## Unconditional amendments to EP (UK) 2 322 155:

- 1. A structural mimetic of 2-oxoglutarate that inhibits hypoxia inducible factor (HIF) prolyl hydroxylase activity for use in treating anemia in a subject having a percent transferrin saturation of less than 20%.
- 2. The mimetic of claim 1 for the use of that claim, wherein the subject has a percent transferrin saturation of less than 16% in adults.
- 3A. The mimetic of claim 1 or claim 2 for use of that claim, wherein the anemia is anemia of chronic disease.
- 2-3B. The mimetic of claim 43A for the use of that claim, wherein the anemia is anemia of chronic disease is associated with a condition selected from the group consisting of an inflammation, and infection, an immunodeficiency disorder, and a neoplastic disorder.
- 3-4A. The mimetic of claim 43 for the use of that claim, wherein the anemia is anemia of chronic disease is associated with a condition selected from the group consisting of autoimmune disease, microcytosis, malignancy, rheumatoid arthritis, rheumatic fever, inflammatory bowel disease, ulcerative colitis, systemic lupus erythematosus, vasculitis, and chronic infection.
- 4-<u>5A</u>. The mimetic of claim 1 <u>or 2</u> for the use of that claim, wherein the anemia is associated with iron deficiency.
- 5-6A. The mimetic of claim 4-5 for the use of that claim, wherein the iron deficiency is functional iron deficiency.
- 6 7. The mimetic of claim 1 for the use of that claim, wherein the anemia is associated with hepatitis C virus infection, interferon a therapy for hepatitis C virus infection, or ribavirin therapy for hepatitis C virus infection.

7-8A. The mimetic of any one of claims 1 to, 4, 5 or 6, for the use of that claim, wherein the mimetic is a compound of Formula I:

$$\begin{array}{c} R^1 \\ Q - R^4 \\ Y \\ N \end{array} \qquad \qquad (I)$$

## wherein

A is 1,2-arylidene, 1,3-arylidene, 1,4-arylidene; or (C<sub>1</sub>-C<sub>4</sub>)-alkylene, optionally substituted by one or two halogen, cyano, nitro, trifluoromethyl, (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>6</sub>)hydroxyalkyl,  $(C_1-C_6)$ -alkoxy,  $-O_1[CH_2]_x-C_1H_{(2f+1-g)}Hal_g$ ,  $(C_1-C_6)$ -fluoroalkoxy,  $(C_1-C_8)$ fluoroalkenyloxy, (C<sub>1</sub>-C<sub>8</sub>)-fluoroalkynyloxy, -OCF<sub>2</sub>CI, -O-CF<sub>2</sub>-CHFCI; (C<sub>1</sub>-C<sub>6</sub>)alkylmercapto, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfinyl, (C<sub>1</sub>-C<sub>6</sub>)-alkylsulfonyl, (C<sub>1</sub>-C<sub>6</sub>)-alkylcarbonyl, (C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl, carbamoyl, N-(C<sub>1</sub>-C<sub>4</sub>)-alkylcarbamoyl, N,N-di-(C<sub>1</sub>-C<sub>4</sub>)alkylcarbamoyl, (C<sub>1</sub>-C<sub>6</sub>)-alkylcarbonyloxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, phenyl, benzyl, phenoxy, benzyloxy, anilino, N-methylanilino, phenylmercapto, phenylsulfonyl, phenylsulfinyl, sulfamoyl, N-(C<sub>1</sub>-C<sub>4</sub>)-alkylsulfamoyl, N,N-di-(C<sub>1</sub>-C<sub>4</sub>)-alkylsulfamoyl; or by a substituted ( $C_6$ - $C_{12}$ )-aryloxy, ( $C_7$ - $C_{11}$ )-aralkyloxy, ( $C_6$ - $C_{12}$ )-aryl, ( $C_7$ - $C_{11}$ )-aralkyl radical, which carries in the aryl moiety one to five identical or different substituents selected from halogen, cyano, nitro, trifluoromethyl, (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy, -O- $[CH_2]_x$ - $C_fH_{(2f+1-a)}Hal_a$ , -OCF<sub>2</sub>CI, -O-CF<sub>2</sub>-CHFCI, (C<sub>1</sub>-C<sub>6</sub>)-alkylmercapto, (C<sub>1</sub>-C<sub>6</sub>)alkylsulfinyl,  $(C_1-C_6)$ -alkylsulfonyl,  $(C_1-C_6)$ -alkylcarbonyl,  $(C_1-C_6)$ -alkoxycarbonyl, carbamoyl, N-(C<sub>1</sub>-C<sub>4</sub>)-alkylcarbamoyl, N,N-di-(C<sub>1</sub>-C<sub>4</sub>)-alkylcarbamoyl, (C<sub>1</sub>-C<sub>6</sub>)alkylcarbonyloxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, sulfamoyl, N-(C<sub>1</sub>-C<sub>4</sub>)-alkylsulfamoyl, N,N-di-(C<sub>1</sub>-C<sub>4</sub>)-alkylsulfamoyl; or wherein A is -CR<sup>5</sup>R<sup>6</sup> and R<sup>5</sup> and R<sup>6</sup> are each independently selected from hydrogen, (C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>3</sub>-C<sub>7</sub>)-cycloalkyl, aryl, or a substituent of the

 $\alpha$ -carbon atom of an  $\alpha$ -amino acid, wherein the amino acid is a natural L-amino acid or its D-isomer.

B is -CO<sub>2</sub>H<sub>1</sub>, -NH<sub>2</sub>, -NHSO<sub>2</sub>CF<sub>3</sub>, tetrazolyl, imidazolyl, 3-hydroxyisoxazolyl, -CONHCOR", -CONHSOR", CONHSO<sub>2</sub>R", where R" is aryl, heteroaryl, (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl, or  $(C_1-C_4)$ -alkyl, optionally monosubstituted by  $(C_6-C_{12})$ -aryl, heteroaryl, OH, SH,  $(C_1-C_4)$ -alkyl,  $(C_1-C_4)$ -alkoxy,  $(C_1-C_4)$ -thioalkyl,  $(C_1-C_4)$ -sulfinyl,  $(C_1-C_4)$ sulfonyl, CF<sub>3</sub>, Cl, Br, F, I, