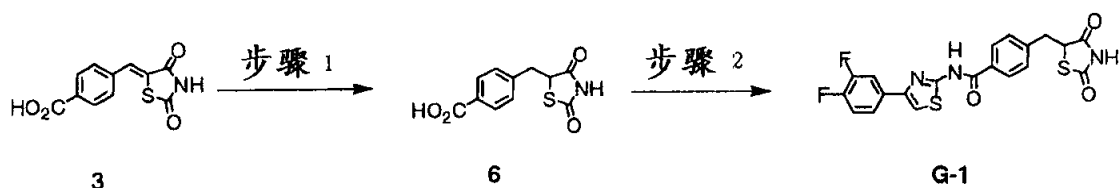
根据实施例 1 类似的方法, 利 4-甲酰基-苯氧基乙酸甲酯、4-甲酰基-肉桂酸甲酯替代脱酸对苯二甲酸甲酯, 合成化合物 (F-1) 至化合物 (F-4)。它们的物理数据示于表 17 中。

表 17



实施例 序号	化合物 序号	R ⁶	Y	¹ H-NMR (δ) ppm (DMSO d-6)
133	F-1			4.50 (2H, s), 7.15 (2H, d, J = 8.7 Hz), 7.58 (2H, d, 8.7 Hz), 7.76 (1H, s), 7.88-7.918 (2H, m), 8.15 (1H, d, J = 1.8 Hz), 12.52 (1H, br), 12.60 (1H, s)
134	F-2			3.87 (3H, s), 5.00 (2H, s), 7.16 (2H, d, J = 8.7 Hz), 7.59 (2H, d, J = 8.7 Hz), 7.76 (1H, s), 7.88 (1H, s), 8.01-8.08 (4H, m), 12.50 (1H, br), 12.65 (1H, s)
135	F-3			3.87 (3H, s), 7.01 (1H, d, J = 16.2 Hz), 7.66-7.88 (7H, m), 8.01-8.10 (4H, m), 12.64 (1H, s)
136	F-4			6.99 (1H, d, J = 15.9 Hz), 7.65-7.79 (7H, m), 7.86 (1H, s), 7.89 (1H, dd, J = 2.1 Hz, 8.7 Hz), 8.13 (1H, d, J = 2.1 Hz), 12.58 (1H, s)

实施例 137



5

(步骤 1)

向于甲醇 (300ml) 中的实施例 1 步骤 2 合成得到的化合物 (3) (1.10g) 的悬浮液中加入 10%钨-碳 (0.55g), 在氢气气氛下搅拌反应混合物。通过过滤分离钨-碳, 减压蒸发得到 1.05g 化合物 (6)。

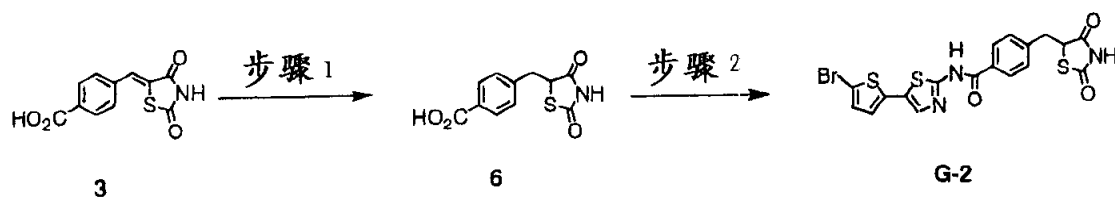
¹H NMR (DMSO-d₆, δ ppm): 12.46 (bs, 1H), 7.99 (d, 2H, J = 8.4 Hz), 7.37 (d, 2H, J = 8.4 Hz), 4.95 (dd, 1H, J = 9.0 Hz, 4.5 Hz), 3.45 (dd, 1H, J = 14.4 Hz, 4.5 Hz), 3.22 (dd, 1H, J = 14.4 Hz, 9.0 Hz)

(步骤 2)

在 100℃ 下加热于二噁烷 (20ml) 和亚硫酰氯 (10ml) 中的化合物 (6) (1.0g) 的混合物并溶解。减压蒸发溶剂, 得到酰氯。所得酰氯在进一步反应前不进行纯化。向酰氯 (286mg) 和 2-氨基-4-(3', 4'-二氟苯基) 噻唑 (212g) 的二噁烷 (50ml) 的溶液中加入吡啶 (121μl), 在 100℃ 下加热反应混合物 2 小时。在减压蒸发溶剂后, 通过硅胶色谱纯化 (己烷-乙酸乙酯; 2:1) 残留物, 得到化合物 (G-1)。

¹H NMR (DMSO-d₆, δ ppm): 12.75 (s, 1H), 12.11 (bs, 1H), 8.08 (d, 2H, J = 8.2 Hz), 7.93 - 8.01 (m, 1H), 7.80 - 7.84 (m, 1H), 7.80 (s, 1H), 7.48 - 7.59 (m, 1H), 7.44 (d, 2H, J = 8.2 Hz), 5.01 (dd, 1H, J = 8.8 Hz, 4.7 Hz), 3.48 (dd, 1H, J = 14.0 Hz, 4.7 Hz), 3.26 (dd, 1H, J = 14.0 Hz, 8.8 Hz)

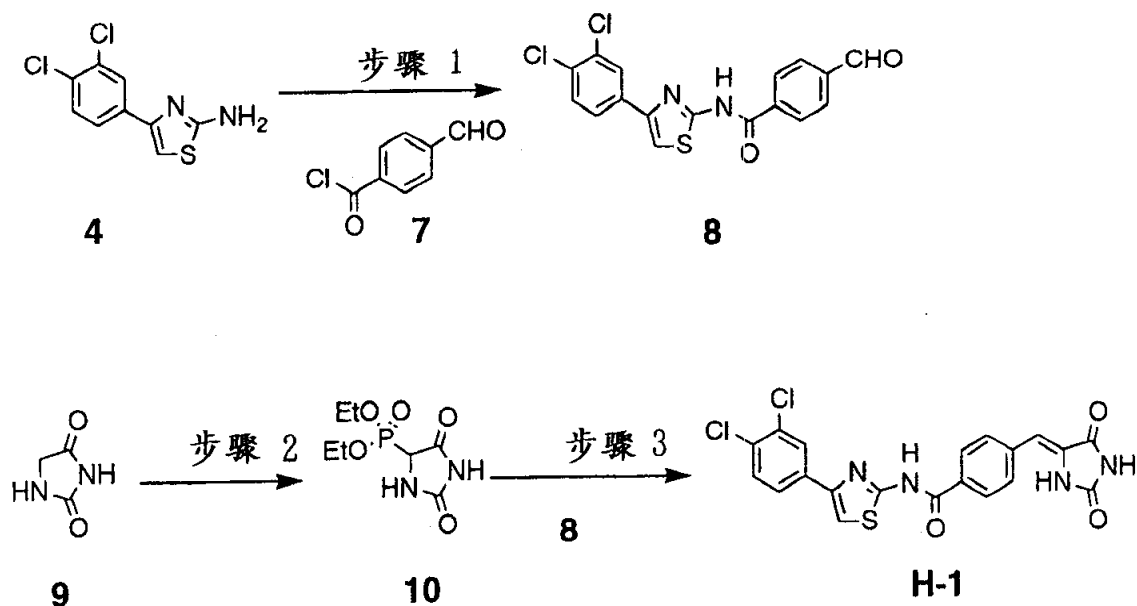
实施例 138



根据实施例 137 类似的方法, 利用 2-氨基-5-(5'-溴噻吩)噻唑替代 2-氨基-4-(3', 4'-二氟苯基)噻唑, 合成化合物 (G-2)。

¹H NMR (DMSO-d₆, δ ppm): 12.81 (s, 1H), 12.10 (bs, 1H), 8.08 (d, 2H, J = 8.2 Hz), 7.61 (s, 1H), 7.43 (d, 2H, J = 8.2 Hz), 7.40 (d, 1H, J = 4.1 Hz), 7.24 (d, 1H, J = 4.1 Hz), 5.01 (dd, 1H, J = 8.8 Hz, 4.4 Hz), 3.58 (dd, 1H, J = 14.0 Hz, 4.4 Hz), 3.25 (dd, 1H, J = 14.0 Hz, 8.8 Hz)

实施例 139



(步骤 1)

- 5 向于氯仿 (30ml) 和亚硫酸氯 (6ml) 中的对甲酰基苯甲酸 (3.0g) 悬浮液中加入一滴 DMF, 回流混合物。在确定混合物溶解之后, 减压蒸发溶剂, 得到 3.0g 化合物 (7)。在不进行进一步纯化的条件下, 将所得化合物 (7) 进行反应。在冰浴中向化合物 (4) (2.52g) 的 DMF 溶液中加入氯化钠 (0.45mg)。在室温下搅拌反应混合物 30 分钟
- 10 钟后, 加入 1.36g 化合物 (7)。再搅拌 30 分钟, 利用甲醇使所得混合物骤冷, 利用 1N 盐酸酸化。利用乙酸乙酯萃取, 蒸发溶剂, 由氯仿重结晶, 得到 1.06g 化合物 (8)。

^1H NMR(DMSO- d_6 , δ ppm) 13.04 (bs, 1H), 10.13 (s, 1H), 8.30 (d, 2H, $J = 8.4$ Hz), 8.22 (d, 1H, $J = 2.1$ Hz), 8.07 (d, 2H, $J = 8.4$ Hz), 7.95 (dd, 1H, $J = 8.4$ Hz, 2.1 Hz), 7.95 (s, 1H), 7.73 (d, 1H, $J = 8.4$ Hz).

15 (步骤 2)

在 85℃ 下, 向乙内酰脲 (2.0g) 的乙酸溶液中加入溴 (1.3ml)。在 85℃ 下搅拌反应混合物 30 分钟, 然后冷却至 30℃, 在保持温度 40 至 45℃ 条件下向溶液中加入亚磷酸三乙酯 (4.8ml)。在室温下搅拌

反应混合物 90 分钟后，加入乙醚，然后过滤沉淀的晶体，得到 1.1g 化合物。

^1H NMR(DMSO- d_6 , δ ppm) 10.91 (s, 1H), 8.41 (s, 1H), 4.76 (dd, 1H, $J = 14.7$ Hz, 1.2 Hz), 4.04 - 4.13 (m, 4H), 1.25 (t, 6H, $J = 7.2$ Hz).

5 (步骤 3)

在室温下搅拌于乙醇 (1ml) 中的钠 (10mg) 混合物。在确认钠溶解后，加入化合物 (10) (108mg)，在室温下搅拌反应混合物 10 分钟。加入化合物 (10) (159mg)，在室温下搅拌反应混合物。减压蒸发溶剂，由甲醇重结晶残留物，得到化合物 (H-1)。化合物 (H-1) 以 E 异构体和 Z 异构体的混合物形式获得。
E 异构体:

^1H NMR (DMSO- d_6 , δ ppm): 12.81 (bs, 1H), 10.76 (bs, 1H), 10.46 (s, 1H), 8.22 (d, 1H, $J = 2.4$ Hz), 8.15 (d, 2H, $J = 8.7$ Hz), 7.95 (dd, 1H, $J = 8.7$ Hz, 2.4 Hz), 7.91 (s, 1H), 7.78 (d, 2H, $J = 8.7$ Hz), 7.73 (d, 1H, $J = 8.7$ Hz), 6.48 (s, 1H).

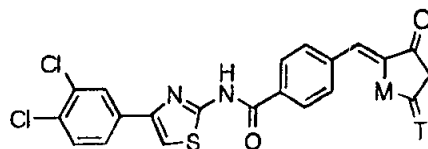
Z 异构体:

15

^1H NMR (DMSO- d_6 , δ ppm): 11.35 (bs, 1H), 11.26 (bs, 1H), 10.13 (s, 1H), 8.22 (d, 1H, $J = 2.4$ Hz), 8.10 (d, 2H, $J = 9.0$ Hz), 8.05 (d, 2H, $J = 9.0$ Hz), 7.95 (dd, 1H, $J = 8.7$ Hz, 2.4 Hz), 7.91 (s, 1H), 7.73 (d, 1H, $J = 8.7$ Hz), 6.38 (s, 1H).

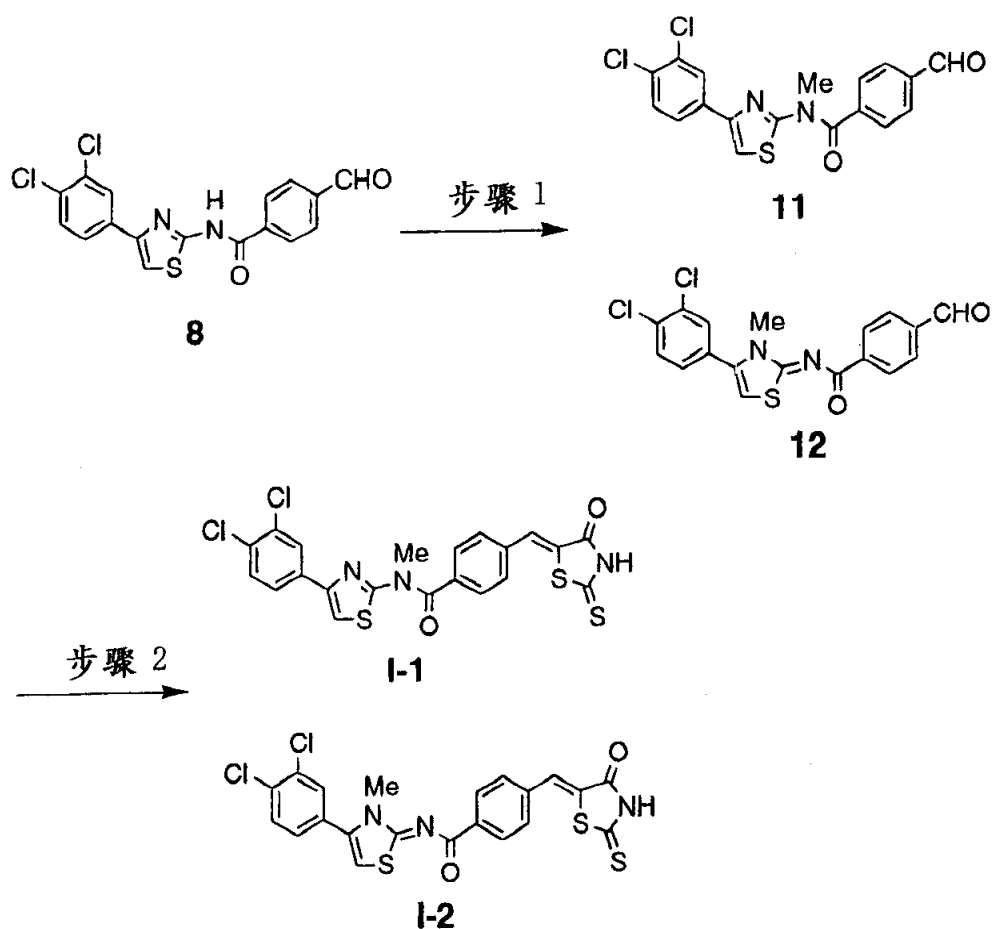
根据上述方法类似的方法合成化合物 (H-2) 至化合物 (H-5)。它们的物理数据示于表 18。

表 18



实施例 序号	化合物 序号	M	T	¹ H-NMR (δ) ppm (DMSO d-6)
140	H-2	NH	S	12.85 (bs, 1H), 12.47 (bs, 1H), 12.33 (bs, 1H), 8.22 (d, 1H, J = 1.8 Hz), 8.16 (d, 2H, J = 8.2 Hz), 7.91 - 7.97 (m, 4H), 7.73 (d, 1H, J = 8.5 Hz), 6.54 (s, 1H)
141	H-3	CH ₂	O	12.88 (s, 1H), 11.51 (s, 1H), 8.21 (d, 1H, J = 2.1 Hz), 8.20 (d, 2H, J = 9.3 Hz), 7.95 (dd, 1H, J = 8.1 Hz, 2.1 Hz), 7.92 (s, 1H), 7.80 (d, 2H, J = 9.3 Hz), 7.72 (d, 1H, J = 8.1 Hz), 7.46 (t, 1H, J = 2.1 Hz), 3.74 (d, 1H, J = 2.1 Hz)
142	H-4	NMe	O	9.48 (bs, 1H), 8.21 (s, 1H), 8.19 (dd, 4H, J = 13.2 Hz, 7.8 Hz), 7.94 (d, 1H, J = 6.6 Hz), 7.89 (s, 1H), 7.72 (d, 1H, J = 8.1 Hz), 6.47 (s, 1H), 2.71 (d, 3H, J = 4.8 Hz)
143	H-5	O	S	12.91 (s, 1H), 8.21 - 8.24 (m, 3H), 7.93 - 8.01 (m, 4H), 7.72 (d, 1H, J = 8.2 Hz), 6.57 (s, 1H)

实施例 144、145



(步骤 1)

- 5 在冰浴中，向根据实施例 139 步骤 1 制得的化合物 (8) (0.2g) 的 DMF 溶液中加入氢化钠 (32mg)，反应混合物在室温下搅拌 30 分钟。向溶液中加入甲基碘 (0.2ml)，然后搅拌反应混合物 1 小时。利用冰水使反应混合物骤冷，利用乙酸乙酯萃取。在减压蒸发溶剂后，利用柱色谱纯化 (己烷-乙酸乙酯; 4:1) 残留物，得到 100mg 化合物 (11) 和 33g 化合物 (12)。

化合物 (11)：

$^1\text{H NMR}$ (DMSO- d_6 , δ ppm) 10.12 (s, 1H), 8.22 (d, 1H, $J = 2.1$ Hz), 8.07 (d, 2H, $J = 8.1$ Hz), 8.03 (s, 1H), 7.97 (dd, 1H, $J = 8.1$ Hz, 2.1 Hz), 7.89 (d, 2H, $J = 8.4$ Hz), 7.72 (d, 1H, $J = 8.4$ Hz), 3.63 (s, 3H).

化合物 (12) :

^1H NMR(CDCl_3 , δ ppm) 10.16 (s, 1H), 8.49 (d, 2H, $J = 8.0$ Hz), 7.97 (d, 2H, $J = 8.0$ Hz), 7.61 (d, 1H, $J = 8.2$ Hz), 7.55 (d, 1H, $J = 2.2$ Hz), 7.27 (dd, 1H, $J = 8.2$ Hz, 2.2 Hz), 6.67 (s, 1H), 3.78 (s, 3H).

(步骤 2)

5 向化合物 (11) (84mg) 和若丹宁 (32mg) 的甲苯 (4ml) 溶液中加入 1M 哌啶-甲苯溶液 ($20\mu\text{l}$) 和 1M 乙酸-甲苯 ($20\mu\text{l}$), 然后回流反应混合物 1 小时。冷却后, 过滤沉淀晶体, 得到 77mg 化合物 (I-1)。

^1H NMR($\text{DMSO}-d_6$, δ ppm) 13.85 (bs, 1H), 8.21(d, 1H, $J = 1.8$ Hz), 8.003 (s, 1H), 7.97 (dd, 1H, $J = 8.7$ Hz, 2.1 Hz), 7.83 (d, 2H, $J = 8.1$ Hz), 7.76 (d, 2H, $J = 8.1$ Hz), 7.72 (s, 1H), 7.71 (d, 1H, $J = 8.7$ Hz), 3.65 (s, 3H).

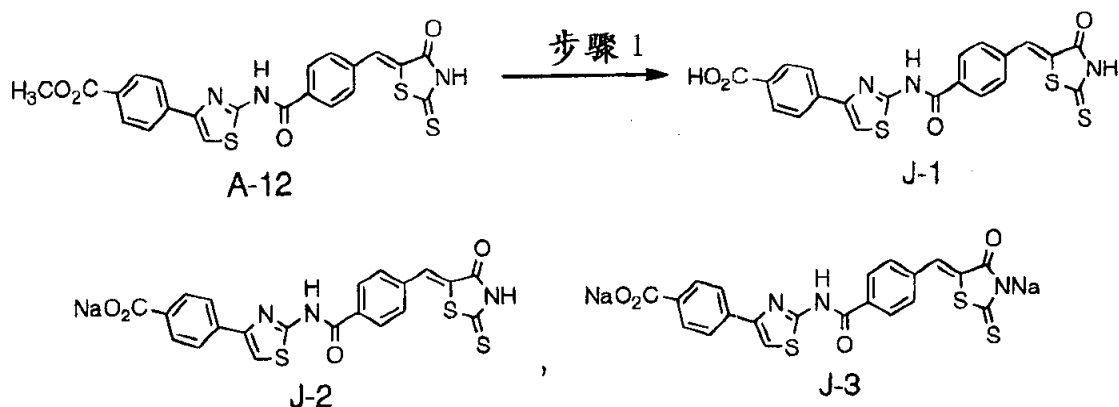
10

向化合物 (12) (42mg) 和若丹宁 (16mg) 的甲苯 (2ml) 溶液中加入 1M 哌啶-甲苯溶液 ($10\mu\text{l}$) 和 1M 乙酸-甲苯 ($10\mu\text{l}$), 然后回流反应混合物 2 小时。冷却后, 过滤沉淀晶体, 得到 36mg 化合物 (I-2)。

15

^1H NMR($\text{DMSO}-d_6$, δ ppm) 13.90 (bs, 1H), 8.36 (d, 2H, $J = 8.5$ Hz), 7.93 (d, 1H, $J = 1.9$ Hz), 7.83 (d, 1H, $J = 8.2$ Hz), 7.72 (d, 2H, $J = 8.5$ Hz), 7.70 (s, 1H), 7.62 (dd, 1H, $J = 8.2$ Hz, 1.9 Hz), 3.75 (s, 3H).

实施例 146、147、148



5 将根据实施例 1 的方法制备的化合物 (A-12) (120mg) 溶解在二噁烷 (5ml) 和 1N 氢氧化钠 (5ml) 中, 反应混合物在室温下搅拌 30 分钟。然后利用 1N 盐酸 (5ml) 酸化混合物并减压蒸发。利用水洗涂残留物, 由 DMF-甲醇重结晶, 得到 72mg (J-1)。

^1H NMR (DMSO- d_6 , δ ppm): 8.20 (d, 2H, $J = 8.5$ Hz), 7.98 (s, 4H), 7.74 (s, 1H), 7.64 (d, 2H, $J = 8.5$ Hz), 7.22 (s, 1H).

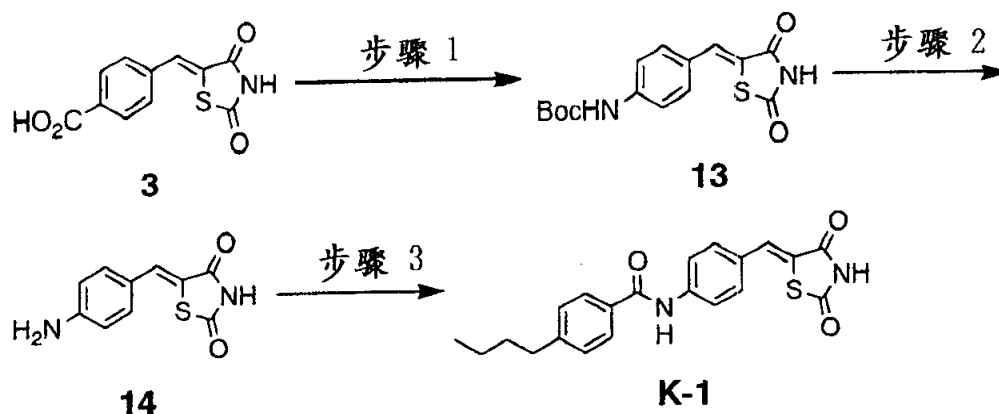
10 利用 1 当量氢氧化钠中和化合物 (I-1), 得到 (J-2)。

^1H NMR (DMSO- d_6 , δ ppm): 13.92 (bs, 1H), 12.98 (s, 1H), 8.25 (d, 2H, $J = 8.4$ Hz), 8.01 - 8.10 (m, 4H), 7.92 (s, 1H), 7.77 (d, 2H, $J = 8.4$ Hz), 7.71 (s, 1H).

利用 2 当量氢氧化钠中和化合物 (J-1), 得到 (I-3)。

^1H NMR (DMSO- d_6 , δ ppm): 8.20 (d, 2H, $J = 8.1$ Hz), 7.93 (dd, 4H, $J = 11.4$ Hz, 8.4 Hz), 7.71 (s, 1H), 7.61 (d, 2H, $J = 8.1$ Hz), 7.21 (s, 1H).

实施例 149



(步骤 1)

5 向实施例 1 步骤 2 合成得到的化合物(3)(10g)的叔丁醇(200ml)和二噁烷(66ml)的溶液中加入三乙胺(5.6ml)和二苯基磷酰基叠氮化物(8.63ml),回流反应溶液2小时。减压蒸发溶剂后,向混合物中加入水,利用乙酸乙酯萃取。减压蒸发溶剂,通过重结晶(乙酸乙酯)纯化残留物,得到4.41g化合物(13)。

10

^1H NMR(DMSO- d_6 , δ ppm) 12.50 (bs, 1H), 9.78 (s, 1H), 7.69 (s, 1H), 7.61 (d, 2H, $J = 9.0$ Hz), 7.51 (d, 2H, $J = 9.0$ Hz), 1.49 (s, 9H).

(步骤 2)

15 将化合物(13)(3.15g)溶解在三氟乙酸(15ml)中,溶液在室温下搅拌15分钟。减压蒸发溶剂之后,由二异丙基醚重结晶残留物,得到2.10g(14)。

^1H NMR(DMSO- d_6 , δ ppm) 12.29 (bs, 1H), 7.60 (s, 1H), 7.29 (d, 2H, $J = 8.7$ Hz), 6.67 (d, 2H, $J = 8.7$ Hz).

(步骤 3)

20 向化合物(14)(220mg)的二噁烷(50ml)溶液中加入吡啶(121 μl)和4-正丁基苯甲酰氯(187 μl),反应溶液在室温下搅拌3小时。蒸发溶剂后,向残留物中加入甲醇(6ml)和水(2ml),然后过

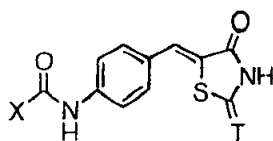
滤沉淀晶体。由甲醇重结晶，得到 232mg 化合物 (K-1)。

^1H NMR(DMSO- d_6 , δ ppm) 12.56 (bs, 1H), 10.47 (s, 1H), 7.75 (s, 1H), 7.78 (d, 2H, $J = 8.7$ Hz), 7.63 (d, 2H, $J = 8.7$ Hz), 2.67 (t, 2H, $J = 7.5$ Hz), 1.59 (quant, 2H, $J = 7.5$ Hz), 1.32 (sexth, 2H, $J = 7.2$ Hz), 0.91 (t, 3H, $J = 7.5$ Hz)

根据上述方法类似的方法合成化合物 (K-2) 至化合物 (K-29)。

5 它们的物理数据示于表 19-22。

表 19



实施例 序号	化合物 序号	X	T	¹ H-NMR (δ) ppm (DMSO d-6)
150	K-2		O	12.56 (bs, 1H), 10.73 (s, 1H), 8.61 (s, 1H), 8.01 - 8.12 (m, 6H), 7.78 (s, 1H), 7.63 - 7.69 (m, 4H)
151	K-3		O	10.35 (s, 1H), 7.95 (d, 2H, J = 8.8 Hz), 7.75 (s, 1H), 8.52 - 7.75 (m, 4H), 7.08 (d, 1H, J = 8.2 Hz), 6.15 (s, 2H)
152	K-4		O	12.55 (bs, 1H), 10.39 (s, 1H), 7.98 (d, 2H, J = 8.9 Hz), 7.96 (d, 2H, J = 8.9 Hz), 7.75 (s, 1H), 7.59 (d, 2H, J = 8.9 Hz), 7.32 - 7.50 (m, 5H), 7.16 (d, 2H, J = 8.9 Hz), 8.22 (s, 2H)
153	K-5		O	12.56 (bs, 1H), 10.59 (s, 1H), 8.08 (d, 2H, J = 8.5 Hz), 7.86 (d, 2H, J = 8.2 Hz), 7.76 - 7.79 (m, 2H), 7.76 (s, 1H), 7.62 (d, 2H, J = 8.8 Hz), 7.50 - 7.55 (m, 2H), 7.41 - 7.46 (m, 1H)
154	K-6		O	12.56 (bs, 1H), 10.47 (s, 1H), 7.97 (d, 2H, J = 9.0 Hz), 7.89 (d, 2H, J = 8.1 Hz), 7.76 (s, 1H), 7.63 (d, 2H, J = 9.0 Hz), 7.35 (d, 2H, J = 8.1 Hz), 2.66 (t, 2H, J = 7.2 Hz), 1.60 (quant, 2H, J = 7.2 Hz), 1.29 (bs, 6H), 0.84 - 0.88 (m, 3H)
155	K-7		O	12.55 (bs, 1H), 10.38 (s, 1H), 7.96 (d, 4H, J = 9.0 Hz), 7.75 (s, 1H), 7.69 (d, 2H, J = 9.0 Hz), 7.06 (d, 2H, J = 9.0 Hz), 4.12 (q, 2H, J = 6.9 Hz), 1.36 (t, 3H, J = 6.9 Hz)
156	K-8		O	12.56 (bs, 1H), 10.46 (s, 1H), 7.97 (d, 2H, J = 8.7 Hz), 7.89 (d, 2H, J = 8.4 Hz), 7.75 (s, 1H), 7.60 (d, 2H, J = 8.4 Hz), 7.36 (d, 2H, J = 8.7 Hz), 2.66 (t, 2H, J = 7.2 Hz), 1.58 - 1.62 (m, 2H), 1.24 - 1.27 (m, 8H), 0.83 - 0.88 (m, 3H)
157	K-9		O	12.55 (bs, 1H), 10.42 (s, 1H), 7.97 (d, 2H, J = 8.7 Hz), 7.70 - 7.76 (m, 3H), 7.60 (d, 2H, J = 8.7 Hz), 7.30 (d, 2H, J = 8.1 Hz), 2.32 (s, 1H), 2.31 (s, 1H)
158	K-10		O	12.55 (bs, 1H), 10.75 (s, 1H), 8.17 (d, 2H, J = 8.0 Hz), 7.97 (d, 2H, J = 8.8 Hz), 7.93 (t, 1H, J = 8.0 Hz), 7.76 (s, 1H), 7.63 (d, 2H, J = 8.8 Hz)

表 20

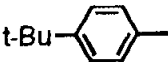
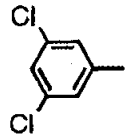
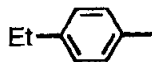
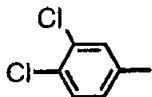
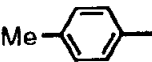
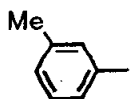
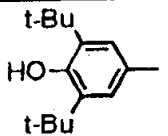
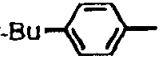
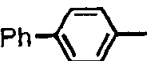
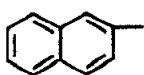
实施例 序号	化合物 序号	X	T	$^1\text{H-NMR}$ (δ) ppm (DMSO d-6)
159	K-11		O	12.56 (bs, 1H), 10.47 (s, 1H), 7.97 (d, 2H, $J = 9.0$ Hz), 7.90 (d, 2H, $J = 8.4$ Hz), 7.76 (s, 1H), 7.60 (d, 2H, $J = 9.0$ Hz), 7.57 (d, 2H, $J = 8.4$ Hz), 1.33 (s, 9H)
160	K-12		O	12.57 (bs, 1H), 10.69 (s, 1H), 7.99 (d, 2H, $J = 2.1$ Hz), 7.94 (d, 2H, $J = 9.0$ Hz), 7.89 (t, 1H, $J = 1.8$ Hz), 7.76 (s, 1H), 7.63 (d, 2H, $J = 9.0$ Hz)
161	K-13		O	12.55 (bs, 1H), 10.46 (s, 1H), 7.97 (d, 2H, $J = 8.8$ Hz), 7.90 (d, 2H, $J = 8.1$ Hz), 7.76 (s, 1H), 7.50 (d, 2H, $J = 8.8$ Hz), 7.38 (d, 2H, $J = 8.1$ Hz), 2.69 (q, 2H, $J = 7.7$ Hz), 1.22 (t, 3H, $J = 7.7$ Hz)
162	K-14		O	12.59 (bs, 1H), 10.67 (s, 1H), 8.23 (d, 1H, $J = 2.1$ Hz), 7.95 (d, 1H, $J = 8.4$ Hz), 7.94 (d, 2H, $J = 8.4$ Hz), 7.84 (d, 2H, $J = 8.4$ Hz), 7.76 (s, 1H), 7.62 (d, 1H, $J = 9.0$ Hz)
163	K-15		O	12.55 (bs, 1H), 10.45 (s, 1H), 7.97 (d, 2H, $J = 8.7$ Hz), 7.89 (d, 2H, $J = 8.4$ Hz), 7.75 (s, 1H), 7.60 (d, 2H, $J = 8.7$ Hz), 7.35 (d, 1H, $J = 8.4$ Hz), 2.37 (s, 3H)
164	K-16		S	13.79 (bs, 1H), 10.53 (s, 1H), 7.98 (d, 2H, $J = 8.8$ Hz), 7.74 - 7.78 (m, 2H), 7.62 (d, 2H, $J = 8.8$ Hz), 7.61 (s, 1H), 7.24 - 7.44 (m, 2H), 2.41 (s, 3H)
165	K-17		S	13.79 (bs, 1H), 10.36 (s, 1H), 7.93 (d, 2H, $J = 8.7$ Hz), 7.68 (s, 1H), 7.60 (d, 2H, $J = 8.7$ Hz), 7.59 (d, 1H, $J = 6.9$ Hz), 5.75 (s, 1H), 1.44 (s, 1H)
166	K-18		S	10.50 (s, 1H), 7.98 (d, 2H, $J = 8.7$ Hz), 7.90 (d, 2H, $J = 8.7$ Hz), 7.61 (d, 2H, $J = 8.7$ Hz), 7.59 (d, 2H, $J = 8.5$ Hz), 7.55 (s, 1H), 1.33 (s, 9H)
167	K-19		S	13.79 (bs, 1H), 10.62 (s, 1H), 8.09 (d, 2H, $J = 8.5$ Hz), 7.86 (d, 2H, $J = 8.5$ Hz), 7.77 (d, 2H, $J = 8.5$ Hz), 7.63 (d, 2H, $J = 8.5$ Hz), 7.62 (s, 1H), 7.50 - 7.55 (m, 2H), 7.41 - 7.46 (m, 1H)
168	K-20		S	13.81 (bs, 1H), 10.77 (s, 1H), 8.61 (s, 1H), 8.02 - 8.13 (m, 6H), 7.63 - 7.68 (m, 5H)

表 21

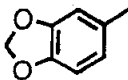
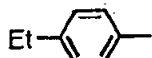
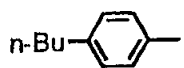
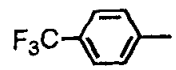
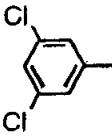
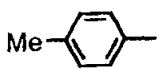
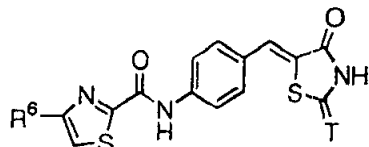
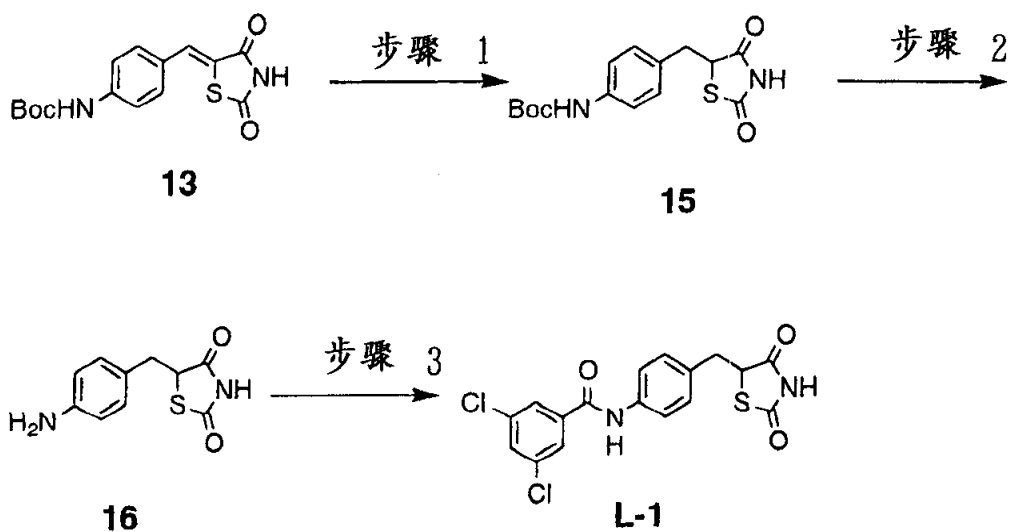
实施例 序号	化合物 序号	X	T	¹ H-NMR (δ) ppm (DMSO d-6)
169	K-21		S	13.79 (bs, 1H), 10.39 (s, 1H), 7.97 (d, 2H, J = 8.8 Hz), 7.61 (s, 1H), 7.60 (d, 2H, J = 8.8 Hz), 7.59 (d, 1H, J = 9.9 Hz), 7.53 (d, 1H, J = 1.8 Hz), 7.07 (d, 1H, J = 8.2 Hz), 6.15 (s, 2H)
170	K-22		S	13.79 (s, 1H), 10.49 (s, 1H), 7.99 (d, 2H, J = 8.8 Hz), 7.91 (d, 2H, J = 8.2 Hz), 7.61 (d, 2H, J = 8.8 Hz), 7.61 (s, 1H), 7.38 (d, 2H, J = 8.2 Hz), 2.70 (q, 2H, J = 7.4 Hz), 1.22 (t, 3H, J = 7.4 Hz)
171	K-23		S	13.79 (bs, 1H), 10.49 (s, 1H), 7.99 (d, 2H, J = 8.8 Hz), 7.89 (d, 2H, J = 8.2 Hz), 7.61 (d, 2H, J = 8.8 Hz), 7.61 (s, 1H), 7.37 (d, 2H, J = 8.2 Hz), 2.37 (t, 2H, J = 7.4 Hz), 1.57 - 1.64 (m, 2H), 1.26 - 1.38 (m, 2H), 0.91 (t, 3H, J = 7.1 Hz)
172	K-24		S	13.80 (bs, 1H), 10.79 (s, 1H), 8.17 (d, 2H, J = 8.4 Hz), 7.99 (d, 2H, J = 8.7 Hz), 7.94 (d, 2H, J = 8.4 Hz), 7.64 (d, 1H, J = 8.7 Hz), 7.65 (s, 1H)
173	K-25		S	13.80 (bs, 1H), 10.71 (s, 1H), 7.99 (d, 2H, J = 1.6 Hz), 7.95 (d, 2H, J = 8.5 Hz), 7.89 (t, 1H, J = 1.9 Hz), 7.63 (d, 2H, J = 8.5 Hz), 7.61 (s, 1H)
174	K-26		S	13.78 (bs, 1H), 10.48 (s, 1H), 7.98 (d, 2H, J = 9.0 Hz), 7.89 (d, 2H, J = 8.1 Hz), 7.61 (d, 2H, J = 9.0 Hz), 7.61 (s, 1H), 7.36 (d, 2H, J = 8.1 Hz), 2.40 (s, 3H)

表 22



实施例 序号	化合物 序号	X	T	¹ H-NMR (δ) ppm (DMSO d-6)
175	K-27		O	12.57 (bs, 1H), 10.88 (s, 1H), 8.53 (s, 1H), 8.15 - 8.19 (m, 2H), 8.07 (d, 2H, J = 8.8 Hz), 7.78 (s, 1H), 7.65 (d, 2H, J = 8.8 Hz), 7.50 - 7.55 (m, 2H), 7.40 - 7.45 (m, 1H)
176	K-28		O	12.58 (bs, 1H), 10.91 (s, 1H), 8.69 (s, 1H), 8.48 (d, 1H, J = 1.9 Hz), 8.15 (dd, 1H, J = 8.8 Hz, 1.9 Hz), 8.04 (d, 2H, J = 8.8 Hz), 7.78 (d, 1H, J = 8.8 Hz), 7.76 (s, 1H), 7.64 (d, 1H, J = 8.8 Hz)
177	K-29		S	13.82 (bs, 1H), 10.95 (s, 1H), 8.72 (s, 1H), 8.50 (d, 1H, J = 1.9 Hz), 8.16 (dd, 1H, J = 8.5 Hz, 1.9 Hz), 8.08 (d, 2H, J = 8.8 Hz), 7.80 (d, 1H, J = 8.5 Hz), 7.67 (d, 1H, J = 8.8 Hz), 7.63 (s, 1H)

实施例 178



(步骤 1)

向实施例 149 步骤 1 合成得到的化合物 (13) (1.7g) 的二噁烷 (200ml) 溶液中加入 10% 钨-碳 (0.7g) , 反应混合物在氢气气氛下搅拌。过滤钨-碳并减压蒸发溶剂, 得到 1.39g 化合物 (15) 。

5

^1H NMR (CDCl_3 , δ ppm): 8.38 (s, 1H), 7.32 (d, 2H, $J = 8.4$ Hz), 7.26 (s, 1H), 7.15 (d, 2H, $J = 8.4$ Hz), 6.54 (s, 1H), 4.50 (dd, 1H, $J = 9.3$ Hz, 3.9 Hz), 3.46 (dd, 1H, $J = 14.4$ Hz, 3.9 Hz), 3.22 (dd, 1H, $J = 14.4$ Hz, 9.3 Hz), 1.52 (s, 9H).

(步骤 2)

在室温下搅拌化合物 (15) (4.23g) 的二氯甲烷 (20ml) 和三氯乙酸 (10ml) 的溶液 15 分钟。减压蒸发溶剂, 残留物由二异丙基醚重结晶, 得到 3.8g 化合物 (16) 。

10

^1H NMR($\text{DMSO}-d_6$, δ ppm) 7.25 (d, 2H, $J = 8.4$ Hz), 7.09 (d, 2H, $J = 8.4$ Hz), 4.90 (dd, 1H, $J = 8.7$ Hz, 4.5 Hz), 4.35 (dd, 1H, $J = 14.4$ Hz, 4.5 Hz), 3.12 (dd, 1H, $J = 14.4$ Hz, 8.7 Hz).

(步骤 3)

向化合物 (16) (220mg) 的二噁烷 (50ml) 溶液中加入吡啶 (121 μl) 和 3,5-二氯苯甲酰氯 (180 μl) , 然后在室温下搅拌反应溶液 3 小时。减压蒸发溶剂后, 利用柱色谱纯化 (己烷-乙酸乙酯; 2:1) 残留物, 得到 103mg 化合物 (L-1) 。

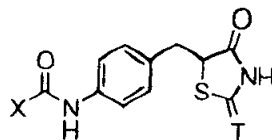
15

^1H NMR($\text{DMSO}-d_6$, δ ppm) 12.02 (bs, 1H), 10.41 (s, 1H), 7.97 (d, 2H, $J = 1.9$ Hz), 7.87 (t, 1H, $J = 1.9$ Hz), 7.69 (d, 2H, $J = 8.5$ Hz), 7.24 (d, 2H, $J = 8.5$ Hz), 4.91 (dd, 1H, $J = 8.8$ Hz, 4.4 Hz), 3.36 (dd, 1H, $J = 14.3$ Hz, 4.4 Hz), 3.12 (dd, 1H, $J = 14.3$ Hz, 8.8 Hz)

根据上述类似的方法, 合成化合物 (L-2) 至化合物 (L-3) 。它们的物理数据示于表 23。

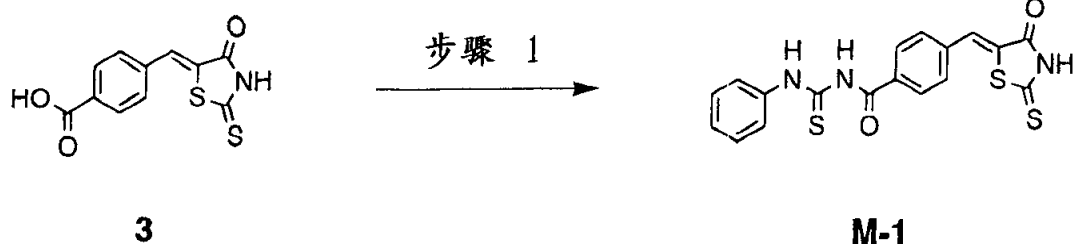
20

表 23



实施例 序号	化合物 序号	X	T	¹ H-NMR (δ) ppm (DMSO d-6)
179	L-2		O	12.04 (bs, 1H), 10.47 (s, 1H), 8.14 (d, 2H, J = 8.2 Hz), 7.92 (d, 2H, J = 8.2 Hz), 7.72 (d, 2H, J = 8.5 Hz), 7.25 (d, 2H, J = 8.5 Hz), 4.92 (dd, 1H, J = 8.9 Hz, 4.4 Hz), 3.36 (dd, 1H, J = 14.4 Hz, 4.4 Hz), 3.12 (dd, 1H, J = 14.4 Hz, 8.9 Hz)
180	L-3		O	12.05 (bs, 1H), 10.56 (s, 1H), 7.86 (d, 2H, J = 8.4 Hz), 7.71 (d, 2H, J = 8.7 Hz), 7.34 (d, 2H, J = 8.7 Hz), 7.22 (d, 2H, J = 8.4 Hz), 4.91 (dd, 1H, J = 9.0 Hz, 4.5 Hz), 3.34 (dd, 1H, J = 13.8 Hz, 4.5 Hz), 3.10 (dd, 1H, J = 13.8 Hz, 9.0 Hz), 2.66 (t, 2H, J = 7.5 Hz), 1.58 (quant, 2H, J = 8.1 Hz), 1.26 - 1.37 (m, 2H), 0.91 (t, 3H, J = 7.5 Hz)

实施例 181



5

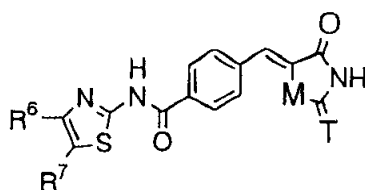
(步骤 1)

加热于二噁烷 (20ml) 和亚硫酸氯 (10ml) 中的实施例 1 步骤 2 制得的化合物 (3) (3g) 的混合物, 在 100℃ 下溶解。减压蒸发溶剂, 得到酰氯。所得酰氯在进一步反应前不进行纯化。在将酰氯 (143mg) 和硫氰酸铵 (42mg) 的二噁烷 (25ml) 溶液在室温下搅拌 15 分钟后, 向其中加入 3,4-二氯苯胺。反应溶液在室温下搅拌 1 小时, 减压蒸发

溶剂。向残留物中加入甲醇 (6ml) 和水 (2ml), 过滤沉淀的晶体。由 DMF 重结晶, 得到 104g 化合物 (M-1)。

^1H NMR (DMSO- d_6 , δ ppm): 13.91 (bs, 1H), 12.49 (s, 1H), 11.83 (s, 1H), 8.07 - 8.12 (m, 3H), 7.63 - 7.76 (m, 5H).

5 根据上述类似的方法, 合成下列化合物。



使用下述缩略语。

Me: 甲基, Et: 乙基, nPr: 正丙基, iPr: 异丙基, nBu: 丁基, iBu: 异丁基, tBu: 叔丁基, Pen: 正戊基, Ph: 苯基, Bn: 苄基, Bz: 苯甲酰基, Ac: 乙酰基, diF: 二氟, diCl: 二氯, diBr: 二溴, diI: 二碘, diMe: 二甲基, thiophene: 噻吩, thienyl: 噻吩基, Py: 吡啶基, pyridine: 吡啶, pyridinium: 吡啶翁, Quinoline: 喹啉, Benzodioxole: 苯并二噁茂, pyrazinyl: 吡嗪基, pyrrolyl: 吡咯基, pyrrole: 吡咯, oxide: 氧化物, indole: 吲哚, imidazolyl: 咪唑基, morpholino: 吗啉代, piperazinyl: 哌嗪基, furyl: 呋喃基, furan: 呋喃, thiazolyl: 噻唑基, benzodioxin: benzodioxin, 以及 benzo[b]furan: 苯并[b]呋喃

(化合物序号 : R^6 , R^7 , M, T) = (N-1: Ph, Me, S, S), (N-3: 4-Br-Ph, Me, S, S),
(N-4: 4-Me-Ph, Me, S, S), (N-5: 4-Ph-Ph, Me, S, S), (N-6: 4-OMe-Ph, Me, S, S),
(N-7: 4-tBu-Ph, Me, S, S), (N-8: 4-COOMe-Ph, Me, S, S), (N-9: 4-Pen-Ph, Me, S,
S), (N-10: 4-NO₂-Ph, Me, S, S), (N-11: 5-Cl-thiophene-2-yl, Me, S, S), (N-12:
3-Thienyl, Me, S, S), (N-13: 2-Py, Me, S, S), (N-14: 3-Py, Me, S, S), (N-15: 4-Py,
Me, S, S), (N-16: 3,4-diF-Ph, Me, S, S), (N-17: 5-Br-thiophene-2-yl, Me, S, S),
(N-18: 4-CONH₂-Ph, Me, S, S), (N-19: 4-CON(Me)H-Ph, Me, S, S), (N-20: 4-
CON(Me)₂-Ph, Me, S, S), (N-21: 4-iPrOC(=O)-Ph, Me, S, S), (N-22: 4-
nBuOC(=O)-Ph, Me, S, S), (N-23: 6-Me-pyridine-3-yl, Me, S, S), (N-24:
Quinoline-3-yl, Me, S, S), (N-25: 4-NH₂-Ph, Me, S, S), (N-26: 4-N(Ac)H-Ph, Me,
S, S), (N-27: 4-OH-Ph, Me, S, S), (N-28: 3,4-di(OH)₂-Ph, Me, S, S), (N-29: 3,4-
di(NH₂)-Ph, Me, S, S), (N-30: 3:4-[N(Ac)H]₂-Ph, Me, S, S), (N-31: 4-SH-Ph, Me,
S, S), (N-32: 4-SMe-Ph, Me, S, S), (N-33: 3,4-diBr-Ph, Me, S, S), (N-34: 4-
N(Me)H-Ph, Me, S, S), (N-35: 4-N(Me)₂-Ph, Me, S, S), (N-36: 4-N(Me)₃⁺-Ph, Me,
S, S), (N-37: 4-Et-Ph, Me, S, S), (N-38: 4-iPr-Ph, Me, S, S), (N-39: 4-nPr-Ph,
Me, S, S), (N-40: 4-nBu-Ph, Me, S, S), (N-41: 4-iBu-Ph, Me, S, S), (N-42: 3,4-

diMe-Ph, Me, S, S), (N-43: 1,3-Benzodioxole-5-yl, Me, S, S), (N-44: N-Me-pyridinium-4-yl, Me, S, S), (N-45: N-Me-pyridinium-3-yl, Me, S, S), (N-46: 5-Me-Pyridine-2-yl, Me, S, S), (N-47: 2-Pyrazinyl, Me, S, S), (N-48: 3-Pyrrolyl, Me, S, S), (N-49: 1-Me-pyrrole-3-yl, Me, S, S), (N-50: Pyridine N-oxide-4-yl, Me, S, S), (N-51: Pyridine N-oxide-3-yl, Me, S, S), (N-52: 6-OH-pyridine-3-yl, Me, S, S), (N-53: 6-SH-pyridine-3-yl, Me, S, S), (N-54: 1-Ac-pyrrole-3-yl, Me, S, S), (N-55: 4-CF₃-Ph, Me, S, S), (N-56: 4-CN-Ph, Me, S, S), (N-57: 4-CHO-Ph, Me, S, S), (N-58: 3-Cl-Ph, Me, S, S), (N-59: 3-Br-Ph, Me, S, S), (N-60: 3-F-Ph, Me, S, S), (N-61: 3-I-Ph, Me, S, S), (N-62: 4-I-Ph, Me, S, S), (N-63: 4-OCF₃-Ph, Me, S, S), (N-64: 3,4-diI-Ph, Me, S, S), (N-65: Indole-6-yl, Me, S, S), (N-66: 1-Ac-indole-6-yl, Me, S, S), (N-67: 1-Me-indole-6-yl, Me, S, S), (N-68: 4-(1-Imidazolyl)-Ph, Me, S, S), (N-69: 4-Morphorino-Ph, Me, S, S), (N-70: 4-(1-Piperazinyl)-Ph, Me, S, S), (N-71: 2:5-diMe-thiophene-3-yl, Me, S, S), (N-72: 2-Furyl, Me, S, S), (N-73: 5-Me-furan-2-yl, Me, S, S), (N-74: 5-Me-furan-2-yl, Me, S, S), (N-75: 2-Thiazolyl, Me, S, S), (N-76: 1:4-Benzodioxin-6-yl, Me, S, S), (N-77: Benzo[b]furan-2-yl, Me, S, S), (N-78: 4-NH₂CH₂-Ph, Me, S, S), (N-79: 4-N(Me)HCH₂-Ph, Me, S, S), (N-80: 4-N(Me)₂CH₂-Ph, Me, S, S), (N-81: 6-Cl-pyridine-3-yl, Me, S, S), (N-82: 5,6-diCl-pyridine-3-yl, Me, S, S), (N-83: 5-Cl-pyridine-2-yl, Me, S, S), (N-84: 4:5-diCl-pyridine-2-yl, Me, S, S), (N-85: 4-ClCH₂-Bn, Me, S, S), (N-86: Bn, Me, S, S), (N-87: 4-Cl-Bn, Me, S, S), (N-88: 4-Br-Bn, Me, S, S), (N-89: 4-F-Bn, Me, S, S), (N-90: 3,4-diCl-Bn, Me, S, S), (N-91: 3,4-diBr-Bn, Me, S, S), (N-92: 3,4-diF-Bn, Me, S, S), (N-93: 4-Cl-Bz, Me, S, S), (N-94: 3,4-diCl-Bz, Me, S, S), (N-95: 4-Br-Bz, Me, S, S), (N-96: 3,4-diBr-Bz, Me, S, S), (N-97: 4-F-Bz, Me, S, S), (N-98: 3,4-diF-Bz, Me, S, S), (N-99: 4-NO₂-Bn, Me, S, S), (N-100: 4-CN-Bn, Me, S, S), (N-101: Ph, Et, S, S), (N-102: 4-F-Ph, Et, S, S), (N-103: 4-Br-Ph, Et, S, S), (N-104: 4-Me-Ph, Et, S, S), (N-105: 4-Ph-Ph, Et, S, S), (N-106: 4-OMe-Ph, Et, S, S), (N-107: 4-tBu-Ph, Et,

S, S), (N-108: 4-COOMe-Ph, Et, S, S), (N-109: 4-Pen-Ph, Et, S, S), (N-110: 4-NO₂-Ph, Et, S, S), (N-111: 5-Cl-thiophene-2-yl, Et, S, S), (N-112: 3-Thienyl, Et, S, S), (N-113: 2-Py, Et, S, S), (N-114: 3-Py, Et, S, S), (N-115: 4-Py, Et, S, S), (N-116: 3,4-diF-Ph, Et, S, S), (N-117: 5-Br-thiophene-2-yl, Et, S, S), (N-118: 4-CONH₂-Ph, Et, S, S), (N-119: 4-CON(Me)H-Ph, Et, S, S), (N-120: 4-CON(Me)₂-Ph, Et, S, S), (N-121: 4-iPrOC(=O)-Ph, Et, S, S), (N-122: 4-nBuOC(=O)-Ph, Et, S, S), (N-123: 6-Me-pyridine-3-yl, Et, S, S), (N-124: Quinoline-3-yl, Et, S, S), (N-125: 4-NH₂-Ph, Et, S, S), (N-126: 4-N(Ac)H-Ph, Et, S, S), (N-127: 4-OH-Ph, Et, S, S), (N-128: 3,4-di(OH)₂-Ph, Et, S, S), (N-129: 3,4-di(NH₂)-Ph, Et, S, S), (N-130: 3:4-[N(Ac)H]₂-Ph, Et, S, S), (N-131: 4-SH-Ph, Et, S, S), (N-132: 4-SMe-Ph, Et, S, S), (N-133: 3,4-diBr-Ph, Et, S, S), (N-134: 4-N(Me)H-Ph, Et, S, S), (N-135: 4-N(Me)₂-Ph, Et, S, S), (N-136: 4-N(Me)₃⁺-Ph, Et, S, S), (N-137: 4-Et-Ph, Et, S, S), (N-138: 4-iPr-Ph, Et, S, S), (N-139: 4-nPr-Ph, Et, S, S), (N-140: 4-nBu-Ph, Et, S, S), (N-141: 4-iBu-Ph, Et, S, S), (N-142: 3,4-diMe-Ph, Et, S, S), (N-143: 1,3-Benzodioxole-5-yl, Et, S, S), (N-144: N-Me-pyridinium-4-yl, Et, S, S), (N-145: N-Me-pyridinium-3-yl, Et, S, S), (N-146: 5-Me-Pyridine-2-yl, Et, S, S), (N-147: 2-Pyrazinyl, Et, S, S), (N-148: 3-Pyrrolyl, Et, S, S), (N-149: 1-Me-pyrrole-3-yl, Et, S, S), (N-150: Pyridine N-oxide-4-yl, Et, S, S), (N-151: Pyridine N-oxide-3-yl, Et, S, S), (N-152: 6-OH-pyridine-3-yl, Et, S, S), (N-153: 6-SH-pyridine-3-yl, Et, S, S), (N-154: 1-Ac-pyrrole-3-yl, Et, S, S), (N-155: 4-CF₃-Ph, Et, S, S), (N-156: 4-CN-Ph, Et, S, S), (N-157: 4-CHO-Ph, Et, S, S), (N-158: 3-Cl-Ph, Et, S, S), (N-159: 3-Br-Ph, Et, S, S), (N-160: 3-F-Ph, Et, S, S), (N-161: 3-I-Ph, Et, S, S), (N-162: 4-I-Ph, Et, S, S), (N-163: 4-OCF₃-Ph, Et, S, S), (N-164: 3,4-diI-Ph, Et, S, S), (N-165: Indole-6-yl, Et, S, S), (N-166: 1-Ac-indole-6-yl, Et, S, S), (N-167: 1-Me-indole-6-yl, Et, S, S), (N-168: 4-(1-Imidazolyl)-Ph, Et, S, S), (N-169: 4-Morphorino-Ph, Et, S, S), (N-170: 4-(1-Piperazinyl)-Ph, Et, S, S), (N-171: 2:5-diMe-thiophene-3-yl, Et, S,

S), (N-172: 2-Furyl, Et, S, S), (N-173: 5-Me-furan-2-yl, Et, S, S), (N-174: 5-Me-furan-2-yl, Et, S, S), (N-175: 2-Thiazolyl, Et, S, S), (N-176: 1:4-Benzodioxin-6-yl, Et, S, S), (N-177: Benzo[b]furan-2-yl, Et, S, S), (N-178: 4-NH₂CH₂-Ph, Et, S, S), (N-179: 4-N(Me)HCH₂-Ph, Et, S, S), (N-180: 4-N(Me)₂CH₂-Ph, Et, S, S), (N-181: 6-Cl-pyridine-3-yl, Et, S, S), (N-182: 5,6-diCl-pyridine-3-yl, Et, S, S), (N-183: 5-Cl-pyridine-2-yl, Et, S, S), (N-184: 4:5-diCl-pyridine-2-yl, Et, S, S), (N-185: 4-ClCH₂-Bn, Et, S, S), (N-186: Bn, Et, S, S), (N-187: 4-Cl-Bn, Et, S, S), (N-188: 4-Br-Bn, Et, S, S), (N-189: 4-F-Bn, Et, S, S), (N-190: 3,4-diCl-Bn, Et, S, S), (N-191: 3,4-diBr-Bn, Et, S, S), (N-192: 3,4-diF-Bn, Et, S, S), (N-193: 4-Cl-Bz, Et, S, S), (N-194: 3,4-diCl-Bz, Et, S, S), (N-195: 4-Br-Bz, Et, S, S), (N-196: 3,4-diBr-Bz, Et, S, S), (N-197: 4-F-Bz, Et, S, S), (N-198: 3,4-diF-Bz, Et, S, S), (N-199: 4-NO₂-Bn, Et, S, S), (N-200: 4-CN-Bn, Et, S, S), (N-201: Ph, COOMe, S, S), (N-203: 4-Br-Ph, COOMe, S, S), (N-204: 4-Me-Ph, COOMe, S, S), (N-205: 4-Ph-Ph, COOMe, S, S), (N-206: 4-OMe-Ph, COOMe, S, S), (N-207: 4-tBu-Ph, COOMe, S, S), (N-208: 4-COOMe-Ph, COOMe, S, S), (N-209: 4-Pen-Ph, COOMe, S, S), (N-210: 4-NO₂-Ph, COOMe, S, S), (N-211: 5-Cl-thiophene-2-yl, COOMe, S, S), (N-212: 3-Thienyl, COOMe, S, S), (N-213: 2-Py, COOMe, S, S), (N-214: 3-Py, COOMe, S, S), (N-215: 4-Py, COOMe, S, S), (N-216: 3,4-diF-Ph, COOMe, S, S), (N-217: 5-Br-thiophene-2-yl, COOMe, S, S), (N-218: 4-CONH₂-Ph, COOMe, S, S), (N-219: 4-CON(Me)H-Ph, COOMe, S, S), (N-220: 4-CON(Me)₂-Ph, COOMe, S, S), (N-221: 4-iPrOC(=O)-Ph, COOMe, S, S), (N-222: 4-nBuOC(=O)-Ph, COOMe, S, S), (N-223: 6-Me-pyridine-3-yl, COOMe, S, S), (N-224: Quinoline-3-yl, COOMe, S, S), (N-225: 4-NH₂-Ph, COOMe, S, S), (N-226: 4-N(Ac)H-Ph, COOMe, S, S), (N-227: 4-OH-Ph, COOMe, S, S), (N-228: 3,4-di(OH)₂-Ph, COOMe, S, S), (N-229: 3,4-di(NH₂)-Ph, COOMe, S, S), (N-230: 3:4-[N(Ac)H]₂-Ph, COOMe, S, S), (N-231: 4-SH-Ph, COOMe, S, S), (N-232: 4-SMe-Ph, COOMe, S, S), (N-233: 3,4-diBr-Ph,

COOMe, S, S), (N-234: 4-N(Me)H-Ph, COOMe, S, S), (N-235: 4-N(Me)₂-Ph, COOMe, S, S), (N-236: 4-N(Me)₃⁺-Ph, COOMe, S, S), (N-237: 4-Et-Ph, COOMe, S, S), (N-238: 4-iPr-Ph, COOMe, S, S), (N-239: 4-nPr-Ph, COOMe, S, S), (N-240: 4-nBu-Ph, COOMe, S, S), (N-241: 4-iBu-Ph, COOMe, S, S), (N-242: 3,4-diMe-Ph, COOMe, S, S), (N-243: 1,3-Benzodioxole-5-yl, COOMe, S, S), (N-244: N-Me-pyridinium-4-yl, COOMe, S, S), (N-245: N-Me-pyridinium-3-yl, COOMe, S, S), (N-246: 5-Me-Pyridine-2-yl, COOMe, S, S), (N-247: 2-Pyrazinyl, COOMe, S, S), (N-248: 3-Pyrrolyl, COOMe, S, S), (N-249: 1-Me-pyrrole-3-yl, COOMe, S, S), (N-250: Pyridine N-oxide-4-yl, COOMe, S, S), (N-251: Pyridine N-oxide-3-yl, COOMe, S, S), (N-252: 6-OH-pyridine-3-yl, COOMe, S, S), (N-253: 6-SH-pyridine-3-yl, COOMe, S, S), (N-254: 1-Ac-pyrrole-3-yl, COOMe, S, S), (N-255: 4-CF₃-Ph, COOMe, S, S), (N-256: 4-CN-Ph, COOMe, S, S), (N-257: 4-CHO-Ph, COOMe, S, S), (N-258: 3-Cl-Ph, COOMe, S, S), (N-259: 3-Br-Ph, COOMe, S, S), (N-260: 3-F-Ph, COOMe, S, S), (N-261: 3-I-Ph, COOMe, S, S), (N-262: 4-I-Ph, COOMe, S, S), (N-263: 4-OCF₃-Ph, COOMe, S, S), (N-264: 3,4-diI-Ph, COOMe, S, S), (N-265: Indole-6-yl, COOMe, S, S), (N-266: 1-Ac-indole-6-yl, COOMe, S, S), (N-267: 1-Me-indole-6-yl, COOMe, S, S), (N-268: 4-(1-Imidazolyl)-Ph, COOMe, S, S), (N-269: 4-Morphorino-Ph, COOMe, S, S), (N-270: 4-(1-Piperazinyl)-Ph, COOMe, S, S), (N-271: 2:5-diMe-thiophene-3-yl, COOMe, S, S), (N-272: 2-Furyl, COOMe, S, S), (N-273: 5-Me-furan-2-yl, COOMe, S, S), (N-274: 5-Me-furan-2-yl, COOMe, S, S), (N-275: 2-Thiazolyl, COOMe, S, S), (N-276: 1:4-Benzodioxin-6-yl, COOMe, S, S), (N-277: Benzo[b]furan-2-yl, COOMe, S, S), (N-278: 4-NH₂CH₂-Ph, COOMe, S, S), (N-279: 4-N(Me)HCH₂-Ph, COOMe, S, S), (N-280: 4-N(Me)₂CH₂-Ph, COOMe, S, S), (N-281: 6-Cl-pyridine-3-yl, COOMe, S, S), (N-282: 5,6-diCl-pyridine-3-yl, COOMe, S, S), (N-283: 5-Cl-pyridine-2-yl, COOMe, S, S), (N-284: 4:5-diCl-pyridine-2-yl, COOMe, S, S), (N-285: 4-ClCH₂-Bn, COOMe, S, S), (N-286: Bn, COOMe, S, S),

(N-287: 4-Cl-Bn, COOMe, S, S), (N-288: 4-Br-Bn, COOMe, S, S), (N-289: 4-F-Bn, COOMe, S, S), (N-290: 3,4-diCl-Bn, COOMe, S, S), (N-291: 3,4-diBr-Bn, COOMe, S, S), (N-292: 3,4-diF-Bn, COOMe, S, S), (N-293: 4-Cl-Bz, COOMe, S, S), (N-294: 3,4-diCl-Bz, COOMe, S, S), (N-295: 4-Br-Bz, COOMe, S, S), (N-296: 3,4-diBr-Bz, COOMe, S, S), (N-297: 4-F-Bz, COOMe, S, S), (N-298: 3,4-diF-Bz, COOMe, S, S), (N-299: 4-NO₂-Bn, COOMe, S, S), (N-300: 4-CN-Bn, COOMe, S, S), (N-302: H, 4-F-Ph, S, S), (N-303: H, 4-Br-Ph, S, S), (N-304: H, 4-Me-Ph, S, S), (N-305: H, 4-Ph-Ph, S, S), (N-306: H, 4-OMe-Ph, S, S), (N-307: H, 4-tBu-Ph, S, S), (N-308: H, 4-COOMe-Ph, S, S), (N-309: H, 4-Pen-Ph, S, S), (N-310: H, 4-NO₂-Ph, S, S), (N-311: H, 5-Cl-thiophene-2-yl, S, S), (N-312: H, 3-Thienyl, S, S), (N-313: H, 2-Py, S, S), (N-314: H, 3-Py, S, S), (N-315: H, 4-Py, S, S), (N-316: H, 3,4-diF-Ph, S, S), (N-317: H, 5-Br-thiophene-2-yl, S, S), (N-318: H, 4-CONH₂-Ph, S, S), (N-319: H, 4-CON(Me)H-Ph, S, S), (N-320: H, 4-CON(Me)₂-Ph, S, S), (N-321: H, 4-iPrOC(=O)-Ph, S, S), (N-322: H, 4-nBuOC(=O)-Ph, S, S), (N-323: H, 6-Me-pyridine-3-yl, S, S), (N-324: H, Quinoline-3-yl, S, S), (N-325: H, 4-NH₂-Ph, S, S), (N-326: H, 4-N(Ac)H-Ph, S, S), (N-327: H, 4-OH-Ph, S, S), (N-328: H, 3,4-di(OH)₂-Ph, S, S), (N-329: H, 3,4-di(NH₂)-Ph, S, S), (N-330: H, 3:4-[N(Ac)H]₂-Ph, S, S), (N-331: H, 4-SH-Ph, S, S), (N-332: H, 4-SMe-Ph, S, S), (N-333: H, 3,4-diBr-Ph, S, S), (N-334: H, 4-N(Me)H-Ph, S, S), (N-335: H, 4-N(Me)₂-Ph, S, S), (N-336: H, 4-N(Me)₃⁺-Ph, S, S), (N-337: H, 4-Et-Ph, S, S), (N-338: H, 4-iPr-Ph, S, S), (N-339: H, 4-nPr-Ph, S, S), (N-340: H, 4-nBu-Ph, S, S), (N-341: H, 4-iBu-Ph, S, S), (N-342: H, 3,4-diMe-Ph, S, S), (N-343: H, 1,3-Benzodioxole-5-yl, S, S), (N-344: H, N-Me-pyridinium-4-yl, S, S), (N-345: H, N-Me-pyridinium-3-yl, S, S), (N-346: H, 5-Me-Pyridine-2-yl, S, S), (N-347: H, 2-Pyrazinyl, S, S), (N-348: H, 3-Pyrrolyl, S, S), (N-349: H, 1-Me-pyrrole-3-yl, S, S), (N-350: H, Pyridine N-oxide-4-yl, S, S), (N-351: H, Pyridine N-oxide-3-yl, S, S), (N-352: H, 6-OH-pyridine-3-yl, S, S), (N-353: H, 6-SH-pyridine-3-yl, S, S),

(N-354: H, 1-Ac-pyrrole-3-yl, S, S), (N-355: H, 4-CF₃-Ph, S, S), (N-356: H, 4-CN-Ph, S, S), (N-357: H, 4-CHO-Ph, S, S), (N-358: H, 3-Cl-Ph, S, S), (N-359: H, 3-Br-Ph, S, S), (N-360: H, 3-F-Ph, S, S), (N-361: H, 3-I-Ph, S, S), (N-362: H, 4-I-Ph, S, S), (N-363: H, 4-OCF₃-Ph, S, S), (N-364: H, 3,4-diI-Ph, S, S), (N-365: H, Indole-6-yl, S, S), (N-366: H, 1-Ac-indole-6-yl, S, S), (N-367: H, 1-Me-indole-6-yl, S, S), (N-368: H, 4-(1-Imidazolyl)-Ph, S, S), (N-369: H, 4-Morphorino-Ph, S, S), (N-370: H, 4-(1-Piperazinyl)-Ph, S, S), (N-371: H, 2:5-diMe-thiophene-3-yl, S, S), (N-372: H, 2-Furyl, S, S), (N-373: H, 5-Me-furan-2-yl, S, S), (N-374: H, 5-Me-furan-2-yl, S, S), (N-375: H, 2-Thiazolyl, S, S), (N-376: H, 1:4-Benzodioxin-6-yl, S, S), (N-377: H, Benzo[b]furan-2-yl, S, S), (N-378: H, 4-NH₂CH₂-Ph, S, S), (N-379: H, 4-N(Me)HCH₂-Ph, S, S), (N-380: H, 4-N(Me)₂CH₂-Ph, S, S), (N-381: H, 6-Cl-pyridine-3-yl, S, S), (N-382: H, 5,6-diCl-pyridine-3-yl, S, S), (N-383: H, 5-Cl-pyridine-2-yl, S, S), (N-384: H, 4:5-diCl-pyridine-2-yl, S, S), (N-385: H, 4-ClCH₂-Bn, S, S), (N-386: H, Bn, S, S), (N-387: H, 4-Cl-Bn, S, S), (N-388: H, 4-Br-Bn, S, S), (N-389: H, 4-F-Bn, S, S), (N-390: H, 3,4-diCl-Bn, S, S), (N-391: H, 3,4-diBr-Bn, S, S), (N-392: H, 3,4-diF-Bn, S, S), (N-393: H, 4-Cl-Bz, S, S), (N-394: H, 3,4-diCl-Bz, S, S), (N-395: H, 4-Br-Bz, S, S), (N-396: H, 3,4-diBr-Bz, S, S), (N-397: H, 4-F-Bz, S, S), (N-398: H, 3,4-diF-Bz, S, S), (N-399: H, 4-NO₂-Bn, S, S), (N-400: H, 4-CN-Bn, S, S), (N-401: Me, Ph, S, S), (N-402: Me, 4-F-Ph, S, S), (N-403: Me, 4-Br-Ph, S, S), (N-404: Me, 4-Me-Ph, S, S), (N-405: Me, 4-Ph-Ph, S, S), (N-406: Me, 4-OMe-Ph, S, S), (N-407: Me, 4-tBu-Ph, S, S), (N-408: Me, 4-COOMe-Ph, S, S), (N-409: Me, 4-Pen-Ph, S, S), (N-410: Me, 4-NO₂-Ph, S, S), (N-411: Me, 5-Cl-thiophene-2-yl, S, S), (N-412: Me, 3-Thienyl, S, S), (N-413: Me, 2-Py, S, S), (N-414: Me, 3-Py, S, S), (N-415: Me, 4-Py, S, S), (N-416: Me, 3,4-diF-Ph, S, S), (N-417: Me, 5-Br-thiophene-2-yl, S, S), (N-418: Me, 4-CONH₂-Ph, S, S), (N-419: Me, 4-CON(Me)H-Ph, S, S), (N-420: Me, 4-CON(Me)₂-Ph, S, S), (N-421: Me, 4-

iPrOC(=O)-Ph, S, S), (N-422: Me, 4-nBuOC(=O)-Ph, S, S), (N-423: Me, 6-Me-pyridine-3-yl, S, S), (N-424: Me, Quinoline-3-yl, S, S), (N-425: Me, 4-NH₂-Ph, S, S), (N-426: Me, 4-N(Ac)H-Ph, S, S), (N-427: Me, 4-OH-Ph, S, S), (N-428: Me, 3,4-di(OH)₂-Ph, S, S), (N-429: Me, 3,4-di(NH₂)-Ph, S, S), (N-430: Me, 3:4-[N(Ac)H]₂-Ph, S, S), (N-431: Me, 4-SH-Ph, S, S), (N-432: Me, 4-SMe-Ph, S, S), (N-433: Me, 3,4-diBr-Ph, S, S), (N-434: Me, 4-N(Me)H-Ph, S, S), (N-435: Me, 4-N(Me)₂-Ph, S, S), (N-436: Me, 4-N(Me)₃⁺-Ph, S, S), (N-437: Me, 4-Et-Ph, S, S), (N-438: Me, 4-iPr-Ph, S, S), (N-439: Me, 4-nPr-Ph, S, S), (N-440: Me, 4-nBu-Ph, S, S), (N-441: Me, 4-iBu-Ph, S, S), (N-442: Me, 3,4-diMe-Ph, S, S), (N-443: Me, 1,3-Benzodioxole-5-yl, S, S), (N-444: Me, N-Me-pyridinium-4-yl, S, S), (N-445: Me, N-Me-pyridinium-3-yl, S, S), (N-446: Me, 5-Me-Pyridine-2-yl, S, S), (N-447: Me, 2-Pyrazinyl, S, S), (N-448: Me, 3-Pyrrolyl, S, S), (N-449: Me, 1-Me-pyrrole-3-yl, S, S), (N-450: Me, Pyridine N-oxide-4-yl, S, S), (N-451: Me, Pyridine N-oxide-3-yl, S, S), (N-452: Me, 6-OH-pyridine-3-yl, S, S), (N-453: Me, 6-SH-pyridine-3-yl, S, S), (N-454: Me, 1-Ac-pyrrole-3-yl, S, S), (N-455: Me, 4-CF₃-Ph, S, S), (N-456: Me, 4-CN-Ph, S, S), (N-457: Me, 4-CHO-Ph, S, S), (N-458: Me, 3-Cl-Ph, S, S), (N-459: Me, 3-Br-Ph, S, S), (N-460: Me, 3-F-Ph, S, S), (N-461: Me, 3-I-Ph, S, S), (N-462: Me, 4-I-Ph, S, S), (N-463: Me, 4-OCF₃-Ph, S, S), (N-464: Me, 3,4-diI-Ph, S, S), (N-465: Me, Indole-6-yl, S, S), (N-466: Me, 1-Ac-indole-6-yl, S, S), (N-467: Me, 1-Me-indole-6-yl, S, S), (N-468: Me, 4-(1-Imidazolyl)-Ph, S, S), (N-469: Me, 4-Morpholino-Ph, S, S), (N-470: Me, 4-(1-Piperazinyl)-Ph, S, S), (N-471: Me, 2:5-diMe-thiophene-3-yl, S, S), (N-472: Me, 2-Furyl, S, S), (N-473: Me, 5-Me-furan-2-yl, S, S), (N-474: Me, 5-Me-furan-2-yl, S, S), (N-475: Me, 2-Thiazolyl, S, S), (N-476: Me, 1:4-Benzodioxin-6-yl, S, S), (N-477: Me, Benzo[b]furan-2-yl, S, S), (N-478: Me, 4-NH₂CH₂-Ph, S, S), (N-479: Me, 4-N(Me)HCH₂-Ph, S, S), (N-480: Me, 4-N(Me)₂CH₂-Ph, S, S), (N-481: Me, 6-Cl-pyridine-3-yl, S, S), (N-482: Me, 5,6-diCl-pyridine-3-yl, S, S), (N-483:

Me, 5-Cl-pyridine-2-yl, S, S), (N-484: Me, 4:5-diCl-pyridine-2-yl, S, S), (N-485: Me, 4-ClCH₂-Bn, S, S), (N-486: Me, Bn, S, S), (N-487: Me, 4-Cl-Bn, S, S), (N-488: Me, 4-Br-Bn, S, S), (N-489: Me, 4-F-Bn, S, S), (N-490: Me, 3,4-diCl-Bn, S, S), (N-491: Me, 3,4-diBr-Bn, S, S), (N-492: Me, 3,4-diF-Bn, S, S), (N-493: Me, 4-Cl-Bz, S, S), (N-494: Me, 3,4-diCl-Bz, S, S), (N-495: Me, 4-Br-Bz, S, S), (N-496: Me, 3,4-diBr-Bz, S, S), (N-497: Me, 4-F-Bz, S, S), (N-498: Me, 3,4-diF-Bz, S, S), (N-499: Me, 4-NO₂-Bn, S, S), (N-500: Me, 4-CN-Bn, S, S), (N-501: Et, Ph, S, S), (N-502: Et, 4-F-Ph, S, S), (N-503: Et, 4-Br-Ph, S, S), (N-504: Et, 4-Me-Ph, S, S), (N-505: Et, 4-Ph-Ph, S, S), (N-506: Et, 4-OMe-Ph, S, S), (N-507: Et, 4-tBu-Ph, S, S), (N-508: Et, 4-COOMe-Ph, S, S), (N-509: Et, 4-Pen-Ph, S, S), (N-510: Et, 4-NO₂-Ph, S, S), (N-511: Et, 5-Cl-thiophene-2-yl, S, S), (N-512: Et, 3-Thienyl, S, S), (N-513: Et, 2-Py, S, S), (N-514: Et, 3-Py, S, S), (N-515: Et, 4-Py, S, S), (N-516: Et, 3,4-diF-Ph, S, S), (N-517: Et, 5-Br-thiophene-2-yl, S, S), (N-518: Et, 4-CONH₂-Ph, S, S), (N-519: Et, 4-CON(Me)H-Ph, S, S), (N-520: Et, 4-CON(Me)₂-Ph, S, S), (N-521: Et, 4-iPrOC(=O)-Ph, S, S), (N-522: Et, 4-nBuOC(=O)-Ph, S, S), (N-523: Et, 6-Me-pyridine-3-yl, S, S), (N-524: Et, Quinoline-3-yl, S, S), (N-525: Et, 4-NH₂-Ph, S, S), (N-526: Et, 4-N(Ac)H-Ph, S, S), (N-527: Et, 4-OH-Ph, S, S), (N-528: Et, 3,4-di(OH)₂-Ph, S, S), (N-529: Et, 3,4-di(NH₂)-Ph, S, S), (N-530: Et, 3:4-[N(Ac)H]₂-Ph, S, S), (N-531: Et, 4-SH-Ph, S, S), (N-532: Et, 4-SMe-Ph, S, S), (N-533: Et, 3,4-diBr-Ph, S, S), (N-534: Et, 4-N(Me)H-Ph, S, S), (N-535: Et, 4-N(Me)₂-Ph, S, S), (N-536: Et, 4-N(Me)₃⁺-Ph, S, S), (N-537: Et, 4-Et-Ph, S, S), (N-538: Et, 4-iPr-Ph, S, S), (N-539: Et, 4-nPr-Ph, S, S), (N-540: Et, 4-nBu-Ph, S, S), (N-541: Et, 4-iBu-Ph, S, S), (N-542: Et, 3,4-diMe-Ph, S, S), (N-543: Et, 1,3-Benzodioxole-5-yl, S, S), (N-544: Et, N-Me-pyridinium-4-yl, S, S), (N-545: Et, N-Me-pyridinium-3-yl, S, S), (N-546: Et, 5-Me-Pyridine-2-yl, S, S), (N-547: Et, 2-Pyrazinyl, S, S), (N-548: Et, 3-Pyrrolyl, S, S), (N-549: Et, 1-Me-pyrrole-3-yl, S, S), (N-550: Et, Pyridine N-

oxide-4-yl, S, S), (N-551: Et, Pyridine N-oxide-3-yl, S, S), (N-552: Et, 6-OH-pyridine-3-yl, S, S), (N-553: Et, 6-SH-pyridine-3-yl, S, S), (N-554: Et, 1-Ac-pyrrole-3-yl, S, S), (N-555: Et, 4-CF₃-Ph, S, S), (N-556: Et, 4-CN-Ph, S, S), (N-557: Et, 4-CHO-Ph, S, S), (N-558: Et, 3-Cl-Ph, S, S), (N-559: Et, 3-Br-Ph, S, S), (N-560: Et, 3-F-Ph, S, S), (N-561: Et, 3-I-Ph, S, S), (N-562: Et, 4-I-Ph, S, S), (N-563: Et, 4-OCF₃-Ph, S, S), (N-564: Et, 3,4-diI-Ph, S, S), (N-565: Et, Indole-6-yl, S, S), (N-566: Et, 1-Ac-indole-6-yl, S, S), (N-567: Et, 1-Me-indole-6-yl, S, S), (N-568: Et, 4-(1-Imidazolyl)-Ph, S, S), (N-569: Et, 4-Morphorino-Ph, S, S), (N-570: Et, 4-(1-Piperazinyl)-Ph, S, S), (N-571: Et, 2:5-diMe-thiophene-3-yl, S, S), (N-572: Et, 2-Furyl, S, S), (N-573: Et, 5-Me-furan-2-yl, S, S), (N-574: Et, 5-Me-furan-2-yl, S, S), (N-475: Et, 2-Thiazolyl, S, S), (N-576: Et, 1:4-Benzodioxin-6-yl, S, S), (N-577: Et, Benzo[b]furan-2-yl, S, S), (N-578: Et, 4-NH₂CH₂-Ph, S, S), (N-579: Et, 4-N(Me)HCH₂-Ph, S, S), (N-580: Et, 4-N(Me)₂CH₂-Ph, S, S), (N-581: Et, 6-Cl-pyridine-3-yl, S, S), (N-582: Et, 5,6-diCl-pyridine-3-yl, S, S), (N-583: Et, 5-Cl-pyridine-2-yl, S, S), (N-584: Et, 4:5-diCl-pyridine-2-yl, S, S), (N-585: Et, 4-ClCH₂-Bn, S, S), (N-586: Et, Bn, S, S), (N-587: Et, 4-Cl-Bn, S, S), (N-588: Et, 4-Br-Bn, S, S), (N-589: Et, 4-F-Bn, S, S), (N-590: Et, 3,4-diCl-Bn, S, S), (N-591: Et, 3,4-diBr-Bn, S, S), (N-592: Et, 3,4-diF-Bn, S, S), (N-593: Et, 4-Cl-Bz, S, S), (N-594: Et, 3,4-diCl-Bz, S, S), (N-595: Et, 4-Br-Bz, S, S), (N-596: Et, 3,4-diBr-Bz, S, S), (N-597: Et, 4-F-Bz, S, S), (N-598: Et, 3,4-diF-Bz, S, S), (N-599: Et, 4-NO₂-Bn, S, S), (N-600: Et, 4-CN-Bn, S, S), (N-601: COOMe, Ph, S, S), (N-602: COOMe, 4-F-Ph, S, S), (N-603: COOMe, 4-Br-Ph, S, S), (N-604: COOMe, 4-Me-Ph, S, S), (N-605: COOMe, 4-Ph-Ph, S, S), (N-606: COOMe, 4-OMe-Ph, S, S), (N-607: COOMe, 4-tBu-Ph, S, S), (N-608: COOMe, 4-COOMe-Ph, S, S), (N-609: COOMe, 4-Pen-Ph, S, S), (N-510: COOMe, 4-NO₂-Ph, S, S), (N-611: COOMe, 5-Cl-thiophene-2-yl, S, S), (N-612: COOMe, 3-Thienyl, S, S), (N-513: COOMe, 2-Py, S, S), (N-614: COOMe,

3-Py, S, S), (N-615: COOMe, 4-Py, S, S), (N-616: COOMe, 3,4-diF-Ph, S, S),
 (N-617: COOMe, 5-Br-thiophene-2-yl, S, S), (N-618: COOMe, 4-CONH₂-Ph, S,
 S), (N-619: COOMe, 4-CON(Me)H-Ph, S, S), (N-620: COOMe, 4-CON(Me)₂-Ph,
 S, S), (N-621: COOMe, 4-iPrOC(=O)-Ph, S, S), (N-622: COOMe, 4-
 nBuOC(=O)-Ph, S, S), (N-623: COOMe, 6-Me-pyridine-3-yl, S, S), (N-624:
 COOMe, Quinoline-3-yl, S, S), (N-625: COOMe, 4-NH₂-Ph, S, S), (N-626:
 COOMe, 4-N(Ac)H-Ph, S, S), (N-627: COOMe, 4-OH-Ph, S, S), (N-628: COOMe,
 3,4-di(OH)₂-Ph, S, S), (N-629: COOMe, 3,4-di(NH₂)-Ph, S, S), (N-630: COOMe,
 3:4-[N(Ac)H]₂-Ph, S, S), (N-631: COOMe, 4-SH-Ph, S, S), (N-632: COOMe, 4-
 SMe-Ph, S, S), (N-633: COOMe, 3,4-diBr-Ph, S, S), (N-634: COOMe, 4-
 N(Me)H-Ph, S, S), (N-635: COOMe, 4-N(Me)₂-Ph, S, S), (N-636: COOMe, 4-
 N(Me)₃⁺-Ph, S, S), (N-637: COOMe, 4-Et-Ph, S, S), (N-638: COOMe, 4-iPr-Ph, S,
 S), (N-639: COOMe, 4-nPr-Ph, S, S), (N-640: COOMe, 4-nBu-Ph, S, S), (N-641:
 COOMe, 4-iBu-Ph, S, S), (N-642: COOMe, 3,4-diMe-Ph, S, S), (N-643: COOMe,
 1,3-Benzodioxole-5-yl, S, S), (N-644: COOMe, N-Me-pyridinium-4-yl, S, S),
 (N-645: COOMe, N-Me-pyridinium-3-yl, S, S), (N-646: COOMe, 5-Me-
 Pyridine-2-yl, S, S), (N-647: COOMe, 2-Pyrazinyl, S, S), (N-648: COOMe, 3-
 Pyrrolyl, S, S), (N-649: COOMe, 1-Me-pyrrole-3-yl, S, S), (N-650: COOMe,
 Pyridine N-oxide-4-yl, S, S), (N-651: COOMe, Pyridine N-oxide-3-yl, S, S),
 (N-652: COOMe, 6-OH-pyridine-3-yl, S, S), (N-653: COOMe, 6-SH-pyridine-3-
 yl, S, S), (N-654: COOMe, 1-Ac-pyrrole-3-yl, S, S), (N-655: COOMe, 4-CF₃-Ph,
 S, S), (N-656: COOMe, 4-CN-Ph, S, S), (N-657: COOMe, 4-CHO-Ph, S, S), (N-
 658: COOMe, 3-Cl-Ph, S, S), (N-659: COOMe, 3-Br-Ph, S, S), (N-660: COOMe,
 3-F-Ph, S, S), (N-661: COOMe, 3-I-Ph, S, S), (N-662: COOMe, 4-I-Ph, S, S),
 (N-663: COOMe, 4-OCF₃-Ph, S, S), (N-664: COOMe, 3,4-diI-Ph, S, S), (N-665:
 COOMe, Indole-6-yl, S, S), (N-666: COOMe, 1-Ac-indole-6-yl, S, S), (N-667:
 COOMe, 1-Me-indole-6-yl, S, S), (N-668: COOMe, 4-(1-Imidazolyl)-Ph, S, S),

(N-669: COOMe, 4-Morphorino-Ph, S, S), (N-670: COOMe, 4-(1-Piperazinyl)-Ph, S, S), (N-671: COOMe, 2:5-diMe-thiophene-3-yl, S, S), (N-672: COOMe, 2-Furyl, S, S), (N-673: COOMe, 5-Me-furan-2-yl, S, S), (N-674: COOMe, 5-Me-furan-2-yl, S, S), (N-675: COOMe, 2-Thiazolyl, S, S), (N-676: COOMe, 1:4-Benzodioxin-6-yl, S, S), (N-577: COOMe, Benzo[b]furan-2-yl, S, S), (N-678: COOMe, 4-NH₂CH₂-Ph, S, S), (N-679: COOMe, 4-N(Me)HCH₂-Ph, S, S), (N-680: COOMe, 4-N(Me)₂CH₂-Ph, S, S), (N-681: COOMe, 6-Cl-pyridine-3-yl, S, S), (N-682: COOMe, 5,6-diCl-pyridine-3-yl, S, S), (N-683: COOMe, 5-Cl-pyridine-2-yl, S, S), (N-684: COOMe, 4:5-diCl-pyridine-2-yl, S, S), (N-685: COOMe, 4-ClCH₂-Bn, S, S), (N-686: COOMe, Bn, S, S), (N-687: COOMe, 4-Cl-Bn, S, S), (N-688: COOMe, 4-Br-Bn, S, S), (N-689: COOMe, 4-F-Bn, S, S), (N-690: COOMe, 3,4-diCl-Bn, S, S), (N-691: COOMe, 3,4-diBr-Bn, S, S), (N-692: COOMe, 3,4-diF-Bn, S, S), (N-693: COOMe, 4-Cl-Bz, S, S), (N-694: COOMe, 3,4-diCl-Bz, S, S), (N-695: COOMe, 4-Br-Bz, S, S), (N-696: COOMe, 3,4-diBr-Bz, S, S), (N-697: COOMe, 4-F-Bz, S, S), (N-698: COOMe, 3,4-diF-Bz, S, S), (N-699: COOMe, 4-NO₂-Bn, S, S), (N-700: COOMe, 4-CN-Bn, S, S), (N-701: Ph, H, O, S), (N-702: 4-F-Ph, H, O, S), (N-703: 4-Br-Ph, H, O, S), (N-704: 4-Me-Ph, H, O, S), (N-705: 4-Ph-Ph, H, O, S), (N-706: 4-OMe-Ph, H, O, S), (N-707: 4-tBu-Ph, H, O, S), (N-708: 4-COOMe-Ph, H, O, S), (N-709: 4-Pen-Ph, H, O, S), (N-710: 4-NO₂-Ph, H, O, S), (N-711: 5-Cl-thiophene-2-yl, H, O, S), (N-712: 3-Thienyl, H, O, S), (N-713: 2-Py, H, O, S), (N-714: 3-Py, H, O, S), (N-715: 4-Py, H, O, S), (N-716: 3,4-diF-Ph, H, O, S), (N-717: 5-Br-thiophene-2-yl, H, O, S), (N-718: 4-CONH₂-Ph, H, O, S), (N-719: 4-CON(Me)H-Ph, H, O, S), (N-720: 4-CON(Me)₂-Ph, H, O, S), (N-721: 4-iPrOC(=O)-Ph, H, O, S), (N-722: 4-nBuOC(=O)-Ph, H, O, S), (N-723: 6-Me-pyridine-3-yl, H, O, S), (N-724: Quinoline-3-yl, H, O, S), (N-725: 4-NH₂-Ph, H, O, S), (N-726: 4-N(Ac)H-Ph, H, O, S), (N-727: 4-OH-Ph, H, O, S), (N-728: 3,4-di(OH)₂-Ph, H, O, S), (N-729:

3,4-di(NH₂)-Ph, H, O, S), (N-730: 3:4-[N(Ac)H]₂-Ph, H, O, S), (N-731: 4-SH-Ph, H, O, S), (N-732: 4-SMe-Ph, H, O, S), (N-733: 3,4-diBr-Ph, H, O, S), (N-734: 4-N(Me)H-Ph, H, O, S), (N-735: 4-N(Me)₂-Ph, H, O, S), (N-736: 4-N(Me)₃⁺-Ph, H, O, S), (N-737: 4-Et-Ph, H, O, S), (N-738: 4-iPr-Ph, H, O, S), (N-739: 4-nPr-Ph, H, O, S), (N-740: 4-nBu-Ph, H, O, S), (N-741: 4-iBu-Ph, H, O, S), (N-742: 3,4-diMe-Ph, H, O, S), (N-743: 1,3-Benzodioxole-5-yl, H, O, S), (N-744: N-Me-pyridinium-4-yl, H, O, S), (N-745: N-Me-pyridinium-3-yl, H, O, S), (N-746: 5-Me-Pyridine-2-yl, H, O, S), (N-747: 2-Pyrazinyl, H, O, S), (N-748: 3-Pyrrolyl, H, O, S), (N-749: 1-Me-pyrrole-3-yl, H, O, S), (N-750: Pyridine N-oxide-4-yl, H, O, S), (N-751: Pyridine N-oxide-3-yl, H, O, S), (N-752: 6-OH-pyridine-3-yl, H, O, S), (N-753: 6-SH-pyridine-3-yl, H, O, S), (N-754: 1-Ac-pyrrole-3-yl, H, O, S), (N-755: 4-CF₃-Ph, H, O, S), (N-756: 4-CN-Ph, H, O, S), (N-757: 4-CHO-Ph, H, O, S), (N-758: 3-Cl-Ph, H, O, S), (N-759: 3-Br-Ph, H, O, S), (N-760: 3-F-Ph, H, O, S), (N-761: 3-I-Ph, H, O, S), (N-762: 4-I-Ph, H, O, S), (N-763: 4-OCF₃-Ph, H, O, S), (N-764: 3,4-diI-Ph, H, O, S), (N-765: Indole-6-yl, H, O, S), (N-766: 1-Ac-indole-6-yl, H, O, S), (N-767: 1-Me-indole-6-yl, H, O, S), (N-768: 4-(1-Imidazolyl)-Ph, H, O, S), (N-769: 4-Morpholino-Ph, H, O, S), (N-770: 4-(1-Piperazinyl)-Ph, H, O, S), (N-771: 2:5-diMe-thiophene-3-yl, H, O, S), (N-772: 2-Furyl, H, O, S), (N-773: 5-Me-furan-2-yl, H, O, S), (N-774: 5-Me-furan-2-yl, H, O, S), (N-775: 2-Thiazolyl, H, O, S), (N-776: 1:4-Benzodioxin-6-yl, H, O, S), (N-777: Benzo[b]furan-2-yl, H, O, S), (N-778: 4-NH₂CH₂-Ph, H, O, S), (N-779: 4-N(Me)HCH₂-Ph, H, O, S), (N-780: 4-N(Me)₂CH₂-Ph, H, O, S), (N-781: 6-Cl-pyridine-3-yl, H, O, S), (N-782: 5,6-diCl-pyridine-3-yl, H, O, S), (N-783: 5-Cl-pyridine-2-yl, H, O, S), (N-784: 4:5-diCl-pyridine-2-yl, H, O, S), (N-785: 4-ClCH₂-Bn, H, O, S), (N-786: Bn, H, O, S), (N-787: 4-Cl-Bn, H, O, S), (N-788: 4-Br-Bn, H, O, S), (N-789: 4-F-Bn, H, O, S), (N-790: 3,4-diCl-Bn, H, O, S), (N-791: 3,4-diBr-Bn, H, O, S), (N-792: 3,4-diF-Bn, H, O, S), (N-793: 4-Cl-Bz, H, O,

S), (N-794: 3,4-diCl-Bz, H, O, S), (N-795: 4-Br-Bz, H, O, S), (N-796: 3,4-diBr-Bz, H, O, S), (N-797: 4-F-Bz, H, O, S), (N-798: 3,4-diF-Bz, H, O, S), (N-799: 4-NO₂-Bn, H, O, S), (N-800: 4-CN-Bn, H, O, S), (N-801: Ph, Me, O, S), (N-802: 4-F-Ph, Me, O, S), (N-803: 4-Br-Ph, Me, O, S), (N-804: 4-Me-Ph, Me, O, S), (N-805: 4-Ph-Ph, Me, O, S), (N-806: 4-OMe-Ph, Me, O, S), (N-807: 4-tBu-Ph, Me, O, S), (N-808: 4-COOMe-Ph, Me, O, S), (N-809: 4-Pen-Ph, Me, O, S), (N-810: 4-NO₂-Ph, Me, O, S), (N-811: 5-Cl-thiophene-2-yl, Me, O, S), (N-812: 3-Thienyl, Me, O, S), (N-813: 2-Py, Me, O, S), (N-814: 3-Py, Me, O, S), (N-815: 4-Py, Me, O, S), (N-816: 3,4-diF-Ph, Me, O, S), (N-817: 5-Br-thiophene-2-yl, Me, O, S), (N-818: 4-CONH₂-Ph, Me, O, S), (N-819: 4-CON(Me)H-Ph, Me, O, S), (N-820: 4-CON(Me)₂-Ph, Me, O, S), (N-821: 4-iPrOC(=O)-Ph, Me, O, S), (N-822: 4-nBuOC(=O)-Ph, Me, O, S), (N-823: 6-Me-pyridine-3-yl, Me, O, S), (N-824: Quinoline-3-yl, Me, O, S), (N-825: 4-NH₂-Ph, Me, O, S), (N-826: 4-N(Ac)H-Ph, Me, O, S), (N-827: 4-OH-Ph, Me, O, S), (N-828: 3,4-di(OH)₂-Ph, Me, O, S), (N-829: 3,4-di(NH₂)-Ph, Me, O, S), (N-830: 3,4-[N(Ac)H]₂-Ph, Me, O, S), (N-831: 4-SH-Ph, Me, O, S), (N-832: 4-SMe-Ph, Me, O, S), (N-833: 3,4-diBr-Ph, Me, O, S), (N-834: 4-N(Me)H-Ph, Me, O, S), (N-835: 4-N(Me)₂-Ph, Me, O, S), (N-836: 4-N(Me)₃⁺-Ph, Me, O, S), (N-837: 4-Et-Ph, Me, O, S), (N-838: 4-iPr-Ph, Me, O, S), (N-839: 4-nPr-Ph, Me, O, S), (N-840: 4-nBu-Ph, Me, O, S), (N-841: 4-iBu-Ph, Me, O, S), (N-842: 3,4-diMe-Ph, Me, O, S), (N-843: 1,3-Benzodioxole-5-yl, Me, O, S), (N-844: N-Me-pyridinium-4-yl, Me, O, S), (N-845: N-Me-pyridinium-3-yl, Me, O, S), (N-846: 5-Me-Pyridine-2-yl, Me, O, S), (N-847: 2-Pyrazinyl, Me, O, S), (N-848: 3-Pyrrolyl, Me, O, S), (N-849: 1-Me-pyrrole-3-yl, Me, O, S), (N-850: Pyridine N-oxide-4-yl, Me, O, S), (N-851: Pyridine N-oxide-3-yl, Me, O, S), (N-852: 6-OH-pyridine-3-yl, Me, O, S), (N-853: 6-SH-pyridine-3-yl, Me, O, S), (N-854: 1-Ac-pyrrole-3-yl, Me, O, S), (N-855: 4-CF₃-Ph, Me, O, S), (N-856: 4-CN-Ph, Me, O, S), (N-857: 4-CHO-Ph, Me, O, S), (N-858: 3-Cl-Ph, Me, O, S),

(N-859: 3-Br-Ph, Me, O, S), (N-860: 3-F-Ph, Me, O, S), (N-861: 3-I-Ph, Me, O, S),
 (N-862: 4-I-Ph, Me, O, S), (N-863: 4-OCF₃-Ph, Me, O, S), (N-864: 3,4-diI-Ph,
 Me, O, S), (N-865: Indole-6-yl, Me, O, S), (N-866: 1-Ac-indole-6-yl, Me, O, S),
 (N-867: 1-Me-indole-6-yl, Me, O, S), (N-868: 4-(1-Imidazolyl)-Ph, Me, O, S),
 (N-869: 4-Morphorino-Ph, Me, O, S), (N-870: 4-(1-Piperazinyl)-Ph, Me, O, S),
 (N-871: 2:5-diMe-thiophene-3-yl, Me, O, S), (N-872: 2-Furyl, Me, O, S), (N-873:
 5-Me-furan-2-yl, Me, O, S), (N-874: 5-Me-furan-2-yl, Me, O, S), (N-875: 2-
 Thiazolyl, Me, O, S), (N-876: 1:4-Benzodioxin-6-yl, Me, O, S), (N-877:
 Benzo[b]furan-2-yl, Me, O, S), (N-878: 4-NH₂CH₂-Ph, Me, O, S), (N-879: 4-
 N(Me)HCH₂-Ph, Me, O, S), (N-880: 4-N(Me)₂CH₂-Ph, Me, O, S), (N-881: 6-Cl-
 pyridine-3-yl, Me, O, S), (N-882: 5,6-diCl-pyridine-3-yl, Me, O, S), (N-883: 5-
 Cl-pyridine-2-yl, Me, O, S), (N-884: 4:5-diCl-pyridine-2-yl, Me, O, S), (N-885:
 4-ClCH₂-Bn, Me, O, S), (N-886: Bn, Me, O, S), (N-887: 4-Cl-Bn, Me, O, S), (N-
 888: 4-Br-Bn, Me, O, S), (N-889: 4-F-Bn, Me, O, S), (N-890: 3,4-diCl-Bn, Me, O,
 S), (N-891: 3,4-diBr-Bn, Me, O, S), (N-892: 3,4-diF-Bn, Me, O, S), (N-893: 4-
 Cl-Bz, Me, O, S), (N-894: 3,4-diCl-Bz, Me, O, S), (N-895: 4-Br-Bz, Me, O, S),
 (N-896: 3,4-diBr-Bz, Me, O, S), (N-897: 4-F-Bz, Me, O, S), (N-898: 3,4-diF-Bz,
 Me, O, S), (N-899: 4-NO₂-Bn, Me, O, S), (N-900: 4-CN-Bn, Me, O, S), (N-901:
 Ph, Et, O, S), (N-902: 4-F-Ph, Et, O, S), (N-903: 4-Br-Ph, Et, O, S), (N-904: 4-
 Me-Ph, Et, O, S), (N-905: 4-Ph-Ph, Et, O, S), (N-906: 4-OMe-Ph, Et, O, S), (N-
 907: 4-tBu-Ph, Et, O, S), (N-908: 4-COOMe-Ph, Et, O, S), (N-909: 4-Pen-Ph, Et,
 O, S), (N-910: 4-NO₂-Ph, Et, O, S), (N-911: 5-Cl-thiophene-2-yl, Et, O, S), (N-
 912: 3-Thienyl, Et, O, S), (N-913: 2-Py, Et, O, S), (N-914: 3-Py, Et, O, S), (N-
 915: 4-Py, Et, O, S), (N-916: 3,4-diF-Ph, Et, O, S), (N-917: 5-Br-thiophene-2-yl,
 Et, O, S), (N-918: 4-CONH₂-Ph, Et, O, S), (N-919: 4-CON(Me)H-Ph, Et, O, S),
 (N-920: 4-CON(Me)₂-Ph, Et, O, S), (N-921: 4-iPrOC(=O)-Ph, Et, O, S), (N-922:
 4-nBuOC(=O)-Ph, Et, O, S), (N-923: 6-Me-pyridine-3-yl, Et, O, S), (N-924:

Quinoline-3-yl, Et, O, S), (N-925: 4-NH₂-Ph, Et, O, S), (N-926: 4-N(Ac)H-Ph, Et, O, S), (N-927: 4-OH-Ph, Et, O, S), (N-928: 3,4-di(OH)₂-Ph, Et, O, S), (N-929: 3,4-di(NH₂)-Ph, Et, O, S), (N-930: 3:4-[N(Ac)H]₂-Ph, Et, O, S), (N-931: 4-SH-Ph, Et, O, S), (N-932: 4-SMe-Ph, Et, O, S), (N-933: 3,4-diBr-Ph, Et, O, S), (N-934: 4-N(Me)H-Ph, Et, O, S), (N-935: 4-N(Me)₂-Ph, Et, O, S), (N-936: 4-N(Me)₃⁺-Ph, Et, O, S), (N-937: 4-Et-Ph, Et, O, S), (N-938: 4-iPr-Ph, Et, O, S), (N-939: 4-nPr-Ph, Et, O, S), (N-940: 4-nBu-Ph, Et, O, S), (N-941: 4-iBu-Ph, Et, O, S), (N-942: 3,4-diMe-Ph, Et, O, S), (N-943: 1,3-Benzodioxole-5-yl, Et, O, S), (N-944: N-Me-pyridinium-4-yl, Et, O, S), (N-945: N-Me-pyridinium-3-yl, Et, O, S), (N-946: 5-Me-Pyridine-2-yl, Et, O, S), (N-947: 2-Pyrazinyl, Et, O, S), (N-948: 3-Pyrrolyl, Et, O, S), (N-949: 1-Me-pyrrole-3-yl, Et, O, S), (N-950: Pyridine N-oxide-4-yl, Et, O, S), (N-951: Pyridine N-oxide-3-yl, Et, O, S), (N-952: 6-OH-pyridine-3-yl, Et, O, S), (N-953: 6-SH-pyridine-3-yl, Et, O, S), (N-954: 1-Ac-pyrrole-3-yl, Et, O, S), (N-955: 4-CF₃-Ph, Et, O, S), (N-956: 4-CN-Ph, Et, O, S), (N-957: 4-CHO-Ph, Et, O, S), (N-958: 3-Cl-Ph, Et, O, S), (N-959: 3-Br-Ph, Et, O, S), (N-960: 3-F-Ph, Et, O, S), (N-961: 3-I-Ph, Et, O, S), (N-962: 4-I-Ph, Et, O, S), (N-963: 4-OCF₃-Ph, Et, O, S), (N-964: 3,4-diI-Ph, Et, O, S), (N-965: Indole-6-yl, Et, O, S), (N-966: 1-Ac-indole-6-yl, Et, O, S), (N-967: 1-Me-indole-6-yl, Et, O, S), (N-968: 4-(1-Imidazolyl)-Ph, Et, O, S), (N-969: 4-Morphorino-Ph, Et, O, S), (N-970: 4-(1-Piperazinyl)-Ph, Et, O, S), (N-971: 2:5-diMe-thiophene-3-yl, Et, O, S), (N-972: 2-Furyl, Et, O, S), (N-973: 5-Me-furan-2-yl, Et, O, S), (N-974: 5-Me-furan-2-yl, Et, O, S), (N-975: 2-Thiazolyl, Et, O, S), (N-976: 1:4-Benzodioxin-6-yl, Et, O, S), (N-977: Benzo[b]furan-2-yl, Et, O, S), (N-978: 4-NH₂CH₂-Ph, Et, O, S), (N-979: 4-N(Me)HCH₂-Ph, Et, O, S), (N-980: 4-N(Me)₂CH₂-Ph, Et, O, S), (N-981: 6-Cl-pyridine-3-yl, Et, O, S), (N-982: 5,6-diCl-pyridine-3-yl, Et, O, S), (N-983: 5-Cl-pyridine-2-yl, Et, O, S), (N-984: 4:5-diCl-pyridine-2-yl, Et, O, S), (N-985: 4-ClCH₂-Bn, Et, O, S), (N-

986: Bn, Et, O, S), (N-987: 4-Cl-Bn, Et, O, S), (N-988: 4-Br-Bn, Et, O, S), (N-989: 4-F-Bn, Et, O, S), (N-990: 3,4-diCl-Bn, Et, O, S), (N-991: 3,4-diBr-Bn, Et, O, S), (N-992: 3,4-diF-Bn, Et, O, S), (N-993: 4-Cl-Bz, Et, O, S), (N-994: 3,4-diCl-Bz, Et, O, S), (N-995: 4-Br-Bz, Et, O, S), (N-996: 3,4-diBr-Bz, Et, O, S), (N-997: 4-F-Bz, Et, O, S), (N-998: 3,4-diF-Bz, Et, O, S), (N-999: 4-NO₂-Bn, Et, O, S), (N-1000: 4-CN-Bn, Et, O, S), (N-1001: Ph, COOMe, O, S), (N-1002: 4-F-Ph, COOMe, O, S), (N-1003: 4-Br-Ph, COOMe, O, S), (N-1004: 4-Me-Ph, COOMe, O, S), (N-1005: 4-Ph-Ph, COOMe, O, S), (N-1006: 4-OMe-Ph, COOMe, O, S), (N-1007: 4-tBu-Ph, COOMe, O, S), (N-1008: 4-COOMe-Ph, COOMe, O, S), (N-1009: 4-Pen-Ph, COOMe, O, S), (N-1010: 4-NO₂-Ph, COOMe, O, S), (N-1011: 5-Cl-thiophene-2-yl, COOMe, O, S), (N-1012: 3-Thienyl, COOMe, O, S), (N-1013: 2-Py, COOMe, O, S), (N-1014: 3-Py, COOMe, O, S), (N-1015: 4-Py, COOMe, O, S), (N-1016: 3,4-diF-Ph, COOMe, O, S), (N-1017: 5-Br-thiophene-2-yl, COOMe, O, S), (N-1018: 4-CONH₂-Ph, COOMe, O, S), (N-1019: 4-CON(Me)H-Ph, COOMe, O, S), (N-1020: 4-CON(Me)₂-Ph, COOMe, O, S), (N-1021: 4-iPrOC(=O)-Ph, COOMe, O, S), (N-1022: 4-nBuOC(=O)-Ph, COOMe, O, S), (N-1023: 6-Me-pyridine-3-yl, COOMe, O, S), (N-1024: Quinoline-3-yl, COOMe, O, S), (N-1025: 4-NH₂-Ph, COOMe, O, S), (N-1026: 4-N(Ac)H-Ph, COOMe, O, S), (N-1027: 4-OH-Ph, COOMe, O, S), (N-1028: 3,4-di(OH)₂-Ph, COOMe, O, S), (N-1029: 3,4-di(NH₂)-Ph, COOMe, O, S), (N-1030: 3,4-[N(Ac)H]₂-Ph, COOMe, O, S), (N-1031: 4-SH-Ph, COOMe, O, S), (N-1032: 4-SMe-Ph, COOMe, O, S), (N-1033: 3,4-diBr-Ph, COOMe, O, S), (N-1034: 4-N(Me)H-Ph, COOMe, O, S), (N-1035: 4-N(Me)₂-Ph, COOMe, O, S), (N-1036: 4-N(Me)₃⁺-Ph, COOMe, O, S), (N-1037: 4-Et-Ph, COOMe, O, S), (N-1038: 4-iPr-Ph, COOMe, O, S), (N-1039: 4-nPr-Ph, COOMe, O, S), (N-1040: 4-nBu-Ph, COOMe, O, S), (N-1041: 4-iBu-Ph, COOMe, O, S), (N-1042: 3,4-diMe-Ph, COOMe, O, S), (N-1043: 1,3-Benzodioxole-5-yl, COOMe, O, S), (N-1044: N-

Me-pyridinium-4-yl, COOMe, O, S), (N-1045: N-Me-pyridinium-3-yl, COOMe, O, S), (N-1046: 5-Me-Pyridine-2-yl, COOMe, O, S), (N-1047: 2-Pyrazinyl, COOMe, O, S), (N-1048: 3-Pyrrolyl, COOMe, O, S), (N-1049: 1-Me-pyrrole-3-yl, COOMe, O, S), (N-1050: Pyridine N-oxide-4-yl, COOMe, O, S), (N-1051: Pyridine N-oxide-3-yl, COOMe, O, S), (N-1052: 6-OH-pyridine-3-yl, COOMe, O, S), (N-1053: 6-SH-pyridine-3-yl, COOMe, O, S), (N-1054: 1-Ac-pyrrole-3-yl, COOMe, O, S), (N-1055: 4-CF₃-Ph, COOMe, O, S), (N-1056: 4-CN-Ph, COOMe, O, S), (N-1057: 4-CHO-Ph, COOMe, O, S), (N-1058: 3-Cl-Ph, COOMe, O, S), (N-1059: 3-Br-Ph, COOMe, O, S), (N-1060: 3-F-Ph, COOMe, O, S), (N-1061: 3-I-Ph, COOMe, O, S), (N-1062: 4-I-Ph, COOMe, O, S), (N-1063: 4-OCF₃-Ph, COOMe, O, S), (N-1064: 3,4-diI-Ph, COOMe, O, S), (N-1065: Indole-6-yl, COOMe, O, S), (N-1066: 1-Ac-indole-6-yl, COOMe, O, S), (N-1067: 1-Me-indole-6-yl, COOMe, O, S), (N-1068: 4-(1-Imidazolyl)-Ph, COOMe, O, S), (N-1069: 4-Morphorino-Ph, COOMe, O, S), (N-1070: 4-(1-Piperazinyl)-Ph, COOMe, O, S), (N-1071: 2:5-diMe-thiophene-3-yl, COOMe, O, S), (N-1072: 2-Furyl, COOMe, O, S), (N-1073: 5-Me-furan-2-yl, COOMe, O, S), (N-1074: 5-Me-furan-2-yl, COOMe, O, S), (N-1075: 2-Thiazolyl, COOMe, O, S), (N-1076: 1:4-Benzodioxin-6-yl, COOMe, O, S), (N-1077: Benzo[b]furan-2-yl, COOMe, O, S), (N-1078: 4-NH₂CH₂-Ph, COOMe, O, S), (N-1079: 4-N(Me)HCH₂-Ph, COOMe, O, S), (N-1080: 4-N(Me)₂CH₂-Ph, COOMe, O, S), (N-1081: 6-Cl-pyridine-3-yl, COOMe, O, S), (N-1082: 5,6-diCl-pyridine-3-yl, COOMe, O, S), (N-1083: 5-Cl-pyridine-2-yl, COOMe, O, S), (N-1084: 4:5-diCl-pyridine-2-yl, COOMe, O, S), (N-1085: 4-ClCH₂-Bn, COOMe, O, S), (N-1086: Bn, COOMe, O, S), (N-1087: 4-Cl-Bn, COOMe, O, S), (N-1088: 4-Br-Bn, COOMe, O, S), (N-1089: 4-F-Bn, COOMe, O, S), (N-1090: 3,4-diCl-Bn, COOMe, O, S), (N-1091: 3,4-diBr-Bn, COOMe, O, S), (N-1092: 3,4-diF-Bn, COOMe, O, S), (N-1093: 4-Cl-Bz, COOMe, O, S), (N-1094: 3,4-diCl-Bz, COOMe, O, S), (N-1095: 4-Br-Bz, COOMe, O, S),

(N-1096: 3,4-diBr-Bz, COOMe, O, S), (N-1097: 4-F-Bz, COOMe, O, S), (N-1098: 3,4-diF-Bz, COOMe, O, S), (N-1099: 4-NO₂-Bn, COOMe, O, S), (N-1100: 4-CN-Bn, COOMe, O, S), (N-1101: H, Ph, O, S), (N-1102: H, 4-F-Ph, O, S), (N-1103: H, 4-Br-Ph, O, S), (N-1104: H, 4-Me-Ph, O, S), (N-1105: H, 4-Ph-Ph, O, S), (N-1106: H, 4-OMe-Ph, O, S), (N-1107: H, 4-tBu-Ph, O, S), (N-1108: H, 4-COOMe-Ph, O, S), (N-1109: H, 4-Pen-Ph, O, S), (N-1110: H, 4-NO₂-Ph, O, S), (N-1111: H, 5-Cl-thiophene-2-yl, O, S), (N-1112: H, 3-Thienyl, O, S), (N-1113: H, 2-Py, O, S), (N-1114: H, 3-Py, O, S), (N-1115: H, 4-Py, O, S), (N-1116: H, 3,4-diF-Ph, O, S), (N-1117: H, 5-Br-thiophene-2-yl, O, S), (N-1118: H, 4-CONH₂-Ph, O, S), (N-1119: H, 4-CON(Me)H-Ph, O, S), (N-1120: H, 4-CON(Me)₂-Ph, O, S), (N-1121: H, 4-iPrOC(=O)-Ph, O, S), (N-1122: H, 4-nBuOC(=O)-Ph, O, S), (N-1123: H, 6-Me-pyridine-3-yl, O, S), (N-1124: H, Quinoline-3-yl, O, S), (N-1125: H, 4-NH₂-Ph, O, S), (N-1126: H, 4-N(Ac)H-Ph, O, S), (N-1127: H, 4-OH-Ph, O, S), (N-1128: H, 3,4-di(OH)₂-Ph, O, S), (N-1129: H, 3,4-di(NH₂)-Ph, O, S), (N-1130: H, 3:4-[N(Ac)H]₂-Ph, O, S), (N-1131: H, 4-SH-Ph, O, S), (N-1132: H, 4-SMe-Ph, O, S), (N-1133: H, 3,4-diBr-Ph, O, S), (N-1134: H, 4-N(Me)H-Ph, O, S), (N-1135: H, 4-N(Me)₂-Ph, O, S), (N-1136: H, 4-N(Me)₃⁺-Ph, O, S), (N-1137: H, 4-Et-Ph, O, S), (N-1138: H, 4-iPr-Ph, O, S), (N-1139: H, 4-nPr-Ph, O, S), (N-1140: H, 4-nBu-Ph, O, S), (N-1141: H, 4-iBu-Ph, O, S), (N-1142: H, 3,4-diMe-Ph, O, S), (N-143: H, 1,3-Benzodioxole-5-yl, O, S), (N-1144: H, N-Me-pyridinium-4-yl, O, S), (N-1145: H, N-Me-pyridinium-3-yl, O, S), (N-1146: H, 5-Me-Pyridine-2-yl, O, S), (N-1147: H, 2-Pyrazinyl, O, S), (N-1148: H, 3-Pyrrolyl, O, S), (N-1149: H, 1-Me-pyrrole-3-yl, O, S), (N-1150: H, Pyridine N-oxide-4-yl, O, S), (N-1151: H, Pyridine N-oxide-3-yl, O, S), (N-1152: H, 6-OH-pyridine-3-yl, O, S), (N-1153: H, 6-SH-pyridine-3-yl, O, S), (N-1154: H, 1-Ac-pyrrole-3-yl, O, S), (N-1155: H, 4-CF₃-Ph, O, S), (N-1156: H, 4-CN-Ph, O, S), (N-1157: H, 4-CHO-Ph, O, S), (N-1158: H, 3-Cl-Ph, O, S), (N-

1159: H, 3-Br-Ph, O, S), (N-1160: H, 3-F-Ph, O, S), (N-1161: H, 3-I-Ph, O, S), (N-1162: H, 4-I-Ph, O, S), (N-1163: H, 4-OCF₃-Ph, O, S), (N-1164: H, 3,4-diI-Ph, O, S), (N-1165: H, Indole-6-yl, O, S), (N-1166: H, 1-Ac-indole-6-yl, O, S), (N-1167: H, 1-Me-indole-6-yl, O, S), (N-1168: H, 4-(1-Imidazolyl)-Ph, O, S), (N-1169: H, 4-Morphorino-Ph, O, S), (N-1170: H, 4-(1-Piperazinyl)-Ph, O, S), (N-1171: H, 2:5-diMe-thiophene-3-yl, O, S), (N-1172: H, 2-Furyl, O, S), (N-1173: H, 5-Me-furan-2-yl, O, S), (N-1174: H, 5-Me-furan-2-yl, O, S), (N-1175: H, 2-Thiazolyl, O, S), (N-1176: H, 1:4-Benzodioxin-6-yl, O, S), (N-1177: H, Benzo[b]furan-2-yl, O, S), (N-1178: H, 4-NH₂CH₂-Ph, O, S), (N-1179: H, 4-N(Me)HCH₂-Ph, O, S), (N-1180: H, 4-N(Me)₂CH₂-Ph, O, S), (N-1181: H, 6-Cl-pyridine-3-yl, O, S), (N-1182: H, 5,6-diCl-pyridine-3-yl, O, S), (N-1183: H, 5-Cl-pyridine-2-yl, O, S), (N-1184: H, 4:5-diCl-pyridine-2-yl, O, S), (N-1185: H, 4-ClCH₂-Bn, O, S), (N-1186: H, Bn, O, S), (N-1187: H, 4-Cl-Bn, O, S), (N-1188: H, 4-Br-Bn, O, S), (N-1189: H, 4-F-Bn, O, S), (N-1190: H, 3,4-diCl-Bn, O, S), (N-1191: H, 3,4-diBr-Bn, O, S), (N-1192: H, 3,4-diF-Bn, O, S), (N-1193: H, 4-Cl-Bz, O, S), (N-1194: H, 3,4-diCl-Bz, O, S), (N-1195: H, 4-Br-Bz, O, S), (N-1196: H, 3,4-diBr-Bz, O, S), (N-1197: H, 4-F-Bz, O, S), (N-1198: H, 3,4-diF-Bz, O, S), (N-1199: H, 4-NO₂-Bn, O, S), (N-1200: H, 4-CN-Bn, O, S), (N-1201: Me, Ph, O, S), (N-1202: Me, 4-F-Ph, O, S), (N-1203: Me, 4-Br-Ph, O, S), (N-1204: Me, 4-Me-Ph, O, S), (N-1205: Me, 4-Ph-Ph, O, S), (N-1206: Me, 4-OMe-Ph, O, S), (N-1207: Me, 4-tBu-Ph, O, S), (N-1208: Me, 4-COOMe-Ph, O, S), (N-1209: Me, 4-Pen-Ph, O, S), (N-1210: Me, 4-NO₂-Ph, O, S), (N-1211: Me, 5-Cl-thiophene-2-yl, O, S), (N-1212: Me, 3-Thienyl, O, S), (N-1213: Me, 2-Py, O, S), (N-1214: Me, 3-Py, O, S), (N-1215: Me, 4-Py, O, S), (N-1216: Me, 3,4-diF-Ph, O, S), (N-1217: Me, 5-Br-thiophene-2-yl, O, S), (N-1218: Me, 4-CONH₂-Ph, O, S), (N-1219: Me, 4-CON(Me)H-Ph, O, S), (N-1220: Me, 4-CON(Me)₂-Ph, O, S), (N-1221: Me, 4-iPrOC(=O)-Ph, O, S), (N-1222: Me, 4-nBuOC(=O)-Ph, O, S), (N-

1223: Me, 6-Me-pyridine-3-yl, O, S), (N-1224: Me, Quinoline-3-yl, O, S), (N-1225: Me, 4-NH₂-Ph, O, S), (N-1226: Me, 4-N(Ac)H-Ph, O, S), (N-1227: Me, 4-OH-Ph, O, S), (N-1228: Me, 3,4-di(OH)₂-Ph, O, S), (N-1229: Me, 3,4-di(NH₂)-Ph, O, S), (N-1230: Me, 3:4-[N(Ac)H]₂-Ph, O, S), (N-1231: Me, 4-SH-Ph, O, S), (N-1232: Me, 4-SMe-Ph, O, S), (N-1233: Me, 3,4-diBr-Ph, O, S), (N-1234: Me, 4-N(Me)H-Ph, O, S), (N-1235: Me, 4-N(Me)₂-Ph, O, S), (N-1236: Me, 4-N(Me)₃⁺-Ph, O, S), (N-1237: Me, 4-Et-Ph, O, S), (N-1238: Me, 4-iPr-Ph, O, S), (N-1239: Me, 4-nPr-Ph, O, S), (N-1240: Me, 4-nBu-Ph, O, S), (N-1241: Me, 4-iBu-Ph, O, S), (N-1242: Me, 3,4-diMe-Ph, O, S), (N-1243: Me, 1,3-Benzodioxole-5-yl, O, S), (N-1244: Me, N-Me-pyridinium-4-yl, O, S), (N-1245: Me, N-Me-pyridinium-3-yl, O, S), (N-1246: Me, 5-Me-Pyridine-2-yl, O, S), (N-1247: Me, 2-Pyrazinyl, O, S), (N-1248: Me, 3-Pyrrolyl, O, S), (N-1249: Me, 1-Me-pyrrole-3-yl, O, S), (N-1250: Me, Pyridine N-oxide-4-yl, O, S), (N-1251: Me, Pyridine N-oxide-3-yl, O, S), (N-1252: Me, 6-OH-pyridine-3-yl, O, S), (N-1253: Me, 6-SH-pyridine-3-yl, O, S), (N-1254: Me, 1-Ac-pyrrole-3-yl, O, S), (N-1255: Me, 4-CF₃-Ph, O, S), (N-1256: Me, 4-CN-Ph, O, S), (N-1257: Me, 4-CHO-Ph, O, S), (N-1258: Me, 3-Cl-Ph, O, S), (N-1259: Me, 3-Br-Ph, O, S), (N-1260: Me, 3-F-Ph, O, S), (N-1261: Me, 3-I-Ph, O, S), (N-1262: Me, 4-I-Ph, O, S), (N-1263: Me, 4-OCF₃-Ph, O, S), (N-1264: Me, 3,4-diI-Ph, O, S), (N-1265: Me, Indole-6-yl, O, S), (N-1266: Me, 1-Ac-indole-6-yl, O, S), (N-1267: Me, 1-Me-indole-6-yl, O, S), (N-1268: Me, 4-(1-Imidazolyl)-Ph, O, S), (N-1269: Me, 4-Morphorino-Ph, O, S), (N-1270: Me, 4-(1-Piperazinyl)-Ph, O, S), (N-1271: Me, 2:5-diMe-thiophene-3-yl, O, S), (N-1272: Me, 2-Furyl, O, S), (N-1273: Me, 5-Me-furan-2-yl, O, S), (N-1274: Me, 5-Me-furan-2-yl, O, S), (N-1275: Me, 2-Thiazolyl, O, S), (N-1276: Me, 1:4-Benzodioxin-6-yl, O, S), (N-1277: Me, Benzo[b]furan-2-yl, O, S), (N-1278: Me, 4-NH₂CH₂-Ph, O, S), (N-1279: Me, 4-N(Me)HCH₂-Ph, O, S), (N-1280: Me, 4-N(Me)₂CH₂-Ph, O, S), (N-1281: Me, 6-Cl-pyridine-3-yl, O, S), (N-1282: Me,

5,6-diCl-pyridine-3-yl, O, S), (N-1283: Me, 5-Cl-pyridine-2-yl, O, S), (N-1284: Me, 4:5-diCl-pyridine-2-yl, O, S), (N-1285: Me, 4-ClCH₂-Bn, O, S), (N-1286: Me, Bn, O, S), (N-1287: Me, 4-Cl-Bn, O, S), (N-1288: Me, 4-Br-Bn, O, S), (N-1289: Me, 4-F-Bn, O, S), (N-1290: Me, 3,4-diCl-Bn, O, S), (N-1291: Me, 3,4-diBr-Bn, O, S), (N-1292: Me, 3,4-diF-Bn, O, S), (N-1293: Me, 4-Cl-Bz, O, S), (N-1294: Me, 3,4-diCl-Bz, O, S), (N-1295: Me, 4-Br-Bz, O, S), (N-1296: Me, 3,4-diBr-Bz, O, S), (N-1297: Me, 4-F-Bz, O, S), (N-1298: Me, 3,4-diF-Bz, O, S), (N-1299: Me, 4-NO₂-Bn, O, S), (N-1300: Me, 4-CN-Bn, O, S), (N-1301: Et, Ph, O, S), (N-1302: Et, 4-F-Ph, O, S), (N-1303: Et, 4-Br-Ph, O, S), (N-1304: Et, 4-Me-Ph, O, S), (N-1305: Et, 4-Ph-Ph, O, S), (N-1306: Et, 4-OMe-Ph, O, S), (N-1307: Et, 4-tBu-Ph, O, S), (N-1308: Et, 4-COOMe-Ph, O, S), (N-1309: Et, 4-Pen-Ph, O, S), (N-1310: Et, 4-NO₂-Ph, O, S), (N-1311: Et, 5-Cl-thiophene-2-yl, O, S), (N-1312: Et, 3-Thienyl, O, S), (N-1313: Et, 2-Py, O, S), (N-1314: Et, 3-Py, O, S), (N-1315: Et, 4-Py, O, S), (N-1316: Et, 3,4-diF-Ph, O, S), (N-1317: Et, 5-Br-thiophene-2-yl, O, S), (N-1318: Et, 4-CONH₂-Ph, O, S), (N-1319: Et, 4-CON(Me)H-Ph, O, S), (N-1320: Et, 4-CON(Me)₂-Ph, O, S), (N-1321: Et, 4-iPrOC(=O)-Ph, O, S), (N-1322: Et, 4-nBuOC(=O)-Ph, O, S), (N-1323: Et, 6-Me-pyridine-3-yl, O, S), (N-1324: Et, Quinoline-3-yl, O, S), (N-1325: Et, 4-NH₂-Ph, O, S), (N-1326: Et, 4-N(Ac)H-Ph, O, S), (N-1327: Et, 4-OH-Ph, O, S), (N-1328: Et, 3,4-di(OH)₂-Ph, O, S), (N-1329: Et, 3,4-di(NH₂)-Ph, O, S), (N-1330: Et, 3:4-[N(Ac)H]₂-Ph, O, S), (N-1331: Et, 4-SH-Ph, O, S), (N-1332: Et, 4-SMe-Ph, O, S), (N-1333: Et, 3,4-diBr-Ph, O, S), (N-1334: Et, 4-N(Me)H-Ph, O, S), (N-1335: Et, 4-N(Me)₂-Ph, O, S), (N-1336: Et, 4-N(Me)₃⁺-Ph, O, S), (N-1337: Et, 4-Et-Ph, O, S), (N-1338: Et, 4-iPr-Ph, O, S), (N-1339: Et, 4-nPr-Ph, O, S), (N-1340: Et, 4-nBu-Ph, O, S), (N-1341: Et, 4-iBu-Ph, O, S), (N-1342: Et, 3,4-diMe-Ph, O, S), (N-1343: Et, 1,3-Benzodioxole-5-yl, O, S), (N-1344: Et, N-Me-pyridinium-4-yl, O, S), (N-1345: Et, N-Me-pyridinium-3-yl, O, S), (N-1346: Et, 5-Me-Pyridine-2-yl, O, S),

(N-1347: Et, 2-Pyrazinyl, O, S), (N-1348: Et, 3-Pyrrolyl, O, S), (N-1349: Et, 1-Me-pyrrole-3-yl, O, S), (N-1350: Et, Pyridine N-oxide-4-yl, O, S), (N-1351: Et, Pyridine N-oxide-3-yl, O, S), (N-1352: Et, 6-OH-pyridine-3-yl, O, S), (N-1353: Et, 6-SH-pyridine-3-yl, O, S), (N-1354: Et, 1-Ac-pyrrole-3-yl, O, S), (N-1355: Et, 4-CF₃-Ph, O, S), (N-1356: Et, 4-CN-Ph, O, S), (N-1357: Et, 4-CHO-Ph, O, S), (N-1358: Et, 3-Cl-Ph, O, S), (N-1359: Et, 3-Br-Ph, O, S), (N-1360: Et, 3-F-Ph, O, S), (N-1361: Et, 3-I-Ph, O, S), (N-1362: Et, 4-I-Ph, O, S), (N-1363: Et, 4-OCF₃-Ph, O, S), (N-1364: Et, 3,4-diI-Ph, O, S), (N-1365: Et, Indole-6-yl, O, S), (N-1366: Et, 1-Ac-indole-6-yl, O, S), (N-1367: Et, 1-Me-indole-6-yl, O, S), (N-1368: Et, 4-(1-Imidazolyl)-Ph, O, S), (N-1369: Et, 4-Morphorino-Ph, O, S), (N-1370: Et, 4-(1-Piperazinyl)-Ph, O, S), (N-1371: Et, 2:5-diMe-thiophene-3-yl, O, S), (N-1372: Et, 2-Furyl, O, S), (N-1373: Et, 5-Me-furan-2-yl, O, S), (N-1374: Et, 5-Me-furan-2-yl, O, S), (N-1375: Et, 2-Thiazolyl, O, S), (N-1376: Et, 1:4-Benzodioxin-6-yl, O, S), (N-1377: Et, Benzo[b]furan-2-yl, O, S), (N-1378: Et, 4-NH₂CH₂-Ph, O, S), (N-1379: Et, 4-N(Me)HCH₂-Ph, O, S), (N-1380: Et, 4-N(Me)₂CH₂-Ph, O, S), (N-1381: Et, 6-Cl-pyridine-3-yl, O, S), (N-1382: Et, 5,6-diCl-pyridine-3-yl, O, S), (N-1383: Et, 5-Cl-pyridine-2-yl, O, S), (N-1384: Et, 4:5-diCl-pyridine-2-yl, O, S), (N-1385: Et, 4-ClCH₂-Bn, O, S), (N-1386: Et, Bn, O, S), (N-1387: Et, 4-Cl-Bn, O, S), (N-1388: Et, 4-Br-Bn, O, S), (N-1389: Et, 4-F-Bn, O, S), (N-1390: Et, 3,4-diCl-Bn, O, S), (N-1391: Et, 3,4-diBr-Bn, O, S), (N-1392: Et, 3,4-diF-Bn, O, S), (N-1393: Et, 4-Cl-Bz, O, S), (N-1394: Et, 3,4-diCl-Bz, O, S), (N-1395: Et, 4-Br-Bz, O, S), (N-1396: Et, 3,4-diBr-Bz, O, S), (N-1397: Et, 4-F-Bz, O, S), (N-1398: Et, 3,4-diF-Bz, O, S), (N-1399: Et, 4-NO₂-Bn, O, S), (N-1400: Et, 4-CN-Bn, O, S), (N-1401: COOMe, Ph, O, S), (N-1402: COOMe, 4-F-Ph, O, S), (N-1403: COOMe, 4-Br-Ph, O, S), (N-1404: COOMe, 4-Me-Ph, O, S), (N-1405: COOMe, 4-Ph-Ph, O, S), (N-1406: COOMe, 4-OMe-Ph, O, S), (N-1407: COOMe, 4-tBu-Ph, O, S), (N-1408: COOMe, 4-COOMe-Ph, O, S),

(N-1409: COOMe, 4-Pen-Ph, O, S), (N-1410: COOMe, 4-NO₂-Ph, O, S), (N-1411: COOMe, 5-Cl-thiophene-2-yl, O, S), (N-1412: COOMe, 3-Thienyl, O, S), (N-1413: COOMe, 2-Py, O, S), (N-1414: COOMe, 3-Py, O, S), (N-1415: COOMe, 4-Py, O, S), (N-1416: COOMe, 3,4-diF-Ph, O, S), (N-1417: COOMe, 5-Br-thiophene-2-yl, O, S), (N-1418: COOMe, 4-CONH₂-Ph, O, S), (N-1419: COOMe, 4-CON(Me)H-Ph, O, S), (N-1420: COOMe, 4-CON(Me)₂-Ph, O, S), (N-1421: COOMe, 4-iPrOC(=O)-Ph, O, S), (N-1422: COOMe, 4-nBuOC(=O)-Ph, O, S), (N-1423: COOMe, 6-Me-pyridine-3-yl, O, S), (N-1424: COOMe, Quinoline-3-yl, O, S), (N-1425: COOMe, 4-NH₂-Ph, O, S), (N-1426: COOMe, 4-N(Ac)H-Ph, O, S), (N-1427: COOMe, 4-OH-Ph, O, S), (N-1428: COOMe, 3,4-di(OH)₂-Ph, O, S), (N-1429: COOMe, 3,4-di(NH₂)-Ph, O, S), (N-1430: COOMe, 3:4-[N(Ac)H]₂-Ph, O, S), (N-1431: COOMe, 4-SH-Ph, O, S), (N-1432: COOMe, 4-SMe-Ph, O, S), (N-1433: COOMe, 3,4-diBr-Ph, O, S), (N-1434: COOMe, 4-N(Me)H-Ph, O, S), (N-1435: COOMe, 4-N(Me)₂-Ph, O, S), (N-1436: COOMe, 4-N(Me)₃⁺-Ph, O, S), (N-1437: COOMe, 4-Et-Ph, O, S), (N-1438: COOMe, 4-iPr-Ph, O, S), (N-1439: COOMe, 4-nPr-Ph, O, S), (N-1440: COOMe, 4-nBu-Ph, O, S), (N-1441: COOMe, 4-iBu-Ph, O, S), (N-1442: COOMe, 3,4-diMe-Ph, O, S), (N-1443: COOMe, 1,3-Benzodioxole-5-yl, O, S), (N-1444: COOMe, N-Me-pyridinium-4-yl, O, S), (N-1445: COOMe, N-Me-pyridinium-3-yl, O, S), (N-1446: COOMe, 5-Me-Pyridine-2-yl, O, S), (N-1447: COOMe, 2-Pyrazinyl, O, S), (N-1448: COOMe, 3-Pyrrolyl, O, S), (N-1449: COOMe, 1-Me-pyrrole-3-yl, O, S), (N-1450: COOMe, Pyridine N-oxide-4-yl, O, S), (N-1451: COOMe, Pyridine N-oxide-3-yl, O, S), (N-1452: COOMe, 6-OH-pyridine-3-yl, O, S), (N-1453: COOMe, 6-SH-pyridine-3-yl, O, S), (N-1454: COOMe, 1-Ac-pyrrole-3-yl, O, S), (N-1455: COOMe, 4-CF₃-Ph, O, S), (N-1456: COOMe, 4-CN-Ph, O, S), (N-1457: COOMe, 4-CHO-Ph, O, S), (N-1458: COOMe, 3-Cl-Ph, O, S), (N-1459: COOMe, 3-Br-Ph, O, S), (N-1460: COOMe, 3-F-Ph, O, S), (N-1461: COOMe, 3-I-Ph, O, S), (N-

1462: COOMe, 4-I-Ph, O, S), (N-1463: COOMe, 4-OCF₃-Ph, O, S), (N-1464: COOMe, 3,4-diI-Ph, O, S), (N-1465: COOMe, Indole-6-yl, O, S), (N-1466: COOMe, 1-Ac-indole-6-yl, O, S), (N-1467: COOMe, 1-Me-indole-6-yl, O, S), (N-1468: COOMe, 4-(1-Imidazolyl)-Ph, O, S), (N-1469: COOMe, 4-Morphorino-Ph, O, S), (N-1470: COOMe, 4-(1-Piperazinyl)-Ph, O, S), (N-1471: COOMe, 2:5-diMe-thiophene-3-yl, O, S), (N-1472: COOMe, 2-Furyl, O, S), (N-1473: COOMe, 5-Me-furan-2-yl, O, S), (N-1474: COOMe, 5-Me-furan-2-yl, O, S), (N-1475: COOMe, 2-Thiazolyl, O, S), (N-1476: COOMe, 1:4-Benzodioxin-6-yl, O, S), (N-1477: COOMe, Benzo[b]furan-2-yl, O, S), (N-1478: COOMe, 4-NH₂CH₂-Ph, O, S), (N-1479: COOMe, 4-N(Me)HCH₂-Ph, O, S), (N-1480: COOMe, 4-N(Me)₂CH₂-Ph, O, S), (N-1481: COOMe, 6-Cl-pyridine-3-yl, O, S), (N-1482: COOMe, 5,6-diCl-pyridine-3-yl, O, S), (N-1483: COOMe, 5-Cl-pyridine-2-yl, O, S), (N-1484: COOMe, 4:5-diCl-pyridine-2-yl, O, S), (N-1485: COOMe, 4-ClCH₂-Bn, O, S), (N-1486: COOMe, Bn, O, S), (N-1487: COOMe, 4-Cl-Bn, O, S), (N-1488: COOMe, 4-Br-Bn, O, S), (N-1489: COOMe, 4-F-Bn, O, S), (N-1490: COOMe, 3,4-diCl-Bn, O, S), (N-1491: COOMe, 3,4-diBr-Bn, O, S), (N-1492: COOMe, 3,4-diF-Bn, O, S), (N-1493: COOMe, 4-Cl-Bz, O, S), (N-1494: COOMe, 3,4-diCl-Bz, O, S), (N-1495: COOMe, 4-Br-Bz, O, S), (N-1496: COOMe, 3,4-diBr-Bz, O, S), (N-1497: COOMe, 4-F-Bz, O, S), (N-1498: COOMe, 3,4-diF-Bz, O, S), (N-1499: COOMe, 4-NO₂-Bn, O, S), (N-1500: COOMe, 4-CN-Bn, O, S), (N-1501: Ph, Me, S, O), (N-1502: 4-F-Ph, Me, S, O), (N-1503: 4-Br-Ph, Me, S, O), (N-1504: 4-Me-Ph, Me, S, O), (N-1505: 4-Ph-Ph, Me, S, O), (N-1506: 4-OMe-Ph, Me, S, O), (N-1507: 4-tBu-Ph, Me, S, O), (N-1508: 4-COOMe-Ph, Me, S, O), (N-1509: 4-Pen-Ph, Me, S, O), (N-1510: 4-NO₂-Ph, Me, S, O), (N-1511: 5-Cl-thiophene-2-yl, Me, S, O), (N-1512: 3-Thienyl, Me, S, O), (N-1513: 2-Py, Me, S, O), (N-1514: 3-Py, Me, S, O), (N-1515: 4-Py, Me, S, O), (N-1516: 3,4-diF-Ph, Me, S, O), (N-1517: 5-Br-thiophene-2-yl, Me, S, O), (N-1518: 4-CONH₂-Ph, Me, S,

O), (N-1519: 4-CON(Me)H-Ph, Me, S, O), (N-1520: 4-CON(Me)₂-Ph, Me, S, O),
 (N-1521: 4-iPrOC(=O)-Ph, Me, S, O), (N-1522: 4-nBuOC(=O)-Ph, Me, S, O),
 (N-1523: 6-Me-pyridine-3-yl, Me, S, O), (N-1524: Quinoline-3-yl, Me, S, O),
 (N-1525: 4-NH₂-Ph, Me, S, O), (N-1526: 4-N(Ac)H-Ph, Me, S, O), (N-1527: 4-
 OH-Ph, Me, S, O), (N-1528: 3,4-di(OH)₂-Ph, Me, S, O), (N-1529: 3,4-di(NH₂)-Ph,
 Me, S, O), (N-1530: 3:4-[N(Ac)H]₂-Ph, Me, S, O), (N-1531: 4-SH-Ph, Me, S, O),
 (N-1532: 4-SMe-Ph, Me, S, O), (N-1533: 3,4-diBr-Ph, Me, S, O), (N-1534: 4-
 N(Me)H-Ph, Me, S, O), (N-1535: 4-N(Me)₂-Ph, Me, S, O), (N-1536: 4-N(Me)₃⁺-
 Ph, Me, S, O), (N-1537: 4-Et-Ph, Me, S, O), (N-1538: 4-iPr-Ph, Me, S, O), (N-
 1539: 4-nPr-Ph, Me, S, O), (N-1540: 4-nBu-Ph, Me, S, O), (N-1541: 4-iBu-Ph,
 Me, S, O), (N-1542: 3,4-diMe-Ph, Me, S, O), (N-1543: 1,3-Benzodioxole-5-yl, Me,
 S, O), (N-1544: N-Me-pyridinium-4-yl, Me, S, O), (N-1545: N-Me-pyridinium-
 3-yl, Me, S, O), (N-1546: 5-Me-Pyridine-2-yl, Me, S, O), (N-1547: 2-Pyrazinyl,
 Me, S, O), (N-1548: 3-Pyrrolyl, Me, S, O), (N-1549: 1-Me-pyrrole-3-yl, Me, S,
 O), (N-1550: Pyridine N-oxide-4-yl, Me, S, O), (N-1551: Pyridine N-oxide-3-yl,
 Me, S, O), (N-1552: 6-OH-pyridine-3-yl, Me, S, O), (N-1553: 6-SH-pyridine-3-
 yl, Me, S, O), (N-1554: 1-Ac-pyrrole-3-yl, Me, S, O), (N-1555: 4-CF₃-Ph, Me, S,
 O), (N-1556: 4-CN-Ph, Me, S, O), (N-1557: 4-CHO-Ph, Me, S, O), (N-1558: 3-
 Cl-Ph, Me, S, O), (N-1559: 3-Br-Ph, Me, S, O), (N-1560: 3-F-Ph, Me, S, O),
 (N-1561: 3-I-Ph, Me, S, O), (N-1562: 4-I-Ph, Me, S, O), (N-1563: 4-OCF₃-Ph, Me,
 S, O), (N-1564: 3,4-diI-Ph, Me, S, O), (N-1565: Indole-6-yl, Me, S, O), (N-1566:
 1-Ac-indole-6-yl, Me, S, O), (N-1567: 1-Me-indole-6-yl, Me, S, O), (N-1568: 4-
 (1-Imidazolyl)-Ph, Me, S, O), (N-1569: 4-Morphorino-Ph, Me, S, O), (N-1570:
 4-(1-Piperazinyl)-Ph, Me, S, O), (N-1571: 2:5-diMe-thiophene-3-yl, Me, S, O),
 (N-1572: 2-Furyl, Me, S, O), (N-1573: 5-Me-furan-2-yl, Me, S, O), (N-1574: 5-
 Me-furan-2-yl, Me, S, O), (N-1575: 2-Thiazolyl, Me, S, O), (N-1576: 1:4-
 Benzodioxin-6-yl, Me, S, O), (N-1577: Benzo[b]furan-2-yl, Me, S, O), (N-1578:

4-NH₂CH₂-Ph, Me, S, O), (N-1579: 4-N(Me)HCH₂-Ph, Me, S, O), (N-1580: 4-N(Me)₂CH₂-Ph, Me, S, O), (N-1581: 6-Cl-pyridine-3-yl, Me, S, O), (N-1582: 5,6-diCl-pyridine-3-yl, Me, S, O), (N-1583: 5-Cl-pyridine-2-yl, Me, S, O), (N-1584: 4:5-diCl-pyridine-2-yl, Me, S, O), (N-1585: 4-ClCH₂-Bn, Me, S, O), (N-1586: Bn, Me, S, O), (N-1587: 4-Cl-Bn, Me, S, O), (N-1588: 4-Br-Bn, Me, S, O), (N-1589: 4-F-Bn, Me, S, O), (N-1590: 3,4-diCl-Bn, Me, S, O), (N-1591: 3,4-diBr-Bn, Me, S, O), (N-1592: 3,4-diF-Bn, Me, S, O), (N-1593: 4-Cl-Bz, Me, S, O), (N-1594: 3,4-diCl-Bz, Me, S, O), (N-1595: 4-Br-Bz, Me, S, O), (N-1596: 3,4-diBr-Bz, Me, S, O), (N-1597: 4-F-Bz, Me, S, O), (N-1598: 3,4-diF-Bz, Me, S, O), (N-1599: 4-NO₂-Bn, Me, S, O), (N-1600: 4-CN-Bn, Me, S, O), (N-1602: 4-F-Ph, Et, S, O), (N-1603: 4-Br-Ph, Et, S, O), (N-1604: 4-Me-Ph, Et, S, O), (N-1605: 4-Ph-Ph, Et, S, O), (N-1606: 4-OMe-Ph, Et, S, O), (N-1607: 4-tBu-Ph, Et, S, O), (N-1608: 4-COOMe-Ph, Et, S, O), (N-1609: 4-Pen-Ph, Et, S, O), (N-1610: 4-NO₂-Ph, Et, S, O), (N-1611: 5-Cl-thiophene-2-yl, Et, S, O), (N-1612: 3-Thienyl, Et, S, O), (N-1613: 2-Py, Et, S, O), (N-1614: 3-Py, Et, S, O), (N-1615: 4-Py, Et, S, O), (N-1616: 3,4-diF-Ph, Et, S, O), (N-1617: 5-Br-thiophene-2-yl, Et, S, O), (N-1618: 4-CONH₂-Ph, Et, S, O), (N-1619: 4-CON(Me)H-Ph, Et, S, O), (N-1620: 4-CON(Me)₂-Ph, Et, S, O), (N-1621: 4-iPrOC(=O)-Ph, Et, S, O), (N-1622: 4-nBuOC(=O)-Ph, Et, S, O), (N-1623: 6-Me-pyridine-3-yl, Et, S, O), (N-1624: Quinoline-3-yl, Et, S, O), (N-1625: 4-NH₂-Ph, Et, S, O), (N-1626: 4-N(Ac)H-Ph, Et, S, O), (N-1627: 4-OH-Ph, Et, S, O), (N-1628: 3,4-di(OH)₂-Ph, Et, S, O), (N-1629: 3,4-di(NH₂)-Ph, Et, S, O), (N-1630: 3:4-[N(Ac)H]₂-Ph, Et, S, O), (N-1631: 4-SH-Ph, Et, S, O), (N-1632: 4-SMe-Ph, Et, S, O), (N-1633: 3,4-diBr-Ph, Et, S, O), (N-1634: 4-N(Me)H-Ph, Et, S, O), (N-1635: 4-N(Me)₂-Ph, Et, S, O), (N-1636: 4-N(Me)₃⁺-Ph, Et, S, O), (N-1637: 4-Et-Ph, Et, S, O), (N-1638: 4-iPr-Ph, Et, S, O), (N-1639: 4-nPr-Ph, Et, S, O), (N-1640: 4-nBu-Ph, Et, S, O), (N-1641: 4-iBu-Ph, Et, S, O), (N-1642: 3,4-diMe-Ph, Et, S, O), (N-1643: 1,3-Benzodioxole-

5-yl, Et, S, O), (N-1644: N-Me-pyridinium-4-yl, Et, S, O), (N-1645: N-Me-pyridinium-3-yl, Et, S, O), (N-1646: 5-Me-Pyridine-2-yl, Et, S, O), (N-1647: 2-Pyrazinyl, Et, S, O), (N-1648: 3-Pyrrolyl, Et, S, O), (N-1649: 1-Me-pyrrole-3-yl, Et, S, O), (N-1650: Pyridine N-oxide-4-yl, Et, S, O), (N-1651: Pyridine N-oxide-3-yl, Et, S, O), (N-1652: 6-OH-pyridine-3-yl, Et, S, O), (N-1653: 6-SH-pyridine-3-yl, Et, S, O), (N-1654: 1-Ac-pyrrole-3-yl, Et, S, O), (N-1655: 4-CF₃-Ph, Et, S, O), (N-1656: 4-CN-Ph, Et, S, O), (N-1657: 4-CHO-Ph, Et, S, O), (N-1658: 3-Cl-Ph, Et, S, O), (N-1659: 3-Br-Ph, Et, S, O), (N-1660: 3-F-Ph, Et, S, O), (N-1661: 3-I-Ph, Et, S, O), (N-1662: 4-I-Ph, Et, S, O), (N-1663: 4-OCF₃-Ph, Et, S, O), (N-1664: 3,4-diI-Ph, Et, S, O), (N-1665: Indole-6-yl, Et, S, O), (N-1666: 1-Ac-indole-6-yl, Et, S, O), (N-1667: 1-Me-indole-6-yl, Et, S, O), (N-1668: 4-(1-Imidazolyl)-Ph, Et, S, O), (N-1669: 4-Morphorino-Ph, Et, S, O), (N-1670: 4-(1-Piperazinyl)-Ph, Et, S, O), (N-1671: 2:5-diMe-thiophene-3-yl, Et, S, O), (N-1672: 2-Furyl, Et, S, O), (N-1673: 5-Me-furan-2-yl, Et, S, O), (N-1674: 5-Me-furan-2-yl, Et, S, O), (N-1675: 2-Thiazolyl, Et, S, O), (N-1676: 1:4-Benzodioxin-6-yl, Et, S, O), (N-1677: Benzo[b]furan-2-yl, Et, S, O), (N-1678: 4-NH₂CH₂-Ph, Et, S, O), (N-1679: 4-N(Me)HCH₂-Ph, Et, S, O), (N-1680: 4-N(Me)₂CH₂-Ph, Et, S, O), (N-1681: 6-Cl-pyridine-3-yl, Et, S, O), (N-1682: 5,6-diCl-pyridine-3-yl, Et, S, O), (N-1683: 5-Cl-pyridine-2-yl, Et, S, O), (N-1684: 4:5-diCl-pyridine-2-yl, Et, S, O), (N-1685: 4-ClCH₂-Bn, Et, S, O), (N-1686: Bn, Et, S, O), (N-1687: 4-Cl-Bn, Et, S, O), (N-1688: 4-Br-Bn, Et, S, O), (N-1689: 4-F-Bn, Et, S, O), (N-1690: 3,4-diCl-Bn, Et, S, O), (N-1691: 3,4-diBr-Bn, Et, S, O), (N-1692: 3,4-diF-Bn, Et, S, O), (N-1693: 4-Cl-Bz, Et, S, O), (N-1694: 3,4-diCl-Bz, Et, S, O), (N-1695: 4-Br-Bz, Et, S, O), (N-1696: 3,4-diBr-Bz, Et, S, O), (N-1697: 4-F-Bz, Et, S, O), (N-1698: 3,4-diF-Bz, Et, S, O), (N-1699: 4-NO₂-Bn, Et, S, O), (N-1700: 4-CN-Bn, Et, S, O), (N-1701: Ph, COOMe, S, O), (N-1702: 4-F-Ph, COOMe, S, O), (N-1703: 4-Br-Ph, COOMe, S, O), (N-1704: 4-Me-Ph,

COOMe, S, O), (N-1705: 4-Ph-Ph, COOMe, S, O), (N-1706: 4-OMe-Ph, COOMe, S, O), (N-1707: 4-tBu-Ph, COOMe, S, O), (N-1708: 4-COOMe-Ph, COOMe, S, O), (N-1709: 4-Pen-Ph, COOMe, S, O), (N-1710: 4-NO₂-Ph, COOMe, S, O), (N-1711: 5-Cl-thiophene-2-yl, COOMe, S, O), (N-1712: 3-Thienyl, COOMe, S, O), (N-1713: 2-Py, COOMe, S, O), (N-1714: 3-Py, COOMe, S, O), (N-1715: 4-Py, COOMe, S, O), (N-1716: 3,4-diF-Ph, COOMe, S, O), (N-1717: 5-Br-thiophene-2-yl, COOMe, S, O), (N-1718: 4-CONH₂-Ph, COOMe, S, O), (N-1719: 4-CON(Me)H-Ph, COOMe, S, O), (N-1720: 4-CON(Me)₂-Ph, COOMe, S, O), (N-1721: 4-iPrOC(=O)-Ph, COOMe, S, O), (N-1722: 4-nBuOC(=O)-Ph, COOMe, S, O), (N-1723: 6-Me-pyridine-3-yl, COOMe, S, O), (N-1724: Quinoline-3-yl, COOMe, S, O), (N-1725: 4-NH₂-Ph, COOMe, S, O), (N-1726: 4-N(Ac)H-Ph, COOMe, S, O), (N-1727: 4-OH-Ph, COOMe, S, O), (N-1728: 3,4-di(OH)₂-Ph, COOMe, S, O), (N-1729: 3,4-di(NH₂)-Ph, COOMe, S, O), (N-1730: 3:4-[N(Ac)H]₂-Ph, COOMe, S, O), (N-1731: 4-SH-Ph, COOMe, S, O), (N-1732: 4-SMe-Ph, COOMe, S, O), (N-1733: 3,4-diBr-Ph, COOMe, S, O), (N-1734: 4-N(Me)H-Ph, COOMe, S, O), (N-1735: 4-N(Me)₂-Ph, COOMe, S, O), (N-1736: 4-N(Me)₃⁺-Ph, COOMe, S, O), (N-1737: 4-Et-Ph, COOMe, S, O), (N-1738: 4-iPr-Ph, COOMe, S, O), (N-1739: 4-nPr-Ph, COOMe, S, O), (N-1740: 4-nBu-Ph, COOMe, S, O), (N-1741: 4-iBu-Ph, COOMe, S, O), (N-1742: 3,4-diMe-Ph, COOMe, S, O), (N-1743: 1,3-Benzodioxole-5-yl, COOMe, S, O), (N-1744: N-Me-pyridinium-4-yl, COOMe, S, O), (N-1745: N-Me-pyridinium-3-yl, COOMe, S, O), (N-1746: 5-Me-Pyridine-2-yl, COOMe, S, O), (N-1747: 2-Pyrazinyl, COOMe, S, O), (N-1748: 3-Pyrrolyl, COOMe, S, O), (N-1749: 1-Me-pyrrole-3-yl, COOMe, S, O), (N-1750: Pyridine N-oxide-4-yl, COOMe, S, O), (N-1751: Pyridine N-oxide-3-yl, COOMe, S, O), (N-1752: 6-OH-pyridine-3-yl, COOMe, S, O), (N-1753: 6-SH-pyridine-3-yl, COOMe, S, O), (N-1754: 1-Ac-pyrrole-3-yl, COOMe, S, O), (N-1755: 4-CF₃-Ph, COOMe, S, O), (N-1756: 4-CN-Ph, COOMe,

S, O), (N-1757: 4-CHO-Ph, COOMe, S, O), (N-1758: 3-Cl-Ph, COOMe, S, O),
 (N-1759: 3-Br-Ph, COOMe, S, O), (N-1760: 3-F-Ph, COOMe, S, O), (N-1761: 3-
 I-Ph, COOMe, S, O), (N-1762: 4-I-Ph, COOMe, S, O), (N-1763: 4-OCF₃-Ph,
 COOMe, S, O), (N-1764: 3,4-diI-Ph, COOMe, S, O), (N-1765: Indole-6-yl,
 COOMe, S, O), (N-1766: 1-Ac-indole-6-yl, COOMe, S, O), (N-1767: 1-Me-
 indole-6-yl, COOMe, S, O), (N-1768: 4-(1-Imidazolyl)-Ph, COOMe, S, O), (N-
 1769: 4-Morphorino-Ph, COOMe, S, O), (N-1770: 4-(1-Piperazinyl)-Ph, COOMe,
 S, O), (N-1771: 2:5-diMe-thiophene-3-yl, COOMe, S, O), (N-1772: 2-Furyl,
 COOMe, S, O), (N-1773: 5-Me-furan-2-yl, COOMe, S, O), (N-1774: 5-Me-
 furan-2-yl, COOMe, S, O), (N-1775: 2-Thiazolyl, COOMe, S, O), (N-1776: 1:4-
 Benzodioxin-6-yl, COOMe, S, O), (N-1777: Benzo[b]furan-2-yl, COOMe, S, O),
 (N-1778: 4-NH₂CH₂-Ph, COOMe, S, O), (N-1779: 4-N(Me)HCH₂-Ph, COOMe, S,
 O), (N-1780: 4-N(Me)₂CH₂-Ph, COOMe, S, O), (N-1781: 6-Cl-pyridine-3-yl,
 COOMe, S, O), (N-1782: 5,6-diCl-pyridine-3-yl, COOMe, S, O), (N-1783: 5-Cl-
 pyridine-2-yl, COOMe, S, O), (N-1784: 4:5-diCl-pyridine-2-yl, COOMe, S, O),
 (N-1785: 4-ClCH₂-Bn, COOMe, S, O), (N-1786: Bn, COOMe, S, O), (N-1787: 4-
 Cl-Bn, COOMe, S, O), (N-1788: 4-Br-Bn, COOMe, S, O), (N-1789: 4-F-Bn,
 COOMe, S, O), (N-1790: 3,4-diCl-Bn, COOMe, S, O), (N-1791: 3,4-diBr-Bn,
 COOMe, S, O), (N-1792: 3,4-diF-Bn, COOMe, S, O), (N-1793: 4-Cl-Bz, COOMe,
 S, O), (N-1794: 3,4-diCl-Bz, COOMe, S, O), (N-1795: 4-Br-Bz, COOMe, S, O),
 (N-1796: 3,4-diBr-Bz, COOMe, S, O), (N-1797: 4-F-Bz, COOMe, S, O), (N-1798:
 3,4-diF-Bz, COOMe, S, O), (N-1799: 4-NO₂-Bn, COOMe, S, O), (N-1800: 4-CN-
 Bn, COOMe, S, O), (N-1801: H, Ph, S, O), (N-1802: H, 4-F-Ph, S, O), (N-1803: H,
 4-Br-Ph, S, O), (N-1804: H, 4-Me-Ph, S, O), (N-1805: H, 4-Ph-Ph, S, O), (N-
 1806: H, 4-OMe-Ph, S, O), (N-1807: H, 4-tBu-Ph, S, O), (N-1808: H, 4-
 COOMe-Ph, S, O), (N-1809: H, 4-Pen-Ph, S, O), (N-1810: H, 4-NO₂-Ph, S, O),
 (N-1811: H, 5-Cl-thiophene-2-yl, S, O), (N-1812: H, 3-Thienyl, S, O), (N-1813:

H, 2-Py, S, O), (N-1814: H, 3-Py, S, O), (N-1815: H, 4-Py, S, O), (N-1816: H, 3,4-diF-Ph, S, O), (N-1817: H, 5-Br-thiophene-2-yl, S, O), (N-1818: H, 4-CONH₂-Ph, S, O), (N-1819: H, 4-CON(Me)H-Ph, S, O), (N-1820: H, 4-CON(Me)₂-Ph, S, O), (N-1821: H, 4-iPrOC(=O)-Ph, S, O), (N-1822: H, 4-nBuOC(=O)-Ph, S, O), (N-1823: H, 6-Me-pyridine-3-yl, S, O), (N-1824: H, Quinoline-3-yl, S, O), (N-1825: H, 4-NH₂-Ph, S, O), (N-1826: H, 4-N(Ac)H-Ph, S, O), (N-1827: H, 4-OH-Ph, S, O), (N-1828: H, 3,4-di(OH)₂-Ph, S, O), (N-1829: H, 3,4-di(NH₂)-Ph, S, O), (N-1830: H, 3:4-[N(Ac)H]₂-Ph, S, O), (N-1831: H, 4-SH-Ph, S, O), (N-1832: H, 4-SMe-Ph, S, O), (N-1833: H, 3,4-diBr-Ph, S, O), (N-1834: H, 4-N(Me)H-Ph, S, O), (N-1835: H, 4-N(Me)₂-Ph, S, O), (N-1836: H, 4-N(Me)₃⁺-Ph, S, O), (N-1837: H, 4-Et-Ph, S, O), (N-1838: H, 4-iPr-Ph, S, O), (N-1839: H, 4-nPr-Ph, S, O), (N-1840: H, 4-nBu-Ph, S, O), (N-1841: H, 4-iBu-Ph, S, O), (N-1842: H, 3,4-diMe-Ph, S, O), (N-1843: H, 1,3-Benzodioxole-5-yl, S, O), (N-1844: H, N-Me-pyridinium-4-yl, S, O), (N-1845: H, N-Me-pyridinium-3-yl, S, O), (N-1846: H, 5-Me-Pyridine-2-yl, S, O), (N-1847: H, 2-Pyrazinyl, S, O), (N-1848: H, 3-Pyrrolyl, S, O), (N-1849: H, 1-Me-pyrrole-3-yl, S, O), (N-1850: H, Pyridine N-oxide-4-yl, S, O), (N-1851: H, Pyridine N-oxide-3-yl, S, O), (N-1852: H, 6-OH-pyridine-3-yl, S, O), (N-1853: H, 6-SH-pyridine-3-yl, S, O), (N-1854: H, 1-Ac-pyrrole-3-yl, S, O), (N-1855: H, 4-CF₃-Ph, S, O), (N-1856: H, 4-CN-Ph, S, O), (N-1857: H, 4-CHO-Ph, S, O), (N-1858: H, 3-Cl-Ph, S, O), (N-1859: H, 3-Br-Ph, S, O), (N-1860: H, 3-F-Ph, S, O), (N-1861: H, 3-I-Ph, S, O), (N-1862: H, 4-I-Ph, S, O), (N-1863: H, 4-OCF₃-Ph, S, O), (N-1864: H, 3,4-diI-Ph, S, O), (N-1865: H, Indole-6-yl, S, O), (N-1866: H, 1-Ac-indole-6-yl, S, O), (N-1867: H, 1-Me-indole-6-yl, S, O), (N-1868: H, 4-(1-Imidazolyl)-Ph, S, O), (N-1869: H, 4-Morphorino-Ph, S, O), (N-1870: H, 4-(1-Piperazinyl)-Ph, S, O), (N-1871: H, 2:5-diMe-thiophene-3-yl, S, O), (N-1872: H, 2-Furyl, S, O), (N-1873: H, 5-Me-furan-2-yl, S, O), (N-1874: H, 5-Me-furan-2-yl, S, O), (N-1875: H, 2-

Thiazolyl, S, O), (N-1876: H, 1:4-Benzodioxin-6-yl, S, O), (N-1877: H, Benzo[b]furan-2-yl, S, O), (N-1878: H, 4-NH₂CH₂-Ph, S, O), (N-1879: H, 4-N(Me)HCH₂-Ph, S, O), (N-1880: H, 4-N(Me)₂CH₂-Ph, S, O), (N-1881: H, 6-Cl-pyridine-3-yl, S, O), (N-1882: H, 5,6-diCl-pyridine-3-yl, S, O), (N-1883: H, 5-Cl-pyridine-2-yl, S, O), (N-1884: H, 4:5-diCl-pyridine-2-yl, S, O), (N-1885: H, 4-ClCH₂-Bn, S, O), (N-1886: H, Bn, S, O), (N-1887: H, 4-Cl-Bn, S, O), (N-1888: H, 4-Br-Bn, S, O), (N-1889: H, 4-F-Bn, S, O), (N-1890: H, 3,4-diCl-Bn, S, O), (N-1891: H, 3,4-diBr-Bn, S, O), (N-1892: H, 3,4-diF-Bn, S, O), (N-1893: H, 4-Cl-Bz, S, O), (N-1894: H, 3,4-diCl-Bz, S, O), (N-1895: H, 4-Br-Bz, S, O), (N-1896: H, 3,4-diBr-Bz, S, O), (N-1897: H, 4-F-Bz, S, O), (N-1898: H, 3,4-diF-Bz, S, O), (N-1899: H, 4-NO₂-Bn, S, O), (N-1900: H, 4-CN-Bn, S, O), (N-1901: Et, Ph, S, O), (N-1902: Et, 4-F-Ph, S, O), (N-1903: Et, 4-Br-Ph, S, O), (N-1904: Et, 4-Me-Ph, S, O), (N-1905: Et, 4-Ph-Ph, S, O), (N-1906: Et, 4-OMe-Ph, S, O), (N-1907: Et, 4-tBu-Ph, S, O), (N-1908: Et, 4-COOMe-Ph, S, O), (N-1909: Et, 4-Pen-Ph, S, O), (N-1910: Et, 4-NO₂-Ph, S, O), (N-1911: Et, 5-Cl-thiophene-2-yl, S, O), (N-1912: Et, 3-Thienyl, S, O), (N-1913: Et, 2-Py, S, O), (N-1914: Et, 3-Py, S, O), (N-1915: Et, 4-Py, S, O), (N-1916: Et, 3,4-diF-Ph, S, O), (N-1917: Et, 5-Br-thiophene-2-yl, S, O), (N-1918: Et, 4-CONH₂-Ph, S, O), (N-1919: Et, 4-CON(Me)H-Ph, S, O), (N-1920: Et, 4-CON(Me)₂-Ph, S, O), (N-1921: Et, 4-iPrOC(=O)-Ph, S, O), (N-1922: Et, 4-nBuOC(=O)-Ph, S, O), (N-1923: Et, 6-Me-pyridine-3-yl, S, O), (N-1924: Et, Quinoline-3-yl, S, O), (N-1925: Et, 4-NH₂-Ph, S, O), (N-1926: Et, 4-N(Ac)H-Ph, S, O), (N-1927: Et, 4-OH-Ph, S, O), (N-1928: Et, 3,4-di(OH)₂-Ph, S, O), (N-1929: Et, 3,4-di(NH₂)-Ph, S, O), (N-1930: Et, 3:4-[N(Ac)H]₂-Ph, S, O), (N-1931: Et, 4-SH-Ph, S, O), (N-1932: Et, 4-SMe-Ph, S, O), (N-1933: Et, 3,4-diBr-Ph, S, O), (N-1934: Et, 4-N(Me)H-Ph, S, O), (N-1935: Et, 4-N(Me)₂-Ph, S, O), (N-1936: Et, 4-N(Me)₃⁺-Ph, S, O), (N-1937: Et, 4-Et-Ph, S, O), (N-1938: Et, 4-iPr-Ph, S, O), (N-1939: Et, 4-nPr-Ph, S, O),

(N-1940: Et, 4-nBu-Ph, S, O), (N-1941: Et, 4-iBu-Ph, S, O), (N-1942: Et, 3,4-diMe-Ph, S, O), (N-1943: Et, 1,3-Benzodioxole-5-yl, S, O), (N-1944: Et, N-Me-pyridinium-4-yl, S, O), (N-1945: Et, N-Me-pyridinium-3-yl, S, O), (N-1946: Et, 5-Me-Pyridine-2-yl, S, O), (N-1947: Et, 2-Pyrazinyl, S, O), (N-1948: Et, 3-Pyrrolyl, S, O), (N-1949: Et, 1-Me-pyrrole-3-yl, S, O), (N-1950: Et, Pyridine N-oxide-4-yl, S, O), (N-1951: Et, Pyridine N-oxide-3-yl, S, O), (N-1952: Et, 6-OH-pyridine-3-yl, S, O), (N-1953: Et, 6-SH-pyridine-3-yl, S, O), (N-1954: Et, 1-Ac-pyrrole-3-yl, S, O), (N-1955: Et, 4-CF₃-Ph, S, O), (N-1956: Et, 4-CN-Ph, S, O), (N-1957: Et, 4-CHO-Ph, S, O), (N-1958: Et, 3-Cl-Ph, S, O), (N-1959: Et, 3-Br-Ph, S, O), (N-1960: Et, 3-F-Ph, S, O), (N-1961: Et, 3-I-Ph, S, O), (N-1962: Et, 4-I-Ph, S, O), (N-1963: Et, 4-OCF₃-Ph, S, O), (N-1964: Et, 3,4-diI-Ph, S, O), (N-1965: Et, Indole-6-yl, S, O), (N-1966: Et, 1-Ac-indole-6-yl, S, O), (N-1967: Et, 1-Me-indole-6-yl, S, O), (N-1968: Et, 4-(1-Imidazolyl)-Ph, S, O), (N-1969: Et, 4-Morpholino-Ph, S, O), (N-1970: Et, 4-(1-Piperazinyl)-Ph, S, O), (N-1971: Et, 2:5-diMe-thiophene-3-yl, S, O), (N-1972: Et, 2-Furyl, S, O), (N-1973: Et, 5-Me-furan-2-yl, S, O), (N-1974: Et, 5-Me-furan-2-yl, S, O), (N-1975: Et, 2-Thiazolyl, S, O), (N-1976: Et, 1:4-Benzodioxin-6-yl, S, O), (N-1977: Et, Benzo[b]furan-2-yl, S, O), (N-1978: Et, 4-NH₂CH₂-Ph, S, O), (N-1979: Et, 4-N(Me)HCH₂-Ph, S, O), (N-1980: Et, 4-N(Me)₂CH₂-Ph, S, O), (N-1981: Et, 6-Cl-pyridine-3-yl, S, O), (N-1982: Et, 5,6-diCl-pyridine-3-yl, S, O), (N-1983: Et, 5-Cl-pyridine-2-yl, S, O), (N-1984: Et, 4:5-diCl-pyridine-2-yl, S, O), (N-1985: Et, 4-ClCH₂-Bn, S, O), (N-1986: Et, Bn, S, O), (N-1987: Et, 4-Cl-Bn, S, O), (N-1988: Et, 4-Br-Bn, S, O), (N-1989: Et, 4-F-Bn, S, O), (N-1990: Et, 3,4-diCl-Bn, S, O), (N-1991: Et, 3,4-diBr-Bn, S, O), (N-1992: Et, 3,4-diF-Bn, S, O), (N-1993: Et, 4-Cl-Bz, S, O), (N-1994: Et, 3,4-diCl-Bz, S, O), (N-1995: Et, 4-Br-Bz, S, O), (N-1996: Et, 3,4-diBr-Bz, S, O), (N-1997: Et, 4-F-Bz, S, O), (N-1998: Et, 3,4-diF-Bz, S, O), (N-1999: Et, 4-NO₂-Bn, S, O), (N-2000: Et, 4-CN-Bn, S, O),

(N-2001: COOMe, Ph, S, O), (N-2002: COOMe, 4-F-Ph, S, O), (N-2003: COOMe, 4-Br-Ph, S, O), (N-2004: COOMe, 4-Me-Ph, S, O), (N-2005: COOMe, 4-Ph-Ph, S, O), (N-2006: COOMe, 4-OMe-Ph, S, O), (N-2007: COOMe, 4-tBu-Ph, S, O), (N-2008: COOMe, 4-COOMe-Ph, S, O), (N-2009: COOMe, 4-Pen-Ph, S, O), (N-2010: COOMe, 4-NO₂-Ph, S, O), (N-2011: COOMe, 5-Cl-thiophene-2-yl, S, O), (N-2012: COOMe, 3-Thienyl, S, O), (N-2013: COOMe, 2-Py, S, O), (N-2014: COOMe, 3-Py, S, O), (N-2015: COOMe, 4-Py, S, O), (N-2016: COOMe, 3,4-diF-Ph, S, O), (N-2017: COOMe, 5-Br-thiophene-2-yl, S, O), (N-2018: COOMe, 4-CONH₂-Ph, S, O), (N-2019: COOMe, 4-CON(Me)H-Ph, S, O), (N-2020: COOMe, 4-CON(Me)₂-Ph, S, O), (N-2021: COOMe, 4-iPrOC(=O)-Ph, S, O), (N-2022: COOMe, 4-nBuOC(=O)-Ph, S, O), (N-2023: COOMe, 6-Me-pyridine-3-yl, S, O), (N-2024: COOMe, Quinoline-3-yl, S, O), (N-2025: COOMe, 4-NH₂-Ph, S, O), (N-2026: COOMe, 4-N(Ac)H-Ph, S, O), (N-2027: COOMe, 4-OH-Ph, S, O), (N-2028: COOMe, 3,4-di(OH)₂-Ph, S, O), (N-2029: COOMe, 3,4-di(NH₂)-Ph, S, O), (N-2030: COOMe, 3:4-[N(Ac)H]₂-Ph, S, O), (N-2031: COOMe, 4-SH-Ph, S, O), (N-2032: COOMe, 4-SMe-Ph, S, O), (N-2033: COOMe, 3,4-diBr-Ph, S, O), (N-2034: COOMe, 4-N(Me)H-Ph, S, O), (N-2035: COOMe, 4-N(Me)₂-Ph, S, O), (N-2036: COOMe, 4-N(Me)₃⁺-Ph, S, O), (N-2037: COOMe, 4-Et-Ph, S, O), (N-2038: COOMe, 4-iPr-Ph, S, O), (N-2039: COOMe, 4-nPr-Ph, S, O), (N-2040: COOMe, 4-nBu-Ph, S, O), (N-2041: COOMe, 4-iBu-Ph, S, O), (N-2042: COOMe, 3,4-diMe-Ph, S, O), (N-2043: COOMe, 1,3-Benzodioxole-5-yl, S, O), (N-2044: COOMe, N-Me-pyridinium-4-yl, S, O), (N-2045: COOMe, N-Me-pyridinium-3-yl, S, O), (N-2046: COOMe, 5-Me-Pyridine-2-yl, S, O), (N-2047: COOMe, 2-Pyrazinyl, S, O), (N-2048: COOMe, 3-Pyrrolyl, S, O), (N-2049: COOMe, 1-Me-pyrrole-3-yl, S, O), (N-2050: COOMe, Pyridine N-oxide-4-yl, S, O), (N-2051: COOMe, Pyridine N-oxide-3-yl, S, O), (N-2052: COOMe, 6-OH-pyridine-3-yl, S, O), (N-2053: COOMe, 6-SH-pyridine-3-yl, S, O), (N-2054: COOMe, 1-Ac-

pyrrole-3-yl, S, O), (N-2055: COOMe, 4-CF₃-Ph, S, O), (N-2056: COOMe, 4-CN-Ph, S, O), (N-2057: COOMe, 4-CHO-Ph, S, O), (N-2058: COOMe, 3-Cl-Ph, S, O), (N-2059: COOMe, 3-Br-Ph, S, O), (N-2060: COOMe, 3-F-Ph, S, O), (N-2061: COOMe, 3-I-Ph, S, O), (N-2062: COOMe, 4-I-Ph, S, O), (N-2063: COOMe, 4-OCF₃-Ph, S, O), (N-2064: COOMe, 3,4-diI-Ph, S, O), (N-2065: COOMe, Indole-6-yl, S, O), (N-2066: COOMe, 1-Ac-indole-6-yl, S, O), (N-2067: COOMe, 1-Me-indole-6-yl, S, O), (N-2068: COOMe, 4-(1-Imidazolyl)-Ph, S, O), (N-2069: COOMe, 4-Morpholino-Ph, S, O), (N-2070: COOMe, 4-(1-Piperazinyl)-Ph, S, O), (N-2071: COOMe, 2:5-diMe-thiophene-3-yl, S, O), (N-2072: COOMe, 2-Furyl, S, O), (N-2073: COOMe, 5-Me-furan-2-yl, S, O), (N-2074: COOMe, 5-Me-furan-2-yl, S, O), (N-2075: COOMe, 2-Thiazolyl, S, O), (N-2076: COOMe, 1:4-Benzodioxin-6-yl, S, O), (N-2077: COOMe, Benzo[b]furan-2-yl, S, O), (N-2078: COOMe, 4-NH₂CH₂-Ph, S, O), (N-2079: COOMe, 4-N(Me)HCH₂-Ph, S, O), (N-2080: COOMe, 4-N(Me)₂CH₂-Ph, S, O), (N-2081: COOMe, 6-Cl-pyridine-3-yl, S, O), (N-2082: COOMe, 5,6-diCl-pyridine-3-yl, S, O), (N-2083: COOMe, 5-Cl-pyridine-2-yl, S, O), (N-2084: COOMe, 4:5-diCl-pyridine-2-yl, S, O), (N-2085: COOMe, 4-ClCH₂-Bn, S, O), (N-2086: COOMe, Bn, S, O), (N-2087: COOMe, 4-Cl-Bn, S, O), (N-2088: COOMe, 4-Br-Bn, S, O), (N-2089: COOMe, 4-F-Bn, S, O), (N-2090: COOMe, 3,4-diCl-Bn, S, O), (N-2091: COOMe, 3,4-diBr-Bn, S, O), (N-2092: COOMe, 3,4-diF-Bn, S, O), (N-2093: COOMe, 4-Cl-Bz, S, O), (N-2094: COOMe, 3,4-diCl-Bz, S, O), (N-2095: COOMe, 4-Br-Bz, S, O), (N-2096: COOMe, 3,4-diBr-Bz, S, O), (N-2097: COOMe, 4-F-Bz, S, O), (N-2098: COOMe, 3,4-diF-Bz, S, O), (N-2099: COOMe, 4-NO₂-Bn, S, O), (N-2100: COOMe, 4-CN-Bn, S, O), (N-2101: Ph, Me, O, O), (N-2102: 4-F-Ph, Me, O, O), (N-2103: 4-Br-Ph, Me, O, O), (N-2104: 4-Me-Ph, Me, O, O), (N-2105: 4-Ph-Ph, Me, O, O), (N-2106: 4-OMe-Ph, Me, O, O), (N-2107: 4-tBu-Ph, Me, O, O), (N-2108: 4-COOMe-Ph, Me, O, O), (N-2109: 4-Pen-Ph, Me, O, O), (N-2110: 4-NO₂-Ph, Me, O, O), (N-2111:

5-Cl-thiophene-2-yl, Me, O, O), (N-2112: 3-Thienyl, Me, O, O), (N-2113: 2-Py, Me, O, O), (N-2114: 3-Py, Me, O, O), (N-2115: 4-Py, Me, O, O), (N-2116: 3,4-diF-Ph, Me, O, O), (N-2117: 5-Br-thiophene-2-yl, Me, O, O), (N-2118: 4-CONH₂-Ph, Me, O, O), (N-2119: 4-CON(Me)H-Ph, Me, O, O), (N-2120: 4-CON(Me)₂-Ph, Me, O, O), (N-2121: 4-iPrOC(=O)-Ph, Me, O, O), (N-2122: 4-nBuOC(=O)-Ph, Me, O, O), (N-2123: 6-Me-pyridine-3-yl, Me, O, O), (N-2124: Quinoline-3-yl, Me, O, O), (N-2125: 4-NH₂-Ph, Me, O, O), (N-2126: 4-N(Ac)H-Ph, Me, O, O), (N-2127: 4-OH-Ph, Me, O, O), (N-2128: 3,4-di(OH)₂-Ph, Me, O, O), (N-2129: 3,4-di(NH₂)-Ph, Me, O, O), (N-2130: 3:4-[N(Ac)H]₂-Ph, Me, O, O), (N-2131: 4-SH-Ph, Me, O, O), (N-2132: 4-SMe-Ph, Me, O, O), (N-2133: 3,4-diBr-Ph, Me, O, O), (N-2134: 4-N(Me)H-Ph, Me, O, O), (N-2135: 4-N(Me)₂-Ph, Me, O, O), (N-2136: 4-N(Me)₃⁺-Ph, Me, O, O), (N-2137: 4-Et-Ph, Me, O, O), (N-2138: 4-iPr-Ph, Me, O, O), (N-2139: 4-nPr-Ph, Me, O, O), (N-2140: 4-nBu-Ph, Me, O, O), (N-2141: 4-iBu-Ph, Me, O, O), (N-2142: 3,4-diMe-Ph, Me, O, O), (N-2143: 1,3-Benzodioxole-5-yl, Me, O, O), (N-2144: N-Me-pyridinium-4-yl, Me, O, O), (N-2145: N-Me-pyridinium-3-yl, Me, O, O), (N-2146: 5-Me-Pyridine-2-yl, Me, O, O), (N-2147: 2-Pyrazinyl, Me, O, O), (N-2148: 3-Pyrrolyl, Me, O, O), (N-2149: 1-Me-pyrrole-3-yl, Me, O, O), (N-2150: Pyridine N-oxide-4-yl, Me, O, O), (N-2151: Pyridine N-oxide-3-yl, Me, O, O), (N-2152: 6-OH-pyridine-3-yl, Me, O, O), (N-2153: 6-SH-pyridine-3-yl, Me, O, O), (N-2154: 1-Ac-pyrrole-3-yl, Me, O, O), (N-2155: 4-CF₃-Ph, Me, O, O), (N-2156: 4-CN-Ph, Me, O, O), (N-2157: 4-CHO-Ph, Me, O, O), (N-2158: 3-Cl-Ph, Me, O, O), (N-2159: 3-Br-Ph, Me, O, O), (N-2160: 3-F-Ph, Me, O, O), (N-2161: 3-I-Ph, Me, O, O), (N-2162: 4-I-Ph, Me, O, O), (N-2163: 4-OCF₃-Ph, Me, O, O), (N-2164: 3,4-diI-Ph, Me, O, O), (N-2165: Indole-6-yl, Me, O, O), (N-2166: 1-Ac-indole-6-yl, Me, O, O), (N-2167: 1-Me-indole-6-yl, Me, O, O), (N-2168: 4-(1-Imidazolyl)-Ph, Me, O, O), (N-2169: 4-Morphorino-Ph, Me, O, O), (N-2170: 4-(1-Piperazinyl)-Ph, Me, O, O), (N-

2171: 2:5-diMe-thiophene-3-yl, Me, O, O), (N-2172: 2-Furyl, Me, O, O), (N-
 2173: 5-Me-furan-2-yl, Me, O, O), (N-2174: 5-Me-furan-2-yl, Me, O, O), (N-
 2175: 2-Thiazolyl, Me, O, O), (N-2176: 1:4-Benzodioxin-6-yl, Me, O, O), (N-
 2177: Benzo[b]furan-2-yl, Me, O, O), (N-2178: 4-NH₂CH₂-Ph, Me, O, O), (N-
 2179: 4-N(Me)HCH₂-Ph, Me, O, O), (N-2180: 4-N(Me)₂CH₂-Ph, Me, O, O), (N-
 2181: 6-Cl-pyridine-3-yl, Me, O, O), (N-2182: 5,6-diCl-pyridine-3-yl, Me, O, O),
 (N-2183: 5-Cl-pyridine-2-yl, Me, O, O), (N-2184: 4:5-diCl-pyridine-2-yl, Me, O,
 O), (N-2185: 4-ClCH₂-Bn, Me, O, O), (N-2186: Bn, Me, O, O), (N-2187: 4-Cl-Bn,
 Me, O, O), (N-2188: 4-Br-Bn, Me, O, O), (N-2189: 4-F-Bn, Me, O, O), (N-2190:
 3,4-diCl-Bn, Me, O, O), (N-2191: 3,4-diBr-Bn, Me, O, O), (N-2192: 3,4-diF-Bn,
 Me, O, O), (N-2193: 4-Cl-Bz, Me, O, O), (N-2194: 3,4-diCl-Bz, Me, O, O), (N-
 2195: 4-Br-Bz, Me, O, O), (N-2196: 3,4-diBr-Bz, Me, O, O), (N-2197: 4-F-Bz, Me,
 O, O), (N-2198: 3,4-diF-Bz, Me, O, O), (N-2199: 4-NO₂-Bn, Me, O, O), (N-2200:
 4-CN-Bn, Me, O, O), (N-2201: Ph, Et, O, O), (N-2202: 4-F-Ph, Et, O, O), (N-
 2203: 4-Br-Ph, Et, O, O), (N-2204: 4-Me-Ph, Et, O, O), (N-2205: 4-Ph-Ph, Et, O,
 O), (N-2206: 4-OMe-Ph, Et, O, O), (N-2207: 4-tBu-Ph, Et, O, O), (N-2208: 4-
 COOMe-Ph, Et, O, O), (N-2209: 4-Pen-Ph, Et, O, O), (N-2210: 4-NO₂-Ph, Et, O,
 O), (N-2211: 5-Cl-thiophene-2-yl, Et, O, O), (N-2212: 3-Thienyl, Et, O, O), (N-
 2213: 2-Py, Et, O, O), (N-2214: 3-Py, Et, O, O), (N-2215: 4-Py, Et, O, O), (N-
 2216: 3,4-diF-Ph, Et, O, O), (N-2217: 5-Br-thiophene-2-yl, Et, O, O), (N-2218:
 4-CONH₂-Ph, Et, O, O), (N-2219: 4-CON(Me)H-Ph, Et, O, O), (N-2220: 4-
 CON(Me)₂-Ph, Et, O, O), (N-2221: 4-iPrOC(=O)-Ph, Et, O, O), (N-2222: 4-
 nBuOC(=O)-Ph, Et, O, O), (N-2223: 6-Me-pyridine-3-yl, Et, O, O), (N-2224:
 Quinoline-3-yl, Et, O, O), (N-2225: 4-NH₂-Ph, Et, O, O), (N-2226: 4-N(Ac)H-Ph,
 Et, O, O), (N-2227: 4-OH-Ph, Et, O, O), (N-2228: 3,4-di(OH)₂-Ph, Et, O, O),
 (N-2229: 3,4-di(NH₂)-Ph, Et, O, O), (N-2230: 3:4-[N(Ac)H]₂-Ph, Et, O, O), (N-
 2231: 4-SH-Ph, Et, O, O), (N-2232: 4-SMe-Ph, Et, O, O), (N-2233: 3,4-diBr-Ph,

Et, O, O), (N-2234: 4-N(Me)H-Ph, Et, O, O), (N-2235: 4-N(Me)₂-Ph, Et, O, O), (N-2236: 4-N(Me)₃⁺-Ph, Et, O, O), (N-2237: 4-Et-Ph, Et, O, O), (N-2238: 4-iPr-Ph, Et, O, O), (N-2239: 4-nPr-Ph, Et, O, O), (N-2240: 4-nBu-Ph, Et, O, O), (N-2241: 4-iBu-Ph, Et, O, O), (N-2242: 3,4-diMe-Ph, Et, O, O), (N-2243: 1,3-Benzodioxole-5-yl, Et, O, O), (N-2244: N-Me-pyridinium-4-yl, Et, O, O), (N-2245: N-Me-pyridinium-3-yl, Et, O, O), (N-2246: 5-Me-Pyridine-2-yl, Et, O, O), (N-2247: 2-Pyrazinyl, Et, O, O), (N-2248: 3-Pyrrolyl, Et, O, O), (N-2249: 1-Me-pyrrole-3-yl, Et, O, O), (N-2250: Pyridine N-oxide-4-yl, Et, O, O), (N-2251: Pyridine N-oxide-3-yl, Et, O, O), (N-2252: 6-OH-pyridine-3-yl, Et, O, O), (N-2253: 6-SH-pyridine-3-yl, Et, O, O), (N-2254: 1-Ac-pyrrole-3-yl, Et, O, O), (N-2255: 4-CF₃-Ph, Et, O, O), (N-2256: 4-CN-Ph, Et, O, O), (N-2257: 4-CHO-Ph, Et, O, O), (N-2258: 3-Cl-Ph, Et, O, O), (N-2259: 3-Br-Ph, Et, O, O), (N-2260: 3-F-Ph, Et, O, O), (N-2261: 3-I-Ph, Et, O, O), (N-2262: 4-I-Ph, Et, O, O), (N-2263: 4-OCF₃-Ph, Et, O, O), (N-2264: 3,4-diI-Ph, Et, O, O), (N-2265: Indole-6-yl, Et, O, O), (N-2266: 1-Ac-indole-6-yl, Et, O, O), (N-2267: 1-Me-indole-6-yl, Et, O, O), (N-2268: 4-(1-Imidazolyl)-Ph, Et, O, O), (N-2269: 4-Morphorino-Ph, Et, O, O), (N-2270: 4-(1-Piperazinyl)-Ph, Et, O, O), (N-2271: 2:5-diMe-thiophene-3-yl, Et, O, O), (N-2272: 2-Furyl, Et, O, O), (N-2273: 5-Me-furan-2-yl, Et, O, O), (N-2274: 5-Me-furan-2-yl, Et, O, O), (N-2275: 2-Thiazolyl, Et, O, O), (N-2276: 1:4-Benzodioxin-6-yl, Et, O, O), (N-2277: Benzo[b]furan-2-yl, Et, O, O), (N-2278: 4-NH₂CH₂-Ph, Et, O, O), (N-2279: 4-N(Me)HCH₂-Ph, Et, O, O), (N-2280: 4-N(Me)₂CH₂-Ph, Et, O, O), (N-2281: 6-Cl-pyridine-3-yl, Et, O, O), (N-2282: 5,6-diCl-pyridine-3-yl, Et, O, O), (N-2283: 5-Cl-pyridine-2-yl, Et, O, O), (N-2284: 4:5-diCl-pyridine-2-yl, Et, O, O), (N-2285: 4-ClCH₂-Bn, Et, O, O), (N-2286: Bn, Et, O, O), (N-2287: 4-Cl-Bn, Et, O, O), (N-2288: 4-Br-Bn, Et, O, O), (N-2289: 4-F-Bn, Et, O, O), (N-2290: 3,4-diCl-Bn, Et, O, O), (N-2291: 3,4-diBr-Bn, Et, O, O), (N-2292: 3,4-diF-Bn, Et, O, O), (N-2293: 4-Cl-Bz, Et, O, O),

(N-2294: 3,4-diCl-Bz, Et, O, O), (N-2295: 4-Br-Bz, Et, O, O), (N-2296: 3,4-diBr-Bz, Et, O, O), (N-2297: 4-F-Bz, Et, O, O), (N-2298: 3,4-diF-Bz, Et, O, O), (N-2299: 4-NO₂-Bn, Et, O, O), (N-2300: 4-CN-Bn, Et, O, O), (N-2301: Ph, COOMe, O, O), (N-2302: 4-F-Ph, COOMe, O, O), (N-2303: 4-Br-Ph, COOMe, O, O), (N-2304: 4-Me-Ph, COOMe, O, O), (N-2305: 4-Ph-Ph, COOMe, O, O), (N-2306: 4-OMe-Ph, COOMe, O, O), (N-2307: 4-tBu-Ph, COOMe, O, O), (N-2308: 4-COOMe-Ph, COOMe, O, O), (N-2309: 4-Pen-Ph, COOMe, O, O), (N-2310: 4-NO₂-Ph, COOMe, O, O), (N-2311: 5-Cl-thiophene-2-yl, COOMe, O, O), (N-2312: 3-Thienyl, COOMe, O, O), (N-2313: 2-Py, COOMe, O, O), (N-2314: 3-Py, COOMe, O, O), (N-2315: 4-Py, COOMe, O, O), (N-2316: 3,4-diF-Ph, COOMe, O, O), (N-2317: 5-Br-thiophene-2-yl, COOMe, O, O), (N-2318: 4-CONH₂-Ph, COOMe, O, O), (N-2319: 4-CON(Me)H-Ph, COOMe, O, O), (N-2320: 4-CON(Me)₂-Ph, COOMe, O, O), (N-2321: 4-iPrOC(=O)-Ph, COOMe, O, O), (N-2322: 4-nBuOC(=O)-Ph, COOMe, O, O), (N-2323: 6-Me-pyridine-3-yl, COOMe, O, O), (N-2324: Quinoline-3-yl, COOMe, O, O), (N-2325: 4-NH₂-Ph, COOMe, O, O), (N-2326: 4-N(Ac)H-Ph, COOMe, O, O), (N-2327: 4-OH-Ph, COOMe, O, O), (N-2328: 3,4-di(OH)₂-Ph, COOMe, O, O), (N-2329: 3,4-di(NH₂)-Ph, COOMe, O, O), (N-2330: 3:4-[N(Ac)H]₂-Ph, COOMe, O, O), (N-2331: 4-SH-Ph, COOMe, O, O), (N-2332: 4-SMe-Ph, COOMe, O, O), (N-2333: 3,4-diBr-Ph, COOMe, O, O), (N-2334: 4-N(Me)H-Ph, COOMe, O, O), (N-2335: 4-N(Me)₂-Ph, COOMe, O, O), (N-2336: 4-N(Me)₃⁺-Ph, COOMe, O, O), (N-2337: 4-Et-Ph, COOMe, O, O), (N-2338: 4-iPr-Ph, COOMe, O, O), (N-2339: 4-nPr-Ph, COOMe, O, O), (N-2340: 4-nBu-Ph, COOMe, O, O), (N-2341: 4-iBu-Ph, COOMe, O, O), (N-2342: 3,4-diMe-Ph, COOMe, O, O), (N-2343: 1,3-Benzodioxole-5-yl, COOMe, O, O), (N-2344: N-Me-pyridinium-4-yl, COOMe, O, O), (N-2345: N-Me-pyridinium-3-yl, COOMe, O, O), (N-2346: 5-Me-Pyridine-2-yl, COOMe, O, O), (N-2347: 2-Pyrazinyl, COOMe, O, O), (N-2348: 3-Pyrrolyl, COOMe, O, O), (N-2349: 1-

Me-pyrrole-3-yl, COOMe, O, O), (N-2350: Pyridine N-oxide-4-yl, COOMe, O, O), (N-2351: Pyridine N-oxide-3-yl, COOMe, O, O), (N-2352: 6-OH-pyridine-3-yl, COOMe, O, O), (N-2353: 6-SH-pyridine-3-yl, COOMe, O, O), (N-2354: 1-Ac-pyrrole-3-yl, COOMe, O, O), (N-2355: 4-CF₃-Ph, COOMe, O, O), (N-2356: 4-CN-Ph, COOMe, O, O), (N-2357: 4-CHO-Ph, COOMe, O, O), (N-2358: 3-Cl-Ph, COOMe, O, O), (N-2359: 3-Br-Ph, COOMe, O, O), (N-2360: 3-F-Ph, COOMe, O, O), (N-2361: 3-I-Ph, COOMe, O, O), (N-2362: 4-I-Ph, COOMe, O, O), (N-2363: 4-OCF₃-Ph, COOMe, O, O), (N-2364: 3,4-diI-Ph, COOMe, O, O), (N-2365: Indole-6-yl, COOMe, O, O), (N-2366: 1-Ac-indole-6-yl, COOMe, O, O), (N-2367: 1-Me-indole-6-yl, COOMe, O, O), (N-2368: 4-(1-Imidazolyl)-Ph, COOMe, O, O), (N-2369: 4-Morphorino-Ph, COOMe, O, O), (N-2370: 4-(1-Piperazinyl)-Ph, COOMe, O, O), (N-2371: 2:5-diMe-thiophene-3-yl, COOMe, O, O), (N-2372: 2-Furyl, COOMe, O, O), (N-2373: 5-Me-furan-2-yl, COOMe, O, O), (N-2374: 5-Me-furan-2-yl, COOMe, O, O), (N-2375: 2-Thiazolyl, COOMe, O, O), (N-2376: 1:4-Benzodioxin-6-yl, COOMe, O, O), (N-2377: Benzo[b]furan-2-yl, COOMe, O, O), (N-2378: 4-NH₂CH₂-Ph, COOMe, O, O), (N-2379: 4-N(Me)HCH₂-Ph, COOMe, O, O), (N-2380: 4-N(Me)₂CH₂-Ph, COOMe, O, O), (N-2381: 6-Cl-pyridine-3-yl, COOMe, O, O), (N-2382: 5,6-diCl-pyridine-3-yl, COOMe, O, O), (N-2383: 5-Cl-pyridine-2-yl, COOMe, O, O), (N-2384: 4:5-diCl-pyridine-2-yl, COOMe, O, O), (N-2385: 4-ClCH₂-Bn, COOMe, O, O), (N-2386: Bn, COOMe, O, O), (N-2387: 4-Cl-Bn, COOMe, O, O), (N-2388: 4-Br-Bn, COOMe, O, O), (N-2389: 4-F-Bn, COOMe, O, O), (N-2390: 3,4-diCl-Bn, COOMe, O, O), (N-2391: 3,4-diBr-Bn, COOMe, O, O), (N-2392: 3,4-diF-Bn, COOMe, O, O), (N-2393: 4-Cl-Bz, COOMe, O, O), (N-2394: 3,4-diCl-Bz, COOMe, O, O), (N-2395: 4-Br-Bz, COOMe, O, O), (N-2396: 3,4-diBr-Bz, COOMe, O, O), (N-2397: 4-F-Bz, COOMe, O, O), (N-2398: 3,4-diF-Bz, COOMe, O, O), (N-2399: 4-NO₂-Bn, COOMe, O, O), (N-2400: 4-CN-Bn, COOMe, O, O), (N-2401: H, Ph, O, O), (N-2402: H, 4-F-Ph,

O, O), (N-2403: H, 4-Br-Ph, O, O), (N-2404: H, 4-Me-Ph, O, O), (N-2405: H, 4-Ph-Ph, O, O), (N-2406: H, 4-OMe-Ph, O, O), (N-2407: H, 4-tBu-Ph, O, O), (N-2408: H, 4-COOMe-Ph, O, O), (N-2409: H, 4-Pen-Ph, O, O), (N-2410: H, 4-NO₂-Ph, O, O), (N-2411: H, 5-Cl-thiophene-2-yl, O, O), (N-2412: H, 3-Thienyl, O, O), (N-2413: H, 2-Py, O, O), (N-2414: H, 3-Py, O, O), (N-2415: H, 4-Py, O, O), (N-2416: H, 3,4-diF-Ph, O, O), (N-2417: H, 5-Br-thiophene-2-yl, O, O), (N-2418: H, 4-CONH₂-Ph, O, O), (N-2419: H, 4-CON(Me)H-Ph, O, O), (N-2420: H, 4-CON(Me)₂-Ph, O, O), (N-2421: H, 4-iPrOC(=O)-Ph, O, O), (N-2422: H, 4-nBuOC(=O)-Ph, O, O), (N-2423: H, 6-Me-pyridine-3-yl, O, O), (N-2424: H, Quinoline-3-yl, O, O), (N-2425: H, 4-NH₂-Ph, O, O), (N-2426: H, 4-N(Ac)H-Ph, O, O), (N-2427: H, 4-OH-Ph, O, O), (N-2428: H, 3,4-di(OH)₂-Ph, O, O), (N-2429: H, 3,4-di(NH₂)-Ph, O, O), (N-2430: H, 3:4-[N(Ac)H]₂-Ph, O, O), (N-2431: H, 4-SH-Ph, O, O), (N-2432: H, 4-SMe-Ph, O, O), (N-2433: H, 3,4-diBr-Ph, O, O), (N-2434: H, 4-N(Me)H-Ph, O, O), (N-2435: H, 4-N(Me)₂-Ph, O, O), (N-2436: H, 4-N(Me)₃⁺-Ph, O, O), (N-2437: H, 4-Et-Ph, O, O), (N-2438: H, 4-iPr-Ph, O, O), (N-2439: H, 4-nPr-Ph, O, O), (N-2440: H, 4-nBu-Ph, O, O), (N-2441: H, 4-iBu-Ph, O, O), (N-2442: H, 3,4-diMe-Ph, O, O), (N-2443: H, 1,3-Benzodioxole-5-yl, O, O), (N-2444: H, N-Me-pyridinium-4-yl, O, O), (N-2445: H, N-Me-pyridinium-3-yl, O, O), (N-2446: H, 5-Me-Pyridine-2-yl, O, O), (N-2447: H, 2-Pyrazinyl, O, O), (N-2448: H, 3-Pyrrolyl, O, O), (N-2449: H, 1-Me-pyrrole-3-yl, O, O), (N-2450: H, Pyridine N-oxide-4-yl, O, O), (N-2451: H, Pyridine N-oxide-3-yl, O, O), (N-2452: H, 6-OH-pyridine-3-yl, O, O), (N-2453: H, 6-SH-pyridine-3-yl, O, O), (N-2454: H, 1-Ac-pyrrole-3-yl, O, O), (N-2455: H, 4-CF₃-Ph, O, O), (N-2456: H, 4-CN-Ph, O, O), (N-2457: H, 4-CHO-Ph, O, O), (N-2458: H, 3-Cl-Ph, O, O), (N-2459: H, 3-Br-Ph, O, O), (N-2460: H, 3-F-Ph, O, O), (N-2461: H, 3-I-Ph, O, O), (N-2462: H, 4-I-Ph, O, O), (N-2463: H, 4-OCF₃-Ph, O, O), (N-2464: H, 3,4-diI-Ph, O, O), (N-2465: H, Indole-6-yl, O, O), (N-2466: H, 1-

Ac-indole-6-yl, O, O), (N-2467: H, 1-Me-indole-6-yl, O, O), (N-2468: H, 4-(1-Imidazolyl)-Ph, O, O), (N-2469: H, 4-Morpholino-Ph, O, O), (N-2470: H, 4-(1-Piperazinyl)-Ph, O, O), (N-2471: H, 2:5-diMe-thiophene-3-yl, O, O), (N-2472: H, 2-Furyl, O, O), (N-2473: H, 5-Me-furan-2-yl, O, O), (N-2474: H, 5-Me-furan-2-yl, O, O), (N-2475: H, 2-Thiazolyl, O, O), (N-2476: H, 1:4-Benzodioxin-6-yl, O, O), (N-2477: H, Benzo[b]furan-2-yl, O, O), (N-2478: H, 4-NH₂CH₂-Ph, O, O), (N-2479: H, 4-N(Me)HCH₂-Ph, O, O), (N-2480: H, 4-N(Me)₂CH₂-Ph, O, O), (N-2481: H, 6-Cl-pyridine-3-yl, O, O), (N-2482: H, 5,6-diCl-pyridine-3-yl, O, O), (N-2483: H, 5-Cl-pyridine-2-yl, O, O), (N-2484: H, 4:5-diCl-pyridine-2-yl, O, O), (N-2485: H, 4-ClCH₂-Bn, O, O), (N-2486: H, Bn, O, O), (N-2487: H, 4-Cl-Bn, O, O), (N-2488: H, 4-Br-Bn, O, O), (N-2489: H, 4-F-Bn, O, O), (N-2490: H, 3,4-diCl-Bn, O, O), (N-2491: H, 3,4-diBr-Bn, O, O), (N-2492: H, 3,4-diF-Bn, O, O), (N-2493: H, 4-Cl-Bz, O, O), (N-2494: H, 3,4-diCl-Bz, O, O), (N-2495: H, 4-Br-Bz, O, O), (N-2496: H, 3,4-diBr-Bz, O, O), (N-2497: H, 4-F-Bz, O, O), (N-2498: H, 3,4-diF-Bz, O, O), (N-2499: H, 4-NO₂-Bn, O, O), (N-2500: H, 4-CN-Bn, O, O), (N-2501: Me, Ph, O, O), (N-2502: Me, 4-F-Ph, O, O), (N-2503: Me, 4-Br-Ph, O, O), (N-2504: Me, 4-Me-Ph, O, O), (N-2505: Me, 4-Ph-Ph, O, O), (N-2506: Me, 4-OMe-Ph, O, O), (N-2507: Me, 4-tBu-Ph, O, O), (N-2508: Me, 4-COOMe-Ph, O, O), (N-2509: Me, 4-Pen-Ph, O, O), (N-2510: Me, 4-NO₂-Ph, O, O), (N-2511: Me, 5-Cl-thiophene-2-yl, O, O), (N-2512: Me, 3-Thienyl, O, O), (N-2513: Me, 2-Py, O, O), (N-2514: Me, 3-Py, O, O), (N-2515: Me, 4-Py, O, O), (N-2516: Me, 3,4-diF-Ph, O, O), (N-2517: Me, 5-Br-thiophene-2-yl, O, O), (N-2518: Me, 4-CONH₂-Ph, O, O), (N-2519: Me, 4-CON(Me)H-Ph, O, O), (N-2520: Me, 4-CON(Me)₂-Ph, O, O), (N-2521: Me, 4-iPrOC(=O)-Ph, O, O), (N-2522: Me, 4-nBuOC(=O)-Ph, O, O), (N-2523: Me, 6-Me-pyridine-3-yl, O, O), (N-2524: Me, Quinoline-3-yl, O, O), (N-2525: Me, 4-NH₂-Ph, O, O), (N-2526: Me, 4-N(Ac)H-Ph, O, O), (N-2527: Me, 4-OH-Ph, O, O), (N-2528: Me, 3,4-di(OH)₂-Ph, O, O),

(N-2529: Me, 3,4-di(NH₂)-Ph, O, O), (N-2530: Me, 3:4-[N(Ac)H]₂-Ph, O, O), (N-2531: Me, 4-SH-Ph, O, O), (N-2532: Me, 4-SMe-Ph, O, O), (N-2533: Me, 3,4-diBr-Ph, O, O), (N-2534: Me, 4-N(Me)H-Ph, O, O), (N-2535: Me, 4-N(Me)₂-Ph, O, O), (N-2536: Me, 4-N(Me)₃⁺-Ph, O, O), (N-2537: Me, 4-Et-Ph, O, O), (N-2538: Me, 4-iPr-Ph, O, O), (N-2539: Me, 4-nPr-Ph, O, O), (N-2540: Me, 4-nBu-Ph, O, O), (N-2541: Me, 4-iBu-Ph, O, O), (N-2542: Me, 3,4-diMe-Ph, O, O), (N-2543: Me, 1,3-Benzodioxole-5-yl, O, O), (N-2544: Me, N-Me-pyridinium-4-yl, O, O), (N-2545: Me, N-Me-pyridinium-3-yl, O, O), (N-2546: Me, 5-Me-Pyridine-2-yl, O, O), (N-2547: Me, 2-Pyrazinyl, O, O), (N-2548: Me, 3-Pyrrolyl, O, O), (N-2549: Me, 1-Me-pyrrole-3-yl, O, O), (N-2550: Me, Pyridine N-oxide-4-yl, O, O), (N-2551: Me, Pyridine N-oxide-3-yl, O, O), (N-2552: Me, 6-OH-pyridine-3-yl, O, O), (N-2553: Me, 6-SH-pyridine-3-yl, O, O), (N-2554: Me, 1-Ac-pyrrole-3-yl, O, O), (N-2555: Me, 4-CF₃-Ph, O, O), (N-2556: Me, 4-CN-Ph, O, O), (N-2557: Me, 4-CHO-Ph, O, O), (N-2558: Me, 3-Cl-Ph, O, O), (N-2559: Me, 3-Br-Ph, O, O), (N-2560: Me, 3-F-Ph, O, O), (N-2561: Me, 3-I-Ph, O, O), (N-2562: Me, 4-I-Ph, O, O), (N-2563: Me, 4-OCF₃-Ph, O, O), (N-2564: Me, 3,4-diI-Ph, O, O), (N-2565: Me, Indole-6-yl, O, O), (N-2566: Me, 1-Ac-indole-6-yl, O, O), (N-2567: Me, 1-Me-indole-6-yl, O, O), (N-2568: Me, 4-(1-Imidazolyl)-Ph, O, O), (N-2569: Me, 4-Morphorino-Ph, O, O), (N-2570: Me, 4-(1-Piperazinyl)-Ph, O, O), (N-2571: Me, 2:5-diMe-thiophene-3-yl, O, O), (N-2572: Me, 2-Furyl, O, O), (N-2573: Me, 5-Me-furan-2-yl, O, O), (N-2574: Me, 5-Me-furan-2-yl, O, O), (N-2575: Me, 2-Thiazolyl, O, O), (N-2576: Me, 1:4-Benzodioxin-6-yl, O, O), (N-2577: Me, Benzo[b]furan-2-yl, O, O), (N-2578: Me, 4-NH₂CH₂-Ph, O, O), (N-2579: Me, 4-N(Me)HCH₂-Ph, O, O), (N-2580: Me, 4-N(Me)₂CH₂-Ph, O, O), (N-2581: Me, 6-Cl-pyridine-3-yl, O, O), (N-2582: Me, 5,6-diCl-pyridine-3-yl, O, O), (N-2583: Me, 5-Cl-pyridine-2-yl, O, O), (N-2584: Me, 4:5-diCl-pyridine-2-yl, O, O), (N-2585: Me, 4-ClCH₂-Bn, O, O), (N-2586: Me, Bn, O, O), (N-2587: Me, 4-Cl-Bn, O,

O), (N-2588: Me, 4-Br-Bn, O, O), (N-2589: Me, 4-F-Bn, O, O), (N-2590: Me, 3,4-diCl-Bn, O, O), (N-2591: Me, 3,4-diBr-Bn, O, O), (N-2592: Me, 3,4-diF-Bn, O, O), (N-2593: Me, 4-Cl-Bz, O, O), (N-2594: Me, 3,4-diCl-Bz, O, O), (N-2595: Me, 4-Br-Bz, O, O), (N-2596: Me, 3,4-diBr-Bz, O, O), (N-2597: Me, 4-F-Bz, O, O), (N-2598: Me, 3,4-diF-Bz, O, O), (N-2599: Me, 4-NO₂-Bn, O, O), (N-2600: Me, 4-CN-Bn, O, O), (N-2601: Et, Ph, O, O), (N-2602: Et, 4-F-Ph, O, O), (N-2603: Et, 4-Br-Ph, O, O), (N-2604: Et, 4-Me-Ph, O, O), (N-2605: Et, 4-Ph-Ph, O, O), (N-2606: Et, 4-OMe-Ph, O, O), (N-2607: Et, 4-tBu-Ph, O, O), (N-2608: Et, 4-COOMe-Ph, O, O), (N-2609: Et, 4-Pen-Ph, O, O), (N-2610: Et, 4-NO₂-Ph, O, O), (N-2611: Et, 5-Cl-thiophene-2-yl, O, O), (N-2612: Et, 3-Thienyl, O, O), (N-2613: Et, 2-Py, O, O), (N-2614: Et, 3-Py, O, O), (N-2615: Et, 4-Py, O, O), (N-2616: Et, 3,4-diF-Ph, O, O), (N-2617: Et, 5-Br-thiophene-2-yl, O, O), (N-2618: Et, 4-CONH₂-Ph, O, O), (N-2619: Et, 4-CON(Me)H-Ph, O, O), (N-2620: Et, 4-CON(Me)₂-Ph, O, O), (N-2621: Et, 4-iPrOC(=O)-Ph, O, O), (N-2622: Et, 4-nBuOC(=O)-Ph, O, O), (N-2623: Et, 6-Me-pyridine-3-yl, O, O), (N-2624: Et, Quinoline-3-yl, O, O), (N-2625: Et, 4-NH₂-Ph, O, O), (N-2626: Et, 4-N(Ac)H-Ph, O, O), (N-2627: Et, 4-OH-Ph, O, O), (N-2628: Et, 3,4-di(OH)₂-Ph, O, O), (N-2629: Et, 3,4-di(NH₂)-Ph, O, O), (N-2630: Et, 3:4-[N(Ac)H]₂-Ph, O, O), (N-2631: Et, 4-SH-Ph, O, O), (N-2632: Et, 4-SMe-Ph, O, O), (N-2633: Et, 3,4-diBr-Ph, O, O), (N-2634: Et, 4-N(Me)H-Ph, O, O), (N-2635: Et, 4-N(Me)₂-Ph, O, O), (N-2636: Et, 4-N(Me)₃⁺-Ph, O, O), (N-2637: Et, 4-Et-Ph, O, O), (N-2638: Et, 4-iPr-Ph, O, O), (N-2639: Et, 4-nPr-Ph, O, O), (N-2640: Et, 4-nBu-Ph, O, O), (N-2641: Et, 4-iBu-Ph, O, O), (N-2642: Et, 3,4-diMe-Ph, O, O), (N-2643: Et, 1,3-Benzodioxole-5-yl, O, O), (N-2644: Et, N-Me-pyridinium-4-yl, O, O), (N-2645: Et, N-Me-pyridinium-3-yl, O, O), (N-2646: Et, 5-Me-Pyridine-2-yl, O, O), (N-2647: Et, 2-Pyrazinyl, O, O), (N-2648: Et, 3-Pyrrolyl, O, O), (N-2649: Et, 1-Me-pyrrole-3-yl, O, O), (N-2650: Et, Pyridine N-oxide-4-yl, O, O), (N-2651: Et,

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3-Thienyl, O, O), (N-2713: COOMe, 2-Py, O, O), (N-2714: COOMe, 3-Py, O, O),
 (N-2715: COOMe, 4-Py, O, O), (N-2716: COOMe, 3,4-diF-Ph, O, O), (N-2717:
 COOMe, 5-Br-thiophene-2-yl, O, O), (N-2718: COOMe, 4-CONH₂-Ph, O, O),
 (N-2719: COOMe, 4-CON(Me)H-Ph, O, O), (N-2720: COOMe, 4-CON(Me)₂-Ph,
 O, O), (N-2721: COOMe, 4-iPrOC(=O)-Ph, O, O), (N-2722: COOMe, 4-
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 COOMe, Quinoline-3-yl, O, O), (N-2725: COOMe, 4-NH₂-Ph, O, O), (N-2726:
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 diMe-Ph, O, O), (N-2743: COOMe, 1,3-Benzodioxole-5-yl, O, O), (N-2744:
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 yl, O, O), (N-2746: COOMe, 5-Me-Pyridine-2-yl, O, O), (N-2747: COOMe, 2-
 Pyrazinyl, O, O), (N-2748: COOMe, 3-Pyrrolyl, O, O), (N-2749: COOMe, 1-
 Me-pyrrole-3-yl, O, O), (N-2750: COOMe, Pyridine N-oxide-4-yl, O, O), (N-
 2751: COOMe, Pyridine N-oxide-3-yl, O, O), (N-2752: COOMe, 6-OH-
 pyridine-3-yl, O, O), (N-2753: COOMe, 6-SH-pyridine-3-yl, O, O), (N-2754:
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 O), (N-2761: COOMe, 3-I-Ph, O, O), (N-2762: COOMe, 4-I-Ph, O, O), (N-2763:
 COOMe, 4-OCF₃-Ph, O, O), (N-2764: COOMe, 3,4-diI-Ph, O, O), (N-2765:

COOMe, Indole-6-yl, O, O), (N-2766: COOMe, 1-Ac-indole-6-yl, O, O), (N-2767: COOMe, 1-Me-indole-6-yl, O, O), (N-2768: COOMe, 4-(1-Imidazolyl)-Ph, O, O), (N-2769: COOMe, 4-Morpholino-Ph, O, O), (N-2770: COOMe, 4-(1-Piperazinyl)-Ph, O, O), (N-2771: COOMe, 2:5-diMe-thiophene-3-yl, O, O), (N-2772: COOMe, 2-Furyl, O, O), (N-2773: COOMe, 5-Me-furan-2-yl, O, O), (N-2774: COOMe, 5-Me-furan-2-yl, O, O), (N-2775: COOMe, 2-Thiazolyl, O, O), (N-2776: COOMe, 1:4-Benzodioxin-6-yl, O, O), (N-2777: COOMe, Benzo[b]furan-2-yl, O, O), (N-2778: COOMe, 4-NH₂CH₂-Ph, O, O), (N-2779: COOMe, 4-N(Me)HCH₂-Ph, O, O), (N-2780: COOMe, 4-N(Me)₂CH₂-Ph, O, O), (N-2781: COOMe, 6-Cl-pyridine-3-yl, O, O), (N-2782: COOMe, 5,6-diCl-pyridine-3-yl, O, O), (N-2783: COOMe, 5-Cl-pyridine-2-yl, O, O), (N-2784: COOMe, 4:5-diCl-pyridine-2-yl, O, O), (N-2785: COOMe, 4-ClCH₂-Bn, O, O), (N-2786: COOMe, Bn, O, O), (N-2787: COOMe, 4-Cl-Bn, O, O), (N-2788: COOMe, 4-Br-Bn, O, O), (N-2789: COOMe, 4-F-Bn, O, O), (N-2790: COOMe, 3,4-diCl-Bn, O, O), (N-2791: COOMe, 3,4-diBr-Bn, O, O), (N-2792: COOMe, 3,4-diF-Bn, O, O), (N-2793: COOMe, 4-Cl-Bz, O, O), (N-2794: COOMe, 3,4-diCl-Bz, O, O), (N-2795: COOMe, 4-Br-Bz, O, O), (N-2796: COOMe, 3,4-diBr-Bz, O, O), (N-2797: COOMe, 4-F-Bz, O, O), (N-2798: COOMe, 3,4-diF-Bz, O, O), (N-2799: COOMe, 4-NO₂-Bn, O, O), (N-2800: COOMe, 4-CN-Bn, O, O), (N-2801: 4-F-Ph, CONH₂, S, S), (N-2802: 4-Br-Ph, CONH₂, S, S), (N-2803: 5-Cl-thiophene-2-yl, CONH₂, S, S), (N-2804: 3,4-diF-Ph, CONH₂, S, S), (N-2805: 5-Br-thiophene-2-yl, CONH₂, S, S), (N-2806: 3,4-diBr-Ph, CONH₂, S, S), (N-2807: 4-CF₃-Ph, CONH₂, S, S), (N-2808: 3-Cl-Ph, CONH₂, S, S), (N-2809: 3-Br-Ph, CONH₂, S, S), (N-2810: 3-F-Ph, CONH₂, S, S), (N-2811: 4-F-Ph, CO₂NHCH₃, S, S), (N-2812: 4-Br-Ph, CO₂NHCH₃, S, S), (N-2813: 5-Cl-thiophene-2-yl, CO₂NHCH₃, S, S), (N-2814: 3,4-diF-Ph, CO₂NHCH₃, S, S), (N-2815: 5-Br-thiophene-2-yl, CO₂NHCH₃, S, S), (N-2816: 3,4-diBr-Ph,

CO_2NHCH_3 , S, S), (N-2817: 4- CF_3 -Ph, CO_2NHCH_3 , S, S), (N-2818: 3-Cl-Ph, CO_2NHCH_3 , S, S), (N-2819: 3-Br-Ph, CO_2NHCH_3 , S, S), (N-2820: 3-F-Ph, CO_2NHCH_3 , S, S), (N-2821: 4-F-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2822: 4-Br-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2823: 5-Cl-thiophene-2-yl, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2824: 3,4-diF-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2825: 5-Br-thiophene-2-yl, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2826: 3,4-diBr-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2827: 4- CF_3 -Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2828: 3-Cl-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2829: 3-Br-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2830: 3-F-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, S), (N-2831: 4-F-Ph, CO_2H , S, S), (N-2832: 4-Br-Ph, CO_2H , S, S), (N-2833: 5-Cl-thiophene-2-yl, CO_2H , S, S), (N-2834: 3,4-diF-Ph, CO_2H , S, S), (N-2835: 5-Br-thiophene-2-yl, CO_2H , S, S), (N-2836: 3,4-diBr-Ph, CO_2H , S, S), (N-2837: 4- CF_3 -Ph, CO_2H , S, S), (N-2838: 3-Cl-Ph, CO_2H , S, S), (N-2839: 3-Br-Ph, CO_2H , S, S), (N-2840: 3-F-Ph, CO_2H , S, S), (N-2841: 4-F-Ph, NH_2 , S, S), (N-2842: 4-Br-Ph, NH_2 , S, S), (N-2843: 5-Cl-thiophene-2-yl, NH_2 , S, S), (N-2844: 3,4-diF-Ph, NH_2 , S, S), (N-2845: 5-Br-thiophene-2-yl, NH_2 , S, S), (N-2846: 3,4-diBr-Ph, NH_2 , S, S), (N-2847: 4- CF_3 -Ph, NH_2 , S, S), (N-2848: 3-Cl-Ph, NH_2 , S, S), (N-2849: 3-Br-Ph, NH_2 , S, S), (N-2850: 3-F-Ph, NH_2 , S, S), (N-2851: 4-F-Ph, CH_2COOMe , S, S), (N-2852: 4-Br-Ph, CH_2COOMe , S, S), (N-2853: 5-Cl-thiophene-2-yl, CH_2COOMe , S, S), (N-2854: 3,4-diF-Ph, CH_2COOMe , S, S), (N-2855: 5-Br-thiophene-2-yl, CH_2COOMe , S, S), (N-2856: 3,4-diBr-Ph, CH_2COOMe , S, S), (N-2857: 4- CF_3 -Ph, CH_2COOMe , S, S), (N-2858: 3-Cl-Ph, CH_2COOMe , S, S), (N-2859: 3-Br-Ph, CH_2COOMe , S, S), (N-2860: 3-F-Ph, CH_2COOMe , S, S), (N-2861: 4-F-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2862: 4-Br-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2863: 5-Cl-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2864: 3,4-diF-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2865: 5-Br-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2866: 3,4-diBr-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2867: 4- CF_3 -Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2868: 3-Cl-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, S, S), (N-2869: 3-

Br-Ph, CH₂CH₂COOMe, S, S), (N-2870: 3-F-Ph, CH₂CH₂COOMe, S, S), (N-2871: 4-F-Ph, CH₂COONH₂, S, S), (N-2872: 4-Br-Ph, CH₂COONH₂, S, S), (N-2873: 5-Cl-thiophene-2-yl, CH₂COONH₂, S, S), (N-2874: 3,4-diF-Ph, CH₂COONH₂, S, S), (N-2875: 5-Br-thiophene-2-yl, CH₂COONH₂, S, S), (N-2876: 3,4-diBr-Ph, CH₂COONH₂, S, S), (N-2877: 4-CF₃-Ph, CH₂COONH₂, S, S), (N-2878: 3-Cl-Ph, CH₂COONH₂, S, S), (N-2879: 3-Br-Ph, CH₂COONH₂, S, S), (N-2880: 3-F-Ph, CH₂COONH₂, S, S), (N-2881: 4-F-Ph, CH₂COONHCH₃, S, S), (N-2882: 4-Br-Ph, CH₂COONHCH₃, S, S), (N-2883: 5-Cl-thiophene-2-yl, CH₂COONHCH₃, S, S), (N-2884: 3,4-diF-Ph, CH₂COONHCH₃, S, S), (N-2885: 5-Br-thiophene-2-yl, CH₂COONHCH₃, S, S), (N-2886: 3,4-diBr-Ph, CH₂COONHCH₃, S, S), (N-2887: 4-CF₃-Ph, CH₂COONHCH₃, S, S), (N-2888: 3-Cl-Ph, CH₂COONHCH₃, S, S), (N-2889: 3-Br-Ph, CH₂COONHCH₃, S, S), (N-2890: 3-F-Ph, CH₂COONHCH₃, S, S), (N-2893: 5-Cl-thiophene-2-yl, CH₂CH₂Cl, S, S), (N-2894: 3,4-diF-Ph, CH₂CH₂Cl, S, S), (N-2895: 5-Br-thiophene-2-yl, CH₂CH₂Cl, S, S), (N-2896: 3,4-diBr-Ph, CH₂CH₂Cl, S, S), (N-2897: 4-CF₃-Ph, CH₂CH₂Cl, S, S), (N-2898: 3-Cl-Ph, CH₂CH₂Cl, S, S), (N-2899: 3-Br-Ph, CH₂CH₂Cl, S, S), (N-2900: 3-F-Ph, CH₂CH₂Cl, S, S), (N-2901: 4-F-Ph, CONH₂, O, S), (N-2902: 4-Br-Ph, CONH₂, O, S), (N-2903: 5-Cl-thiophene-2-yl, CONH₂, O, S), (N-2904: 3,4-diF-Ph, CONH₂, O, S), (N-2905: 5-Br-thiophene-2-yl, CONH₂, O, S), (N-2906: 3,4-diBr-Ph, CONH₂, O, S), (N-2907: 4-CF₃-Ph, CONH₂, O, S), (N-2908: 3-Cl-Ph, CONH₂, O, S), (N-2909: 3-Br-Ph, CONH₂, O, S), (N-2910: 3-F-Ph, CONH₂, O, S), (N-2911: 4-F-Ph, CO₂NHCH₃, O, S), (N-2912: 4-Br-Ph, CO₂NHCH₃, O, S), (N-2913: 5-Cl-thiophene-2-yl, CO₂NHCH₃, O, S), (N-2914: 3,4-diF-Ph, CO₂NHCH₃, O, S), (N-2915: 5-Br-thiophene-2-yl, CO₂NHCH₃, O, S), (N-2916: 3,4-diBr-Ph, CO₂NHCH₃, O, S), (N-2917: 4-CF₃-Ph, CO₂NHCH₃, O, S), (N-2918: 3-Cl-Ph, CO₂NHCH₃, O, S), (N-2919: 3-Br-Ph, CO₂NHCH₃, O, S), (N-2920: 3-F-Ph, CO₂NHCH₃, O, S), (N-2921: 4-F-Ph,

$\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2922: 4-Br-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2923: 5-Cl-thiophene-2-yl, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2924: 3,4-diF-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2925: 5-Br-thiophene-2-yl, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2926: 3,4-diBr-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2927: 4-CF₃-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2928: 3-Cl-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2929: 3-Br-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2930: 3-F-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, S), (N-2931: 4-F-Ph, CO_2H , O, S), (N-2932: 4-Br-Ph, CO_2H , O, S), (N-2933: 5-Cl-thiophene-2-yl, CO_2H , O, S), (N-2934: 3,4-diF-Ph, CO_2H , O, S), (N-2935: 5-Br-thiophene-2-yl, CO_2H , O, S), (N-2936: 3,4-diBr-Ph, CO_2H , O, S), (N-2937: 4-CF₃-Ph, CO_2H , O, S), (N-2938: 3-Cl-Ph, CO_2H , O, S), (N-2939: 3-Br-Ph, CO_2H , O, S), (N-2940: 3-F-Ph, CO_2H , O, S), (N-2941: 4-F-Ph, NH_2 , O, S), (N-2942: 4-Br-Ph, NH_2 , O, S), (N-2943: 5-Cl-thiophene-2-yl, NH_2 , O, S), (N-2944: 3,4-diF-Ph, NH_2 , O, S), (N-2945: 5-Br-thiophene-2-yl, NH_2 , O, S), (N-2946: 3,4-diBr-Ph, NH_2 , O, S), (N-2947: 4-CF₃-Ph, NH_2 , O, S), (N-2948: 3-Cl-Ph, NH_2 , O, S), (N-2949: 3-Br-Ph, NH_2 , O, S), (N-2950: 3-F-Ph, NH_2 , O, S), (N-2951: 4-F-Ph, CH_2COOMe , O, S), (N-2952: 4-Br-Ph, CH_2COOMe , O, S), (N-2953: 5-Cl-thiophene-2-yl, CH_2COOMe , O, S), (N-2954: 3,4-diF-Ph, CH_2COOMe , O, S), (N-2955: 5-Br-thiophene-2-yl, CH_2COOMe , O, S), (N-2956: 3,4-diBr-Ph, CH_2COOMe , O, S), (N-2957: 4-CF₃-Ph, CH_2COOMe , O, S), (N-2958: 3-Cl-Ph, CH_2COOMe , O, S), (N-2959: 3-Br-Ph, CH_2COOMe , O, S), (N-2960: 3-F-Ph, CH_2COOMe , O, S), (N-2961: 4-F-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2962: 4-Br-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2963: 5-Cl-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2964: 3,4-diF-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2965: 5-Br-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2966: 3,4-diBr-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2967: 4-CF₃-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2968: 3-Cl-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2969: 3-Br-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2970: 3-F-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, S), (N-2971: 4-F-Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2972: 4-Br-Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2973: 5-Cl-thiophene-2-yl,

$\text{CH}_2\text{COONH}_2$, O, S), (N-2974: 3,4-diF-Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2975: 5-Br-thiophene-2-yl, $\text{CH}_2\text{COONH}_2$, O, S), (N-2976: 3,4-diBr-Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2977: 4- CF_3 -Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2978: 3-Cl-Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2979: 3-Br-Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2980: 3-F-Ph, $\text{CH}_2\text{COONH}_2$, O, S), (N-2981: 4-F-Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2982: 4-Br-Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2983: 5-Cl-thiophene-2-yl, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2984: 3,4-diF-Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2985: 5-Br-thiophene-2-yl, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2986: 3,4-diBr-Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2987: 4- CF_3 -Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2988: 3-Cl-Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2989: 3-Br-Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2990: 3-F-Ph, $\text{CH}_2\text{COONHCH}_3$, O, S), (N-2991: 4-F-Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2992: 4-Br-Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2993: 5-Cl-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2994: 3,4-diF-Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2995: 5-Br-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2996: 3,4-diBr-Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2997: 4- CF_3 -Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2998: 3-Cl-Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-2999: 3-Br-Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-3000: 3-F-Ph, $\text{CH}_2\text{CH}_2\text{Cl}$, O, S), (N-3001: 4-F-Ph, CONH_2 , S, O), (N-3002: 4-Br-Ph, CONH_2 , S, O), (N-3003: 5-Cl-thiophene-2-yl, CONH_2 , S, O), (N-3004: 3,4-diF-Ph, CONH_2 , S, O), (N-3005: 5-Br-thiophene-2-yl, CONH_2 , S, O), (N-3006: 3,4-diBr-Ph, CONH_2 , S, O), (N-3007: 4- CF_3 -Ph, CONH_2 , S, O), (N-3008: 3-Cl-Ph, CONH_2 , S, O), (N-3009: 3-Br-Ph, CONH_2 , S, O), (N-3010: 3-F-Ph, CONH_2 , S, O), (N-3011: 4-F-Ph, CO_2NHCH_3 , S, O), (N-3012: 4-Br-Ph, CO_2NHCH_3 , S, O), (N-3013: 5-Cl-thiophene-2-yl, CO_2NHCH_3 , S, O), (N-3014: 3,4-diF-Ph, CO_2NHCH_3 , S, O), (N-3015: 5-Br-thiophene-2-yl, CO_2NHCH_3 , S, O), (N-3016: 3,4-diBr-Ph, CO_2NHCH_3 , S, O), (N-3017: 4- CF_3 -Ph, CO_2NHCH_3 , S, O), (N-3018: 3-Cl-Ph, CO_2NHCH_3 , S, O), (N-3019: 3-Br-Ph, CO_2NHCH_3 , S, O), (N-3020: 3-F-Ph, CO_2NHCH_3 , S, O), (N-3021: 4-F-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, O), (N-3022: 4-Br-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, O), (N-3023: 5-Cl-thiophene-2-yl, $\text{CO}_2\text{N}(\text{CH}_3)_2$, S, O), (N-3024:

3,4-diF-Ph, CO₂N(CH₃)₂, S, O), (N-3025: 5-Br-thiophene-2-yl, CO₂N(CH₃)₂, S, O), (N-3026: 3,4-diBr-Ph, CO₂N(CH₃)₂, S, O), (N-3027: 4-CF₃-Ph, CO₂N(CH₃)₂, S, O), (N-3028: 3-Cl-Ph, CO₂N(CH₃)₂, S, O), (N-3029: 3-Br-Ph, CO₂N(CH₃)₂, S, O), (N-3030: 3-F-Ph, CO₂N(CH₃)₂, S, O), (N-3031: 4-F-Ph, CO₂H, S, O), (N-3032: 4-Br-Ph, CO₂H, S, O), (N-3033: 5-Cl-thiophene-2-yl, CO₂H, S, O), (N-3034: 3,4-diF-Ph, CO₂H, S, O), (N-3035: 5-Br-thiophene-2-yl, CO₂H, S, O), (N-3036: 3,4-diBr-Ph, CO₂H, S, O), (N-3037: 4-CF₃-Ph, CO₂H, S, O), (N-3038: 3-Cl-Ph, CO₂H, S, O), (N-3039: 3-Br-Ph, CO₂H, S, O), (N-3040: 3-F-Ph, CO₂H, S, O), (N-3041: 4-F-Ph, NH₂, S, O), (N-3042: 4-Br-Ph, NH₂, S, O), (N-3043: 5-Cl-thiophene-2-yl, NH₂, S, O), (N-3044: 3,4-diF-Ph, NH₂, S, O), (N-3045: 5-Br-thiophene-2-yl, NH₂, S, O), (N-3046: 3,4-diBr-Ph, NH₂, S, O), (N-3047: 4-CF₃-Ph, NH₂, S, O), (N-3048: 3-Cl-Ph, NH₂, S, O), (N-3049: 3-Br-Ph, NH₂, S, O), (N-3050: 3-F-Ph, NH₂, S, O), (N-3051: 4-F-Ph, CH₂COOMe, S, O), (N-3052: 4-Br-Ph, CH₂COOMe, S, O), (N-3053: 5-Cl-thiophene-2-yl, CH₂COOMe, S, O), (N-3054: 3,4-diF-Ph, CH₂COOMe, S, O), (N-3055: 5-Br-thiophene-2-yl, CH₂COOMe, S, O), (N-3056: 3,4-diBr-Ph, CH₂COOMe, S, O), (N-3057: 4-CF₃-Ph, CH₂COOMe, S, O), (N-3058: 3-Cl-Ph, CH₂COOMe, S, O), (N-3059: 3-Br-Ph, CH₂COOMe, S, O), (N-3060: 3-F-Ph, CH₂COOMe, S, O), (N-3061: 4-F-Ph, CH₂CH₂COOMe, S, O), (N-3062: 4-Br-Ph, CH₂CH₂COOMe, S, O), (N-3063: 5-Cl-thiophene-2-yl, CH₂CH₂COOMe, S, O), (N-3064: 3,4-diF-Ph, CH₂CH₂COOMe, S, O), (N-3065: 5-Br-thiophene-2-yl, CH₂CH₂COOMe, S, O), (N-3066: 3,4-diBr-Ph, CH₂CH₂COOMe, S, O), (N-3067: 4-CF₃-Ph, CH₂CH₂COOMe, S, O), (N-3068: 3-Cl-Ph, CH₂CH₂COOMe, S, O), (N-3069: 3-Br-Ph, CH₂CH₂COOMe, S, O), (N-3070: 3-F-Ph, CH₂CH₂COOMe, S, O), (N-3071: 4-F-Ph, CH₂COONH₂, S, O), (N-3072: 4-Br-Ph, CH₂COONH₂, S, O), (N-3073: 5-Cl-thiophene-2-yl, CH₂COONH₂, S, O), (N-3074: 3,4-diF-Ph, CH₂COONH₂, S, O), (N-3075: 5-Br-thiophene-2-yl, CH₂COONH₂, S, O), (N-

3076: 3,4-diBr-Ph, CH₂COONH₂, S, O), (N-3077: 4-CF₃-Ph, CH₂COONH₂, S, O),
 (N-3078: 3-Cl-Ph, CH₂COONH₂, S, O), (N-3079: 3-Br-Ph, CH₂COONH₂, S, O),
 (N-3080: 3-F-Ph, CH₂COONH₂, S, O), (N-3081: 4-F-Ph, CH₂COONHCH₃, S, O),
 (N-3082: 4-Br-Ph, CH₂COONHCH₃, S, O), (N-3083: 5-Cl-thiophene-2-yl,
 CH₂COONHCH₃, S, O), (N-3084: 3,4-diF-Ph, CH₂COONHCH₃, S, O), (N-3085:
 5-Br-thiophene-2-yl, CH₂COONHCH₃, S, O), (N-3086: 3,4-diBr-Ph,
 CH₂COONHCH₃, S, O), (N-3087: 4-CF₃-Ph, CH₂COONHCH₃, S, O), (N-3088:
 3-Cl-Ph, CH₂COONHCH₃, S, O), (N-3089: 3-Br-Ph, CH₂COONHCH₃, S, O),
 (N-3090: 3-F-Ph, CH₂COONHCH₃, S, O), (N-3091: 4-F-Ph, CH₂CH₂Cl, S, O),
 (N-3092: 4-Br-Ph, CH₂CH₂Cl, S, O), (N-3093: 5-Cl-thiophene-2-yl, CH₂CH₂Cl,
 S, O), (N-3094: 3,4-diF-Ph, CH₂CH₂Cl, S, O), (N-3095: 5-Br-thiophene-2-yl,
 CH₂CH₂Cl, S, O), (N-3096: 3,4-diBr-Ph, CH₂CH₂Cl, S, O), (N-3097: 4-CF₃-Ph,
 CH₂CH₂Cl, S, O), (N-3098: 3-Cl-Ph, CH₂CH₂Cl, S, O), (N-3099: 3-Br-Ph,
 CH₂CH₂Cl, S, O), (N-3100: 3-F-Ph, CH₂CH₂Cl, S, O), (N-3101: 4-F-Ph, CONH₂,
 O, O), (N-3102: 4-Br-Ph, CONH₂, O, O), (N-3103: 5-Cl-thiophene-2-yl, CONH₂,
 O, O), (N-3104: 3,4-diF-Ph, CONH₂, O, O), (N-3105: 5-Br-thiophene-2-yl,
 CONH₂, O, O), (N-3106: 3,4-diBr-Ph, CONH₂, O, O), (N-3107: 4-CF₃-Ph,
 CONH₂, O, O), (N-3108: 3-Cl-Ph, CONH₂, O, O), (N-3109: 3-Br-Ph, CONH₂, O,
 O), (N-3110: 3-F-Ph, CONH₂, O, O), (N-3111: 4-F-Ph, CO₂NHCH₃, O, O), (N-
 3112: 4-Br-Ph, CO₂NHCH₃, O, O), (N-3113: 5-Cl-thiophene-2-yl, CO₂NHCH₃, O,
 O), (N-3114: 3,4-diF-Ph, CO₂NHCH₃, O, O), (N-3115: 5-Br-thiophene-2-yl,
 CO₂NHCH₃, O, O), (N-3116: 3,4-diBr-Ph, CO₂NHCH₃, O, O), (N-3117: 4-CF₃-
 Ph, CO₂NHCH₃, O, O), (N-3118: 3-Cl-Ph, CO₂NHCH₃, O, O), (N-3119: 3-Br-Ph,
 CO₂NHCH₃, O, O), (N-3120: 3-F-Ph, CO₂NHCH₃, O, O), (N-3121: 4-F-Ph,
 CO₂N(CH₃)₂, O, O), (N-3122: 4-Br-Ph, CO₂N(CH₃)₂, O, O), (N-3123: 5-Cl-
 thiophene-2-yl, CO₂N(CH₃)₂, O, O), (N-3124: 3,4-diF-Ph, CO₂N(CH₃)₂, O, O),
 (N-3125: 5-Br-thiophene-2-yl, CO₂N(CH₃)₂, O, O), (N-3126: 3,4-diBr-Ph,

$\text{CO}_2\text{N}(\text{CH}_3)_2$, O, O), (N-3127: 4- CF_3 -Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, O), (N-3128: 3-Cl-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, O), (N-3129: 3-Br-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, O), (N-3130: 3-F-Ph, $\text{CO}_2\text{N}(\text{CH}_3)_2$, O, O), (N-3131: 4-F-Ph, CO_2H , O, O), (N-3132: 4-Br-Ph, CO_2H , O, O), (N-3133: 5-Cl-thiophene-2-yl, CO_2H , O, O), (N-3134: 3,4-diF-Ph, CO_2H , O, O), (N-3135: 5-Br-thiophene-2-yl, CO_2H , O, O), (N-3136: 3,4-diBr-Ph, CO_2H , O, O), (N-3137: 4- CF_3 -Ph, CO_2H , O, O), (N-3138: 3-Cl-Ph, CO_2H , O, O), (N-3139: 3-Br-Ph, CO_2H , O, O), (N-3140: 3-F-Ph, CO_2H , O, O), (N-3141: 4-F-Ph, NH_2 , O, O), (N-3142: 4-Br-Ph, NH_2 , O, O), (N-3143: 5-Cl-thiophene-2-yl, NH_2 , O, O), (N-3144: 3,4-diF-Ph, NH_2 , O, O), (N-3145: 5-Br-thiophene-2-yl, NH_2 , O, O), (N-3146: 3,4-diBr-Ph, NH_2 , O, O), (N-3147: 4- CF_3 -Ph, NH_2 , O, O), (N-3148: 3-Cl-Ph, NH_2 , O, O), (N-3149: 3-Br-Ph, NH_2 , O, O), (N-3150: 3-F-Ph, NH_2 , O, O), (N-3151: 4-F-Ph, CH_2COOMe , O, O), (N-3152: 4-Br-Ph, CH_2COOMe , O, O), (N-3153: 5-Cl-thiophene-2-yl, CH_2COOMe , O, O), (N-3154: 3,4-diF-Ph, CH_2COOMe , O, O), (N-3155: 5-Br-thiophene-2-yl, CH_2COOMe , O, O), (N-3156: 3,4-diBr-Ph, CH_2COOMe , O, O), (N-3157: 4- CF_3 -Ph, CH_2COOMe , O, O), (N-3158: 3-Cl-Ph, CH_2COOMe , O, O), (N-3159: 3-Br-Ph, CH_2COOMe , O, O), (N-3160: 3-F-Ph, CH_2COOMe , O, O), (N-3161: 4-F-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3162: 4-Br-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3163: 5-Cl-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3164: 3,4-diF-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3165: 5-Br-thiophene-2-yl, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3166: 3,4-diBr-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3167: 4- CF_3 -Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3168: 3-Cl-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3169: 3-Br-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3170: 3-F-Ph, $\text{CH}_2\text{CH}_2\text{COOMe}$, O, O), (N-3171: 4-F-Ph, $\text{CH}_2\text{COONH}_2$, O, O), (N-3172: 4-Br-Ph, $\text{CH}_2\text{COONH}_2$, O, O), (N-3173: 5-Cl-thiophene-2-yl, $\text{CH}_2\text{COONH}_2$, O, O), (N-3174: 3,4-diF-Ph, $\text{CH}_2\text{COONH}_2$, O, O), (N-3175: 5-Br-thiophene-2-yl, $\text{CH}_2\text{COONH}_2$, O, O), (N-3176: 3,4-diBr-Ph, $\text{CH}_2\text{COONH}_2$, O, O), (N-3177: 4- CF_3 -Ph, $\text{CH}_2\text{COONH}_2$, O, O), (N-3178: 3-Cl-Ph, $\text{CH}_2\text{COONH}_2$, O, O),

(N-3179: 3-Br-Ph, CH₂COONH₂, O, O), (N-3180: 3-F-Ph, CH₂COONH₂, O, O),
 (N-3181: 4-F-Ph, CH₂COONHCH₃, O, O), (N-3182: 4-Br-Ph, CH₂COONHCH₃,
 O, O), (N-3183: 5-Cl-thiophene-2-yl, CH₂COONHCH₃, O, O), (N-3184: 3,4-diF-
 Ph, CH₂COONHCH₃, O, O), (N-3185: 5-Br-thiophene-2-yl, CH₂COONHCH₃, O,
 O), (N-3186: 3,4-diBr-Ph, CH₂COONHCH₃, O, O), (N-3187: 4-CF₃-Ph,
 CH₂COONHCH₃, O, O), (N-3188: 3-Cl-Ph, CH₂COONHCH₃, O, O), (N-3189: 3-
 Br-Ph, CH₂COONHCH₃, O, O), (N-3190: 3-F-Ph, CH₂COONHCH₃, O, O), (N-
 3192: 4-Br-Ph, CH₂CH₂Cl, O, O), (N-3193: 5-Cl-thiophene-2-yl, CH₂CH₂Cl, O,
 O), (N-3194: 3,4-diF-Ph, CH₂CH₂Cl, O, O), (N-3195: 5-Br-thiophene-2-yl,
 CH₂CH₂Cl, O, O), (N-3196: 3,4-diBr-Ph, CH₂CH₂Cl, O, O), (N-3197: 4-CF₃-Ph,
 CH₂CH₂Cl, O, O), (N-3198: 3-Cl-Ph, CH₂CH₂Cl, O, O), (N-3199: 3-Br-Ph,
 CH₂CH₂Cl, O, O), (N-3200: 3-F-Ph, CH₂CH₂Cl, O, O), (N-3301: CONH₂, 4-F-Ph,
 S, S), (N-3302: CONH₂, 4-Br-Ph, S, S), (N-3303: CONH₂, 5-Cl-thiophene-2-yl,
 S, S), (N-3304: CONH₂, 3,4-diF-Ph, S, S), (N-3305: CONH₂, 5-Br-thiophene-2-
 yl, S, S), (N-3306: CONH₂, 3,4-diBr-Ph, S, S), (N-3307: CONH₂, 4-CF₃-Ph, S, S),
 (N-3308: CONH₂, 3-Cl-Ph, S, S), (N-3309: CONH₂, 3-Br-Ph, S, S), (N-3310:
 CONH₂, 3-F-Ph, S, S), (N-3311: CO₂NHCH₃, 4-F-Ph, S, S), (N-3312:
 CO₂NHCH₃, 4-Br-Ph, S, S), (N-3313: CO₂NHCH₃, 5-Cl-thiophene-2-yl, S, S),
 (N-3314: CO₂NHCH₃, 3,4-diF-Ph, S, S), (N-3315: CO₂NHCH₃, 5-Br-thiophene-
 2-yl, S, S), (N-3316: CO₂NHCH₃, 3,4-diBr-Ph, S, S), (N-3317: CO₂NHCH₃, 4-
 CF₃-Ph, S, S), (N-3318: CO₂NHCH₃, 3-Cl-Ph, S, S), (N-3319: CO₂NHCH₃, 3-
 Br-Ph, S, S), (N-3320: CO₂NHCH₃, 3-F-Ph, S, S), (N-3321: CO₂N(CH₃)₂, 4-F-Ph,
 S, S), (N-3322: CO₂N(CH₃)₂, 4-Br-Ph, S, S), (N-3323: CO₂N(CH₃)₂, 5-Cl-
 thiophene-2-yl, S, S), (N-3324: CO₂N(CH₃)₂, 3,4-diF-Ph, S, S), (N-3325:
 CO₂N(CH₃)₂, 5-Br-thiophene-2-yl, S, S), (N-3326: CO₂N(CH₃)₂, 3,4-diBr-Ph, S,
 S), (N-3327: CO₂N(CH₃)₂, 4-CF₃-Ph, S, S), (N-3328: CO₂N(CH₃)₂, 3-Cl-Ph, S, S),
 (N-3329: CO₂N(CH₃)₂, 3-Br-Ph, S, S), (N-3330: CO₂N(CH₃)₂, 3-F-Ph, S, S), (N-

3331: CO₂H, 4-F-Ph, S, S), (N-3332: CO₂H, 4-Br-Ph, S, S), (N-3333: CO₂H, 5-Cl-thiophene-2-yl, S, S), (N-3334: CO₂H, 3,4-diF-Ph, S, S), (N-3335: CO₂H, 5-Br-thiophene-2-yl, S, S), (N-3336: CO₂H, 3,4-diBr-Ph, S, S), (N-3337: CO₂H, 4-CF₃-Ph, S, S), (N-3338: CO₂H, 3-Cl-Ph, S, S), (N-3339: CO₂H, 3-Br-Ph, S, S), (N-3340: CO₂H, 3-F-Ph, S, S), (N-3341: NH₂, 4-F-Ph, S, S), (N-3342: NH₂, 4-Br-Ph, S, S), (N-3343: NH₂, 5-Cl-thiophene-2-yl, S, S), (N-3344: NH₂, 3,4-diF-Ph, S, S), (N-3345: NH₂, 5-Br-thiophene-2-yl, S, S), (N-3346: NH₂, 3,4-diBr-Ph, S, S), (N-3347: NH₂, 4-CF₃-Ph, S, S), (N-3348: NH₂, 3-Cl-Ph, S, S), (N-3349: NH₂, 3-Br-Ph, S, S), (N-3350: NH₂, 3-F-Ph, S, S), (N-3351: CH₂COOMe, 4-F-Ph, S, S), (N-3352: CH₂COOMe, 4-Br-Ph, S, S), (N-3353: CH₂COOMe, 5-Cl-thiophene-2-yl, S, S), (N-3354: CH₂COOMe, 3,4-diF-Ph, S, S), (N-3355: CH₂COOMe, 5-Br-thiophene-2-yl, S, S), (N-3356: CH₂COOMe, 3,4-diBr-Ph, S, S), (N-3357: CH₂COOMe, 4-CF₃-Ph, S, S), (N-3358: CH₂COOMe, 3-Cl-Ph, S, S), (N-3359: CH₂COOMe, 3-Br-Ph, S, S), (N-3360: CH₂COOMe, 3-F-Ph, S, S), (N-3361: CH₂CH₂COOMe, 4-F-Ph, S, S), (N-3362: CH₂CH₂COOMe, 4-Br-Ph, S, S), (N-3363: CH₂CH₂COOMe, 5-Cl-thiophene-2-yl, S, S), (N-3364: CH₂CH₂COOMe, 3,4-diF-Ph, S, S), (N-3365: CH₂CH₂COOMe, 5-Br-thiophene-2-yl, S, S), (N-3366: CH₂CH₂COOMe, 3,4-diBr-Ph, S, S), (N-3367: CH₂CH₂COOMe, 4-CF₃-Ph, S, S), (N-3368: CH₂CH₂COOMe, 3-Cl-Ph, S, S), (N-3369: CH₂CH₂COOMe, 3-Br-Ph, S, S), (N-3370: CH₂CH₂COOMe, 3-F-Ph, S, S), (N-3371: CH₂COONH₂, 4-F-Ph, S, S), (N-3372: CH₂COONH₂, 4-Br-Ph, S, S), (N-3373: CH₂COONH₂, 5-Cl-thiophene-2-yl, S, S), (N-3374: CH₂COONH₂, 3,4-diF-Ph, S, S), (N-3375: CH₂COONH₂, 5-Br-thiophene-2-yl, S, S), (N-3376: CH₂COONH₂, 3,4-diBr-Ph, S, S), (N-3377: CH₂COONH₂, 4-CF₃-Ph, S, S), (N-3378: CH₂COONH₂, 3-Cl-Ph, S, S), (N-3379: CH₂COONH₂, 3-Br-Ph, S, S), (N-3380: CH₂COONH₂, 3-F-Ph, S, S), (N-3381: CH₂COONHCH₃, 4-F-Ph, S, S), (N-3382: CH₂COONHCH₃, 4-Br-Ph, S, S), (N-3383: CH₂COONHCH₃, 5-Cl-thiophene-2-yl, S, S), (N-3384:

$\text{CH}_2\text{COONHCH}_3$, 3,4-diF-Ph, S, S), (N-3385: $\text{CH}_2\text{COONHCH}_3$, 5-Br-thiophene-2-yl, S, S), (N-3386: $\text{CH}_2\text{COONHCH}_3$, 3,4-diBr-Ph, S, S), (N-3387: $\text{CH}_2\text{COONHCH}_3$, 4-CF₃-Ph, S, S), (N-3388: $\text{CH}_2\text{COONHCH}_3$, 3-Cl-Ph, S, S), (N-3389: $\text{CH}_2\text{COONHCH}_3$, 3-Br-Ph, S, S), (N-3390: $\text{CH}_2\text{COONHCH}_3$, 3-F-Ph, S, S), (N-3391: $\text{CH}_2\text{CH}_2\text{Cl}$, 4-F-Ph, S, S), (N-3392: $\text{CH}_2\text{CH}_2\text{Cl}$, 4-Br-Ph, S, S), (N-3393: $\text{CH}_2\text{CH}_2\text{Cl}$, 5-Cl-thiophene-2-yl, S, S), (N-3394: $\text{CH}_2\text{CH}_2\text{Cl}$, 3,4-diF-Ph, S, S), (N-3395: $\text{CH}_2\text{CH}_2\text{Cl}$, 5-Br-thiophene-2-yl, S, S), (N-3396: $\text{CH}_2\text{CH}_2\text{Cl}$, 3,4-diBr-Ph, S, S), (N-3397: $\text{CH}_2\text{CH}_2\text{Cl}$, 4-CF₃-Ph, S, S), (N-3398: $\text{CH}_2\text{CH}_2\text{Cl}$, 3-Cl-Ph, S, S), (N-3399: $\text{CH}_2\text{CH}_2\text{Cl}$, 3-Br-Ph, S, S), (N-3400: $\text{CH}_2\text{CH}_2\text{Cl}$, 3-F-Ph, S, S), (N-3401: CONH_2 , 4-F-Ph, S, O), (N-3402: CONH_2 , 4-Br-Ph, S, O), (N-3403: CONH_2 , 5-Cl-thiophene-2-yl, S, O), (N-3404: CONH_2 , 3,4-diF-Ph, S, O), (N-3405: CONH_2 , 5-Br-thiophene-2-yl, S, O), (N-3406: CONH_2 , 3,4-diBr-Ph, S, O), (N-3407: CONH_2 , 4-CF₃-Ph, S, O), (N-3408: CONH_2 , 3-Cl-Ph, S, O), (N-3409: CONH_2 , 3-Br-Ph, S, O), (N-3410: CONH_2 , 3-F-Ph, S, O), (N-3411: CO_2NHCH_3 , 4-F-Ph, S, O), (N-3412: CO_2NHCH_3 , 4-Br-Ph, S, O), (N-3413: CO_2NHCH_3 , 5-Cl-thiophene-2-yl, S, O), (N-3414: CO_2NHCH_3 , 3,4-diF-Ph, S, O), (N-3415: CO_2NHCH_3 , 5-Br-thiophene-2-yl, S, O), (N-3416: CO_2NHCH_3 , 3,4-diBr-Ph, S, O), (N-3417: CO_2NHCH_3 , 4-CF₃-Ph, S, O), (N-3418: CO_2NHCH_3 , 3-Cl-Ph, S, O), (N-3419: CO_2NHCH_3 , 3-Br-Ph, S, O), (N-3420: CO_2NHCH_3 , 3-F-Ph, S, O), (N-3421: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 4-F-Ph, S, O), (N-3422: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 4-Br-Ph, S, O), (N-3423: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 5-Cl-thiophene-2-yl, S, O), (N-3424: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3,4-diF-Ph, S, O), (N-3425: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 5-Br-thiophene-2-yl, S, O), (N-3426: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3,4-diBr-Ph, S, O), (N-3427: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 4-CF₃-Ph, S, O), (N-3428: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3-Cl-Ph, S, O), (N-3429: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3-Br-Ph, S, O), (N-3430: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3-F-Ph, S, O), (N-3431: CO_2H , 4-F-Ph, S, O), (N-3432: CO_2H , 4-Br-Ph, S, O), (N-3433: CO_2H , 5-Cl-thiophene-2-yl, S, O), (N-3434: CO_2H , 3,4-diF-Ph, S, O), (N-3435: CO_2H , 5-Br-thiophene-2-yl, S, O),

(N-3436: CO₂H, 3,4-diBr-Ph, S, O), (N-3437: CO₂H, 4-CF₃-Ph, S, O), (N-3438: CO₂H, 3-Cl-Ph, S, O), (N-3439: CO₂H, 3-Br-Ph, S, O), (N-3440: CO₂H, 3-F-Ph, S, O), (N-3441: NH₂, 4-F-Ph, S, O), (N-3442: NH₂, 4-Br-Ph, S, O), (N-3443: NH₂, 5-Cl-thiophene-2-yl, S, O), (N-3444: NH₂, 3,4-diF-Ph, S, O), (N-3445: NH₂, 5-Br-thiophene-2-yl, S, O), (N-3446: NH₂, 3,4-diBr-Ph, S, O), (N-3447: NH₂, 4-CF₃-Ph, S, O), (N-3448: NH₂, 3-Cl-Ph, S, O), (N-3449: NH₂, 3-Br-Ph, S, O), (N-3450: NH₂, 3-F-Ph, S, O), (N-3451: CH₂COOMe, 4-F-Ph, S, O), (N-3452: CH₂COOMe, 4-Br-Ph, S, O), (N-3453: CH₂COOMe, 5-Cl-thiophene-2-yl, S, O), (N-3454: CH₂COOMe, 3,4-diF-Ph, S, O), (N-3455: CH₂COOMe, 5-Br-thiophene-2-yl, S, O), (N-3456: CH₂COOMe, 3,4-diBr-Ph, S, O), (N-3457: CH₂COOMe, 4-CF₃-Ph, S, O), (N-3458: CH₂COOMe, 3-Cl-Ph, S, O), (N-3459: CH₂COOMe, 3-Br-Ph, S, O), (N-3460: CH₂COOMe, 3-F-Ph, S, O), (N-3461: CH₂CH₂COOMe, 4-F-Ph, S, O), (N-3462: CH₂CH₂COOMe, 4-Br-Ph, S, O), (N-3463: CH₂CH₂COOMe, 5-Cl-thiophene-2-yl, S, O), (N-3464: CH₂CH₂COOMe, 3,4-diF-Ph, S, O), (N-3465: CH₂CH₂COOMe, 5-Br-thiophene-2-yl, S, O), (N-3466: CH₂CH₂COOMe, 3,4-diBr-Ph, S, O), (N-3467: CH₂CH₂COOMe, 4-CF₃-Ph, S, O), (N-3468: CH₂CH₂COOMe, 3-Cl-Ph, S, O), (N-3469: CH₂CH₂COOMe, 3-Br-Ph, S, O), (N-3470: CH₂CH₂COOMe, 3-F-Ph, S, O), (N-3471: CH₂COONH₂, 4-F-Ph, S, O), (N-3472: CH₂COONH₂, 4-Br-Ph, S, O), (N-3473: CH₂COONH₂, 5-Cl-thiophene-2-yl, S, O), (N-3474: CH₂COONH₂, 3,4-diF-Ph, S, O), (N-3475: CH₂COONH₂, 5-Br-thiophene-2-yl, S, O), (N-3476: CH₂COONH₂, 3,4-diBr-Ph, S, O), (N-3477: CH₂COONH₂, 4-CF₃-Ph, S, O), (N-3478: CH₂COONH₂, 3-Cl-Ph, S, O), (N-3479: CH₂COONH₂, 3-Br-Ph, S, O), (N-3480: CH₂COONH₂, 3-F-Ph, S, O), (N-3481: CH₂COONHCH₃, 4-F-Ph, S, O), (N-3482: CH₂COONHCH₃, 4-Br-Ph, S, O), (N-3483: CH₂COONHCH₃, 5-Cl-thiophene-2-yl, S, O), (N-3484: CH₂COONHCH₃, 3,4-diF-Ph, S, O), (N-3485: CH₂COONHCH₃, 5-Br-thiophene-2-yl, S, O), (N-3486: CH₂COONHCH₃, 3,4-diBr-Ph, S, O), (N-3487:

$\text{CH}_2\text{COONHCH}_3$, 4- CF_3 -Ph, S, O), (N-3488: $\text{CH}_2\text{COONHCH}_3$, 3-Cl-Ph, S, O),
 (N-3489: $\text{CH}_2\text{COONHCH}_3$, 3-Br-Ph, S, O), (N-3490: $\text{CH}_2\text{COONHCH}_3$, 3-F-Ph, S,
 O), (N-3491: $\text{CH}_2\text{CH}_2\text{Cl}$, 4-F-Ph, S, O), (N-3492: $\text{CH}_2\text{CH}_2\text{Cl}$, 4-Br-Ph, S, O),
 (N-3493: $\text{CH}_2\text{CH}_2\text{Cl}$, 5-Cl-thiophene-2-yl, S, O), (N-3494: $\text{CH}_2\text{CH}_2\text{Cl}$, 3,4-diF-
 Ph, S, O), (N-3495: $\text{CH}_2\text{CH}_2\text{Cl}$, 5-Br-thiophene-2-yl, S, O), (N-3496: $\text{CH}_2\text{CH}_2\text{Cl}$,
 3,4-diBr-Ph, S, O), (N-347: $\text{CH}_2\text{CH}_2\text{Cl}$, 4- CF_3 -Ph, S, O), (N-3498: $\text{CH}_2\text{CH}_2\text{Cl}$,
 3-Cl-Ph, S, O), (N-3499: $\text{CH}_2\text{CH}_2\text{Cl}$, 3-Br-Ph, S, O), (N-3500: $\text{CH}_2\text{CH}_2\text{Cl}$, 3-F-
 Ph, S, O), (N-3501: CONH_2 , 4-F-Ph, O, S), (N-3502: CONH_2 , 4-Br-Ph, O, S),
 (N-3503: CONH_2 , 5-Cl-thiophene-2-yl, O, S), (N-3504: CONH_2 , 3,4-diF-Ph, O,
 S), (N-3505: CONH_2 , 5-Br-thiophene-2-yl, O, S), (N-3506: CONH_2 , 3,4-diBr-Ph,
 O, S), (N-3507: CONH_2 , 4- CF_3 -Ph, O, S), (N-3508: CONH_2 , 3-Cl-Ph, O, S), (N-
 3509: CONH_2 , 3-Br-Ph, O, S), (N-3510: CONH_2 , 3-F-Ph, O, S), (N-3511:
 CO_2NHCH_3 , 4-F-Ph, O, S), (N-3512: CO_2NHCH_3 , 4-Br-Ph, O, S), (N-3513:
 CO_2NHCH_3 , 5-Cl-thiophene-2-yl, O, S), (N-3514: CO_2NHCH_3 , 3,4-diF-Ph, O, S),
 (N-3515: CO_2NHCH_3 , 5-Br-thiophene-2-yl, O, S), (N-3516: CO_2NHCH_3 , 3,4-
 diBr-Ph, O, S), (N-3517: CO_2NHCH_3 , 4- CF_3 -Ph, O, S), (N-3518: CO_2NHCH_3 ,
 3-Cl-Ph, O, S), (N-3519: CO_2NHCH_3 , 3-Br-Ph, O, S), (N-3520: CO_2NHCH_3 , 3-
 F-Ph, O, S), (N-3521: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 4-F-Ph, O, S), (N-3522: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 4-Br-
 Ph, O, S), (N-3523: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 5-Cl-thiophene-2-yl, O, S), (N-3524:
 $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3,4-diF-Ph, O, S), (N-3525: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 5-Br-thiophene-2-yl, O,
 S), (N-3526: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3,4-diBr-Ph, O, S), (N-3527: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 4- CF_3 -Ph,
 O, S), (N-3528: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3-Cl-Ph, O, S), (N-3529: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3-Br-Ph, O,
 S), (N-3530: $\text{CO}_2\text{N}(\text{CH}_3)_2$, 3-F-Ph, O, S), (N-3531: CO_2H , 4-F-Ph, O, S), (N-
 3532: CO_2H , 4-Br-Ph, O, S), (N-353: CO_2H , 5-Cl-thiophene-2-yl, O, S), (N-
 3534: CO_2H , 3,4-diF-Ph, O, S), (N-3535: CO_2H , 5-Br-thiophene-2-yl, O, S),
 (N-3536: CO_2H , 3,4-diBr-Ph, O, S), (N-3537: CO_2H , 4- CF_3 -Ph, O, S), (N-3538:
 CO_2H , 3-Cl-Ph, O, S), (N-3539: CO_2H , 3-Br-Ph, O, S), (N-3540: CO_2H , 3-F-Ph,

O, S), (N-3541: NH₂, 4-F-Ph, O, S), (N-3542: NH₂, 4-Br-Ph, O, S), (N-3543: NH₂, 5-Cl-thiophene-2-yl, O, S), (N-3544: NH₂, 3,4-diF-Ph, O, S), (N-3545: NH₂, 5-Br-thiophene-2-yl, O, S), (N-3546: NH₂, 3,4-diBr-Ph, O, S), (N-3547: NH₂, 4-CF₃-Ph, O, S), (N-3548: NH₂, 3-Cl-Ph, O, S), (N-3549: NH₂, 3-Br-Ph, O, S), (N-3550: NH₂, 3-F-Ph, O, S), N35-51: CH₂COOMe, 4-F-Ph, O, S), (N-3552: CH₂COOMe, 4-Br-Ph, O, S), (N-3553: CH₂COOMe, 5-Cl-thiophene-2-yl, O, S), (N-3554: CH₂COOMe, 3,4-diF-Ph, O, S), (N-3555: CH₂COOMe, 5-Br-thiophene-2-yl, O, S), (N-3556: CH₂COOMe, 3,4-diBr-Ph, O, S), (N-3557: CH₂COOMe, 4-CF₃-Ph, O, S), (N-3558: CH₂COOMe, 3-Cl-Ph, O, S), (N-3559: CH₂COOMe, 3-Br-Ph, O, S), (N-3560: CH₂COOMe, 3-F-Ph, O, S), (N-3561: CH₂CH₂COOMe, 4-F-Ph, O, S), (N-3562: CH₂CH₂COOMe, 4-Br-Ph, O, S), (N-3563: CH₂CH₂COOMe, 5-Cl-thiophene-2-yl, O, S), (N-3564: CH₂CH₂COOMe, 3,4-diF-Ph, O, S), (N-3565: CH₂CH₂COOMe, 5-Br-thiophene-2-yl, O, S), (N-3566: CH₂CH₂COOMe, 3,4-diBr-Ph, O, S), (N-3567: CH₂CH₂COOMe, 4-CF₃-Ph, O, S), (N-3568: CH₂CH₂COOMe, 3-Cl-Ph, O, S), (N-3569: CH₂CH₂COOMe, 3-Br-Ph, O, S), (N-3570: CH₂CH₂COOMe, 3-F-Ph, O, S), (N-3571: CH₂COONH₂, 4-F-Ph, O, S), (N-3572: CH₂COONH₂, 4-Br-Ph, O, S), (N-3573: CH₂COONH₂, 5-Cl-thiophene-2-yl, O, S), (N-3574: CH₂COONH₂, 3,4-diF-Ph, O, S), (N-3575: CH₂COONH₂, 5-Br-thiophene-2-yl, O, S), (N-3576: CH₂COONH₂, 3,4-diBr-Ph, O, S), (N-3577: CH₂COONH₂, 4-CF₃-Ph, O, S), (N-3578: CH₂COONH₂, 3-Cl-Ph, O, S), (N-3579: CH₂COONH₂, 3-Br-Ph, O, S), (N-3580: CH₂COONH₂, 3-F-Ph, O, S), (N-3581: CH₂COONHCH₃, 4-F-Ph, O, S), (N-3582: CH₂COONHCH₃, 4-Br-Ph, O, S), (N-3583: CH₂COONHCH₃, 5-Cl-thiophene-2-yl, O, S), (N-3584: CH₂COONHCH₃, 3,4-diF-Ph, O, S), (N-3585: CH₂COONHCH₃, 5-Br-thiophene-2-yl, O, S), (N-3586: CH₂COONHCH₃, 3,4-diBr-Ph, O, S), (N-3587: CH₂COONHCH₃, 4-CF₃-Ph, O, S), (N-3588: CH₂COONHCH₃, 3-Cl-Ph, O, S), (N-3589: CH₂COONHCH₃, 3-Br-Ph, O, S), (N-3590: CH₂COONHCH₃, 3-F-Ph, O,

S), (N-3591: CH₂CH₂Cl, 4-F-Ph, O, S), (N-3592: CH₂CH₂Cl, 4-Br-Ph, O, S),
 (N-3593: CH₂CH₂Cl, 5-Cl-thiophene-2-yl, O, S), (N-3594: CH₂CH₂Cl, 3,4-diF-
 Ph, O, S), (N-3595: CH₂CH₂Cl, 5-Br-thiophene-2-yl, O, S), (N-3596: CH₂CH₂Cl,
 3,4-diBr-Ph, O, S), (N-3597: CH₂CH₂Cl, 4-CF₃-Ph, O, S), (N-3598: CH₂CH₂Cl,
 3-Cl-Ph, O, S), (N-3599: CH₂CH₂Cl, 3-Br-Ph, O, S), (N-3600: CH₂CH₂Cl, 3-F-
 Ph, O, S), (N-3601: CONH₂, 4-F-Ph, O, O), (N-3602: CONH₂, 4-Br-Ph, O, O),
 (N-3603: CONH₂, 5-Cl-thiophene-2-yl, O, O), (N-3604: CONH₂, 3,4-diF-Ph, O,
 O), (N-3605: CONH₂, 5-Br-thiophene-2-yl, O, O), (N-3606: CONH₂, 3,4-diBr-Ph,
 O, O), (N-3607: CONH₂, 4-CF₃-Ph, O, O), (N-3608: CONH₂, 3-Cl-Ph, O, O),
 (N-3609: CONH₂, 3-Br-Ph, O, O), (N-3610: CONH₂, 3-F-Ph, O, O), (N-3611:
 CO₂NHCH₃, 4-F-Ph, O, O), (N-3612: CO₂NHCH₃, 4-Br-Ph, O, O), (N-3613:
 CO₂NHCH₃, 5-Cl-thiophene-2-yl, O, O), (N-3614: CO₂NHCH₃, 3,4-diF-Ph, O,
 O), (N-3615: CO₂NHCH₃, 5-Br-thiophene-2-yl, O, O), (N-3616: CO₂NHCH₃,
 3,4-diBr-Ph, O, O), (N-3617: CO₂NHCH₃, 4-CF₃-Ph, O, O), (N-3618:
 CO₂NHCH₃, 3-Cl-Ph, O, O), (N-3619: CO₂NHCH₃, 3-Br-Ph, O, O), (N-3620:
 CO₂NHCH₃, 3-F-Ph, O, O), (N-3621: CO₂N(CH₃)₂, 4-F-Ph, O, O), (N-3622:
 CO₂N(CH₃)₂, 4-Br-Ph, O, O), (N-3623: CO₂N(CH₃)₂, 5-Cl-thiophene-2-yl, O, O),
 (N-3624: CO₂N(CH₃)₂, 3,4-diF-Ph, O, O), (N-3625: CO₂N(CH₃)₂, 5-Br-
 thiophene-2-yl, O, O), (N-3626: CO₂N(CH₃)₂, 3,4-diBr-Ph, O, O), (N-3627:
 CO₂N(CH₃)₂, 4-CF₃-Ph, O, O), (N-3628: CO₂N(CH₃)₂, 3-Cl-Ph, O, O), (N-3629:
 CO₂N(CH₃)₂, 3-Br-Ph, O, O), (N-3630: CO₂N(CH₃)₂, 3-F-Ph, O, O), (N-3631:
 CO₂H, 4-F-Ph, O, O), (N-3632: CO₂H, 4-Br-Ph, O, O), (N-3633: CO₂H, 5-Cl-
 thiophene-2-yl, O, O), (N-3634: CO₂H, 3,4-diF-Ph, O, O), (N-3635: CO₂H, 5-
 Br-thiophene-2-yl, O, O), (N-3636: CO₂H, 3,4-diBr-Ph, O, O), (N-3637: CO₂H,
 4-CF₃-Ph, O, O), (N-3638: CO₂H, 3-Cl-Ph, O, O), (N-3639: CO₂H, 3-Br-Ph, O, O),
 (N-3640: CO₂H, 3-F-Ph, O, O), (N-3641: NH₂, 4-F-Ph, O, O), (N-3642: NH₂, 4-
 Br-Ph, O, O), (N-3643: NH₂, 5-Cl-thiophene-2-yl, O, O), (N-3644: NH₂, 3,4-

diF-Ph, O, O), (N-3645: NH₂, 5-Br-thiophene-2-yl, O, O), (N-3646: NH₂, 3,4-diBr-Ph, O, O), (N-3647: NH₂, 4-CF₃-Ph, O, O), (N-3648: NH₂, 3-Cl-Ph, O, O), (N-3649: NH₂, 3-Br-Ph, O, O), (N-3650: NH₂, 3-F-Ph, O, O), (N-3651: CH₂COOMe, 4-F-Ph, O, O), (N-3652: CH₂COOMe, 4-Br-Ph, O, O), (N-3653: CH₂COOMe, 5-Cl-thiophene-2-yl, O, O), (N-3654: CH₂COOMe, 3,4-diF-Ph, O, O), (N-3655: CH₂COOMe, 5-Br-thiophene-2-yl, O, O), (N-3656: CH₂COOMe, 3,4-diBr-Ph, O, O), (N-3657: CH₂COOMe, 4-CF₃-Ph, O, O), (N-3658: CH₂COOMe, 3-Cl-Ph, O, O), (N-3659: CH₂COOMe, 3-Br-Ph, O, O), (N-3660: CH₂COOMe, 3-F-Ph, O, O), (N-3661: CH₂CH₂COOMe, 4-F-Ph, O, O), (N-3662: CH₂CH₂COOMe, 4-Br-Ph, O, O), (N-3663: CH₂CH₂COOMe, 5-Cl-thiophene-2-yl, O, O), (N-3664: CH₂CH₂COOMe, 3,4-diF-Ph, O, O), (N-3665: CH₂CH₂COOMe, 5-Br-thiophene-2-yl, O, O), (N-3666: CH₂CH₂COOMe, 3,4-diBr-Ph, O, O), (N-3667: CH₂CH₂COOMe, 4-CF₃-Ph, O, O), (N-3668: CH₂CH₂COOMe, 3-Cl-Ph, O, O), (N-3669: CH₂CH₂COOMe, 3-Br-Ph, O, O), (N-3670: CH₂CH₂COOMe, 3-F-Ph, O, O), (N-3671: CH₂COONH₂, 4-F-Ph, O, O), (N-3672: CH₂COONH₂, 4-Br-Ph, O, O), (N-3673: CH₂COONH₂, 5-Cl-thiophene-2-yl, O, O), (N-3674: CH₂COONH₂, 3,4-diF-Ph, O, O), (N-3675: CH₂COONH₂, 5-Br-thiophene-2-yl, O, O), (N-3676: CH₂COONH₂, 3,4-diBr-Ph, O, O), (N-3677: CH₂COONH₂, 4-CF₃-Ph, O, O), (N-3678: CH₂COONH₂, 3-Cl-Ph, O, O), (N-3679: CH₂COONH₂, 3-Br-Ph, O, O), (N-3680: CH₂COONH₂, 3-F-Ph, O, O), (N-3681: CH₂COONHCH₃, 4-F-Ph, O, O), (N-3682: CH₂COONHCH₃, 4-Br-Ph, O, O), (N-3683: CH₂COONHCH₃, 5-Cl-thiophene-2-yl, O, O), (N-3684: CH₂COONHCH₃, 3,4-diF-Ph, O, O), (N-3685: CH₂COONHCH₃, 5-Br-thiophene-2-yl, O, O), (N-3686: CH₂COONHCH₃, 3,4-diBr-Ph, O, O), (N-3687: CH₂COONHCH₃, 4-CF₃-Ph, O, O), (N-3688: CH₂COONHCH₃, 3-Cl-Ph, O, O), (N-3689: CH₂COONHCH₃, 3-Br-Ph, O, O), (N-3690: CH₂COONHCH₃, 3-F-Ph, O, O), (N-3691: CH₂CH₂Cl, 4-F-Ph, O, O), (N-3692: CH₂CH₂Cl, 4-Br-Ph, O, O),

(N-3693: CH₂CH₂Cl, 5-Cl-thiophene-2-yl, O, O), (N-3694: CH₂CH₂Cl, 3,4-diF-Ph, O, O), (N-3695: CH₂CH₂Cl, 5-Br-thiophene-2-yl, O, O), (N-3696: CH₂CH₂Cl, 3,4-diBr-Ph, O, O), (N-3697: CH₂CH₂Cl, 4-CF₃-Ph, O, O), (N-3698: CH₂CH₂Cl, 3-Cl-Ph, O, O), (N-3699: CH₂CH₂Cl, 3-Br-Ph, O, O), (N-3700: CH₂CH₂Cl, 3-F-Ph, O, O), (N-3701: 4-NH₂-Ph, H, S, S), (N-3702: 4-N(Ac)H-Ph, H, S, S), (N-3703: 4-OH-Ph, H, S, S), (N-3704: 3,4-di(OH)₂-Ph, H, S, S), (N-3705: 3,4-di(NH₂)-Ph, H, S, S), (N-3706: 3:4-[N(Ac)H]₂-Ph, H, S, S), (N-3707: 4-SH-Ph, H, S, S), (N-3708: 4-SMe-Ph, H, S, S), (N-3709: 3,4-diBr-Ph, H, S, S), (N-3710: 4-N(Me)H-Ph, H, S, S), (N-3711: 4-N(Me)₂-Ph, H, S, S), (N-3712: 4-N(Me)₃⁺-Ph, H, S, S), (N-3713: 4-Et-Ph, H, S, S), (N-3714: 4-iPr-Ph, H, S, S), (N-3715: 4-nPr-Ph, H, S, S), (N-3716: 4-nBu-Ph, H, S, S), (N-3717: 4-iBu-Ph, H, S, S), (N-3718: 3,4-diMe-Ph, H, S, S), (N-3719: 1,3-Benzodioxole-5-yl, H, S, S), (N-3720: N-Me-pyridinium-4-yl, H, S, S), (N-3721: N-Me-pyridinium-3-yl, H, S, S), (N-3722: 5-Me-Pyridine-2-yl, H, S, S), (N-3723: 2-Pyrazinyl, H, S, S), (N-3724: 3-Pyrrolyl, H, S, S), (N-3725: 1-Me-pyrrole-3-yl, H, S, S), (N-3726: Pyridine N-oxide-4-yl, H, S, S), (N-3727: Pyridine N-oxide-3-yl, H, S, S), (N-3728: 6-OH-pyridine-3-yl, H, S, S), (N-3729: 6-SH-pyridine-3-yl, H, S, S), (N-3730: 1-Ac-pyrrole-3-yl, H, S, S), (N-3731: 4-CF₃-Ph, H, S, S), (N-3732: 4-CN-Ph, H, S, S), (N-3733: 4-CHO-Ph, H, S, S), (N-3734: 3-Cl-Ph, H, S, S), (N-3735: 3-Br-Ph, H, S, S), (N-3736: 3-F-Ph, H, S, S), (N-3737: 3-I-Ph, H, S, S), (N-3738: 4-I-Ph, H, S, S), (N-3739: 4-OCF₃-Ph, H, S, S), (N-3740: 3,4-diI-Ph, H, S, S), (N-3741: Indole-6-yl, H, S, S), (N-3742: 1-Ac-indole-6-yl, H, S, S), (N-3743: 1-Me-indole-6-yl, H, S, S), (N-3744: 4-(1-Imidazolyl)-Ph, H, S, S), (N-3745: 4-Morphorino-Ph, H, S, S), (N-3746: 4-(1-Piperazinyl)-Ph, H, S, S), (N-3747: 2:5-diMe-thiophene-3-yl, H, S, S), (N-3748: 2-Furyl, H, S, S), (N-3749: 5-Me-furan-2-yl, H, S, S), (N-3750: 5-Me-furan-2-yl, H, S, S), (N-3751: 2-Thiazolyl, H, S, S), (N-3752: 1:4-Benzodioxin-6-yl, H, S, S), (N-3753: Benzo[b]furan-2-yl,

H, S, S), (N-3754: 4-NH₂CH₂-Ph, H, S, S), (N-3755: 4-N(Me)HCH₂-Ph, H, S, S),
 (N-3756: 4-N(Me)₂CH₂-Ph, H, S, S), (N-3757: 6-Cl-pyridine-3-yl, H, S, S), (N-
 3758: 5,6-diCl-pyridine-3-yl, H, S, S), (N-3759: 5-Cl-pyridine-2-yl, H, S, S),
 (N-3760: 4:5-diCl-pyridine-2-yl, H, S, S), (N-3761: 4-ClCH₂-Bn, H, S, S), (N-
 3762: Bn, H, S, S), (N-3763: 4-Cl-Bn, H, S, S), (N-3764: 4-Br-Bn, H, S, S), (N-
 3765: 4-F-Bn, H, S, S), (N-3766: 3,4-diCl-Bn, H, S, S), (N-3767: 3,4-diBr-Bn, H,
 S, S), (N-3768: 3,4-diF-Bn, H, S, S), (N-3769: 4-Cl-Bz, H, S, S), (N-3770: 3,4-
 diCl-Bz, H, S, S), (N-3771: 4-Br-Bz, H, S, S), (N-3772: 3,4-diBr-Bz, H, S, S),
 (N-3773: 4-F-Bz, H, S, S), (N-3774: 3,4-diF-Bz, H, S, S), (N-3775: 4-NH₂-Ph, H,
 S, O), (N-3776: 4-N(Ac)H-Ph, H, S, O), (N-3777: 4-OH-Ph, H, S, O), (N-3778:
 3,4-di(OH)₂-Ph, H, S, O), (N-3779: 3,4-di(NH₂)-Ph, H, S, O), (N-3780: 3:4-
 [N(Ac)H]₂-Ph, H, S, O), (N-3781: 4-SH-Ph, H, S, O), (N-3782: 4-SMe-Ph, H, S,
 O), (N-3783: 3,4-diBr-Ph, H, S, O), (N-3784: 4-N(Me)H-Ph, H, S, O), (N-3785:
 4-N(Me)₂-Ph, H, S, O), (N-3786: 4-N(Me)₃⁺-Ph, H, S, O), (N-3787: 4-Et-Ph, H, S,
 O), (N-3788: 4-iPr-Ph, H, S, O), (N-3789: 4-nPr-Ph, H, S, O), (N-3790: 4-nBu-
 Ph, H, S, O), (N-3791: 4-iBu-Ph, H, S, O), (N-3792: 3,4-diMe-Ph, H, S, O), (N-
 3793: 1,3-Benzodioxole-5-yl, H, S, O), (N-3794: N-Me-pyridinium-4-yl, H, S, O),
 (N-3795: N-Me-pyridinium-3-yl, H, S, O), (N-3796: 5-Me-Pyridine-2-yl, H, S,
 O), (N-3797: 2-Pyrazinyl, H, S, O), (N-3798: 3-Pyrrolyl, H, S, O), (N-3799: 1-
 Me-pyrrole-3-yl, H, S, O), (N-3800: Pyridine N-oxide-4-yl, H, S, O), (N-3801:
 Pyridine N-oxide-3-yl, H, S, O), (N-3802: 6-OH-pyridine-3-yl, H, S, O), (N-
 3803: 6-SH-pyridine-3-yl, H, S, O), (N-3804: 1-Ac-pyrrole-3-yl, H, S, O), (N-
 3805: 4-CF₃-Ph, H, S, O), (N-3806: 4-CN-Ph, H, S, O), (N-3807: 4-CHO-Ph, H, S,
 O), (N-3808: 3-Cl-Ph, H, S, O), (N-3809: 3-Br-Ph, H, S, O), (N-3810: 3-F-Ph, H,
 S, O), (N-3811: 3-I-Ph, H, S, O), (N-3812: 4-I-Ph, H, S, O), (N-3813: 4-OCF₃-Ph,
 H, S, O), (N-3814: 3,4-diI-Ph, H, S, O), (N-3815: Indole-6-yl, H, S, O), (N-3816:
 1-Ac-indole-6-yl, H, S, O), (N-3817: 1-Me-indole-6-yl, H, S, O), (N-3818: 4-(1-

Imidazolyl)-Ph, H, S, O), (N-3819: 4-Morpholino-Ph, H, S, O), (N-3820: 4-(1-Piperazinyl)-Ph, H, S, O), (N-3821: 2:5-diMe-thiophene-3-yl, H, S, O), (N-3822: 2-Furyl, H, S, O), (N-3823: 5-Me-furan-2-yl, H, S, O), (N-3824: 5-Me-furan-2-yl, H, S, O), (N-3825: 2-Thiazolyl, H, S, O), (N-3826: 1:4-Benzodioxin-6-yl, H, S, O), (N-3827: Benzo[b]furan-2-yl, H, S, O), (N-3828: 4-NH₂CH₂-Ph, H, S, O), (N-3829: 4-N(Me)HCH₂-Ph, H, S, O), (N-3830: 4-N(Me)₂CH₂-Ph, H, S, O), (N-3831: 6-Cl-pyridine-3-yl, H, S, O), (N-3832: 5,6-diCl-pyridine-3-yl, H, S, O), (N-3833: 5-Cl-pyridine-2-yl, H, S, O), (N-3834: 4:5-diCl-pyridine-2-yl, H, S, O), (N-3835: 4-ClCH₂-Bn, H, S, O), (N-3836: Bn, H, S, O), (N-3837: 4-Cl-Bn, H, S, O), (N-3838: 4-Br-Bn, H, S, O), (N-3839: 4-F-Bn, H, S, O), (N-3840: 3,4-diCl-Bn, H, S, O), (N-3841: 3,4-diBr-Bn, H, S, O), (N-3842: 3,4-diF-Bn, H, S, O), (N-3843: 4-Cl-Bz, H, S, O), (N-3844: 3,4-diCl-Bz, H, S, O), (N-3845: 4-Br-Bz, H, S, O), (N-3846: 3,4-diBr-Bz, H, S, O), (N-3847: 4-F-Bz, H, S, O), (N-3848: 3,4-diF-Bz, H, S, O), (N-3849: 4-NO₂-Bn, H, S, O), (N-3850: 4-CN-Bn, H, S, O)

测试实施例 1

血栓形成素 (TP0) 的分离和纯化

5 从 R & D Systems 购买人 TP0 (hTP0) 和鼠科动物 TP0 (mTP0)。

测试实施例 2

含有化合物 (A-1)、(B-17) 和 (C-1) 的巨核细胞菌落的体外增强作用

10 我们检查化合物促进人祖细胞转变成成熟巨核细胞的差异的能力。将人骨髓细胞 (2×10^5 细胞) 置于 3cm 碟中, 在存在 1% 化合物 (A-1、B-17、C-1) 溶解在 10% 乙醇的条件下, 在 Iscove's Modified Dulbecco's 培养基上于甲基纤维素中培养。在 5% CO₂ 孵育器中于 37 °C 下孵育 7 天后, 计数巨核细胞菌落的数量。结果示于图 1。

测试实施例 3

15 化合物 (B-17) 的血栓形成活性

根据 Collins et al (J. Cell. Physiol., 137:293-298

(1988)) , 将与 TP0 相关的 BaF/hTPOR 细胞系用于测试本发明化合物 (B-17) 的血栓形成活性, 所述与 TP0 相关的 BaF/hTPOR 细胞系是通过将人 TP0 受体 (hTPOR) 引入到 BaF-B03 细胞中形成的。人 hTPOR 的 DNA 序列和编码肽序列已经描述在 Vigon et al(Proc. Natl. Acad. Sci. USA, 89:5640-5644 (1992)) 中。TP0 没有任何支持与白介素-3 有关的亲代细胞系 BaF-B03 增殖的能力。BAF/hTPOR 细胞保持在 RPMI 培养基和作为鼠科动物白介素-3(IL-3)源的 WEHI-3B 培养基中。洗涤这些细胞并在没有鼠科动物 IL-3 源的情况下再悬浮在 RPMI 培养基中; 然后在存在或不存在不同浓度的 hPTO 或本发明化合物的条件下, 以每孔 5×10^4 细胞的密度种在 96-孔微滴定孔板的每一个孔中。在 5% CO₂ 孵育器中于 37℃ 下孵育 20 小时, 向每一个孔中加入 10% WST-1 试剂 (Takara Biomedicals, 日本), 再孵育细胞 4 小时。测量 450nm 处的吸收率, 结果示于图 2。本发明化合物对不含 TPOR 表达的亲代细胞系 BaF-B03 的生长的作用示于图 3。本发明化合物对含有 TPOR 表达的 BaF-B03 的生长的作用示于图 4。表 24 给出了本发明被试化合物 ED₅₀ 的实例, 其中 ED₅₀ 是指显示最大血栓形成活性的浓度的一半。

表 24

化合物序号	ED ₅₀ (μM)	化合物序号	ED ₅₀ (μM)	化合物序号	ED ₅₀ (μM)
A-1	0.012	A-32	0.077	A-73	0.070
A-2	0.058	A-37	0.027	B-1	0.071
A-3	0.017	A-38	0.047	B-2	0.011
A-4	0.036	A-42	0.072	B-3	0.047
A-5	0.022	A-43	0.073	B-4	0.037
A-6	0.045	A-49	0.035	B-5	0.047
A-7	0.060	A-50	0.026	B-6	0.072
A-11	0.031	A-53	0.023	B-14	0.023
A-12	0.011	A-56	0.096	B-15	0.077
A-13	0.021	A-59	0.084	B-16	0.020
A-14	0.015	A-61	0.069	B-17	0.030
A-15	0.026	A-63	0.016	B-18	0.016
A-16	0.049	A-64	0.047	B-21	0.084
A-20	0.029	A-67	0.050	C-1	0.068
A-21	0.041	A-70	0.020	E-2	0.062
A-25	0.099	A-71	0.080	H-5	0.047
A-26	0.072	A-72	0.035		

测试实施例 4

化合物 (B-17) 通过 hPTOR 诱导的信号转导作用

Drachman et al (J. Biol. Chem., 270:4979-4982 (1995)) 报道, TPO 诱导 Jak2、Shc 和 c-Mpl 的酪氨酸磷酸化。为了比较 TPO 与本发明化合物的信号通道, 我们根据 Drachman 报道的方法, 通过激发化合物, 分析信号转导物的酪氨酸磷酸化作用。简要地, 将悬浮在不含 WEHI-3B 的 RPMI 培养基 (1×10^7 细胞/ml) 中的 BaF/hTPOR 细胞在 37℃ 下解育 4 小时。向细胞中加入 25ng/ml TPO 或 200nM 化合物 (B-17), 在 37℃ 下解育 10 分钟。利用 PBS 洗涤细胞两次, 然后将细胞溶解在由 1%Triton X-100 组成的缓冲液中。将样品置于离心其中旋转, 利用与胞外信号转导相关的蛋白质的抗体, 将上清液进行免疫沉淀反应。利用 SDS-聚丙烯酰胺胶电泳分离免疫复合物。通过电泳, 将蛋白质转移到硝基纤维素片上, 通过抗磷酸基酪氨酸抗体测定酪氨酸磷酸化的蛋白质。结果总结在表 25 中。

表25

	载体	化合物 (B-17)	TPO
Jak1	-	-	-
Jak2	-	+	+
Jak3	-	-	-
Tyk2	-	+	+
STAT1	-	-	-
STAT3	-	+	+
STAT5	-	+	+
STAT6	-	-	-
Mpl	-	+	+
Shc	-	+	+
Cbl	-	+	+
Vav	-	+	+
Ship	-	-	-
SHPTP2	-	+	+
PI3K	-	-	-
PLCy1	-	+	+
MAPK	-	+	+
SAPK	-	+	+
p38MAPK	-	+	+

如图 1 所示, 加入本发明化合物可以诱导形成巨核细胞菌落, 菌落的数量的增加取决于化合物的浓度。此结果表明, 本发明化合物可

以诱导人骨髓细胞差异，产生能够生成血小板的巨核细胞。

化合物以与剂量相关的方式支持与 TP0 有关的 BaF/hTPOR 增殖，其结果示于图 2。不含 TPOR 的亲代 BaF 细胞将不会被化合物引起增殖，其结果示于图 3。含有鼠科动物 TPOR 表达的 BaF/mTPOR 将不会被化合物引起增殖，其结果示于图 4。这些结果表明，由于本发明化合物仅仅在表达为 hTPOR 的细胞中具有活性，因此所述化合物通过与 hTPOR 相互作用而具有血栓形成活性。

如表 25 所示，化合物诱导下列与 TP0 相同的胞外信号转导分子发生磷酸化作用：Jak2、Tyk2、STAT3、STAT5、Shc、Vav、SHPTP2、Mpl、PLC γ 1、Cbl、MAPK、SAPK 及 p38MAPK。由此可见，通过刺激与 TP0 相同的信号转导路径，化合物引起了血栓形成活性。

制剂实施例

制剂实施例 1

利用下列成分制备颗粒剂。

成分	式 (I) 化合物	10mg
	乳糖	700mg
	玉米淀粉	274mg
	HPC-L	16mg
	1000mg	

将式 (I) 化合物和乳糖通过 60 目筛，玉米淀粉通过 120 目筛。将其在双壳掺混机中混合。向混合物中加入 HPC-L (低粘度羟丙基纤维素) 水溶液，捏和所得混合物，成粒 (通过孔径为 0.5 至 1mm 目筛挤出) 并干燥。干燥的颗粒由此通过摆动筛 (12/60 目) 过筛，得到颗粒剂。

制剂实施例 2

利用下列成分制备填充胶囊的粉末。

成分	式 (I) 化合物	10mg
	乳糖	79mg
	玉米淀粉	10mg
	硬脂酸镁	1mg
	100mg	

- 5 将式 (I) 化合物和乳糖通过 60 目筛, 玉米淀粉通过 120 目筛。将这些成分与硬脂酸镁一起在双壳掺混机中混合。将 10 倍研磨的 100mg 填入 No. 5 硬明胶胶囊中。

制剂实施例 3

利用下列成分制备填充胶囊的粉末。

10

成分	式 (I) 化合物	15mg
	乳糖	90mg
	玉米淀粉	42mg
	HPC-L	3mg
	150mg	

- 15 将式 (I) 化合物和乳糖通过 60 目筛, 玉米淀粉通过 120 目筛。将其混合后, 向混合物中加入 HPC-L 水溶液, 所得混合物进行捏合、成粒并干燥。在润滑干燥的颗粒后, 将 150mg 所得混合物填入 No. 4 硬明胶胶囊中。

制剂实施例 4

利用下列成分制备片剂。

成分	式 (I) 化合物	10mg
	乳糖	90mg
	微晶纤维素	30mg
	CMC-Na	15mg
	硬脂酸镁	5mg
		150mg

- 5 将式 (I) 化合物、乳糖微晶纤维素和 CMC-Na (羧甲基纤维素钠盐) 通过 60 目筛, 然后混合。所得混合物与硬脂酸镁混合, 得到可用于片剂的混合粉末。压缩混合粉末, 得到 150mg 片剂。

工业实用性

- 10 本发明化合物具有血栓形成素受体拮抗作用, 可用于伴有非正常数量血小板的血液病 (如血小板减少症等) 的治疗剂或预防剂。

说明书附图

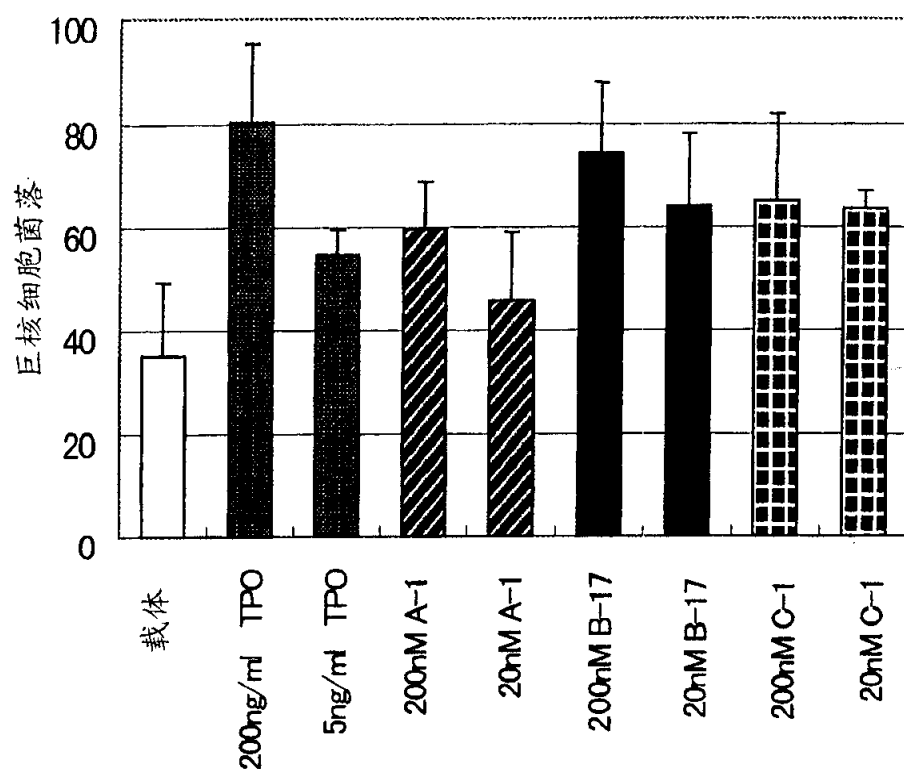


图 1

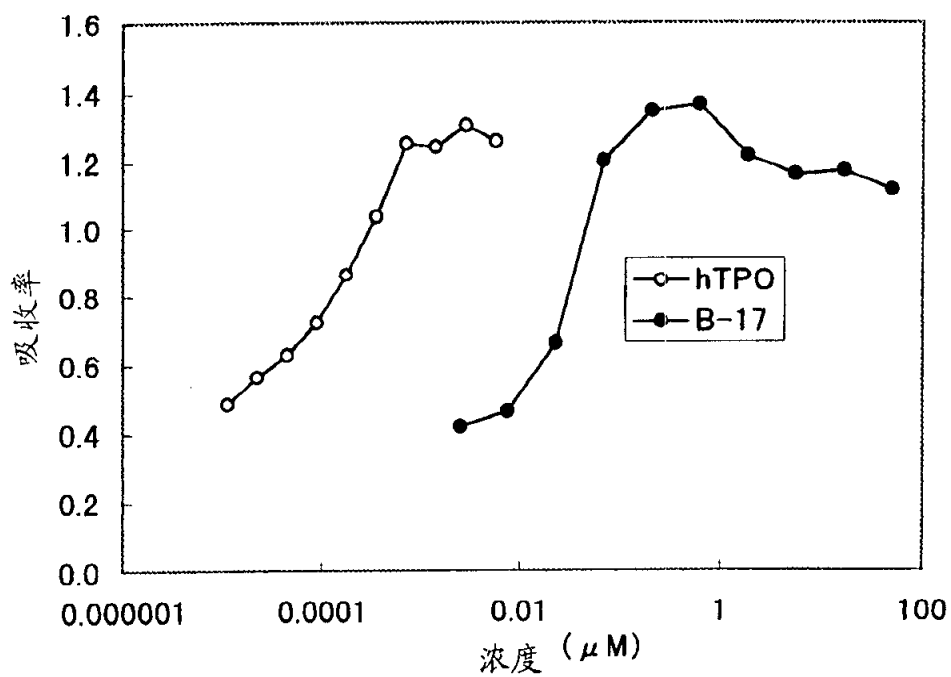


图 2

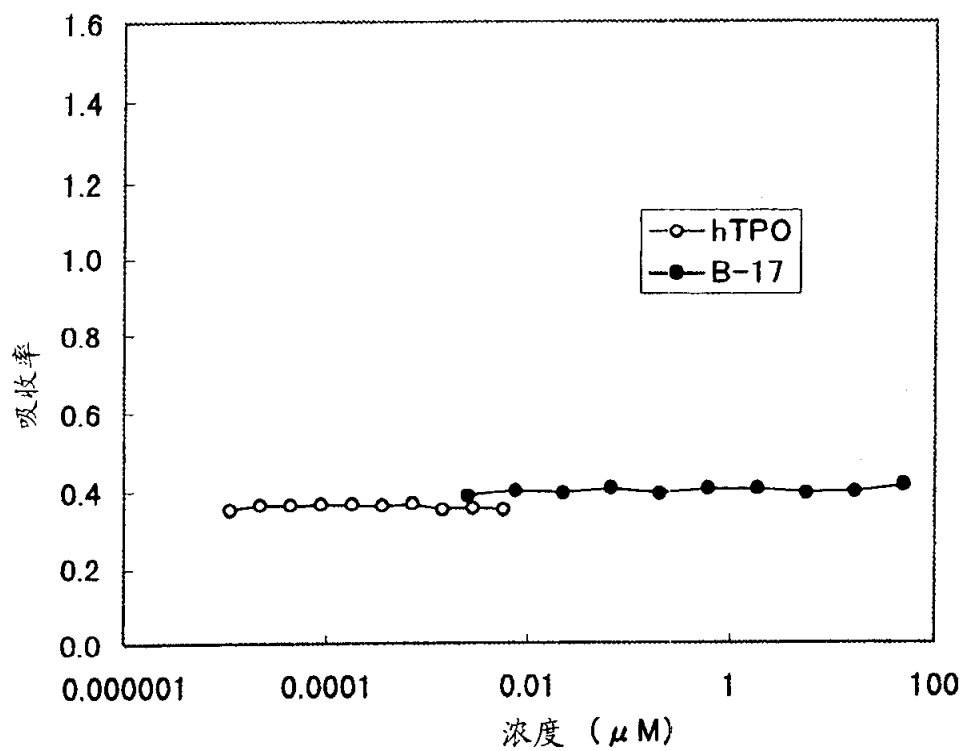


图 3

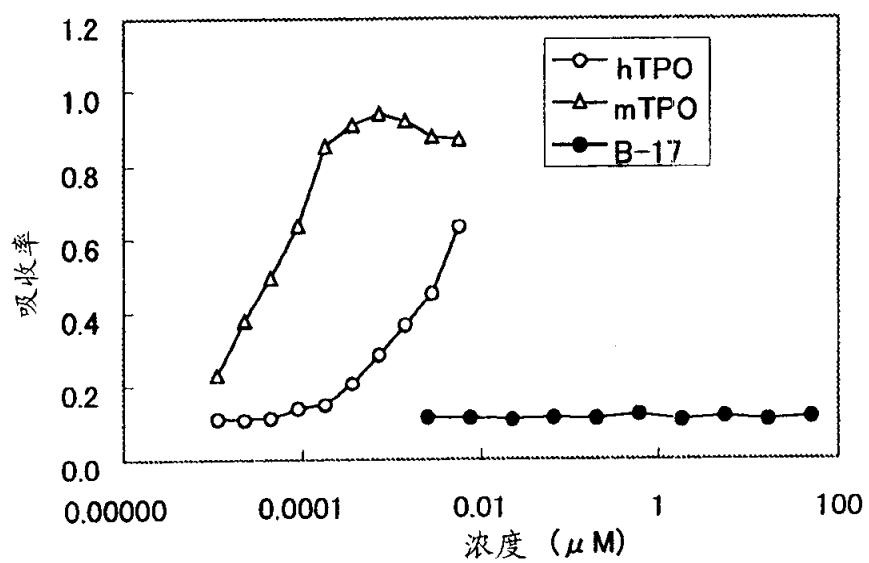


图 4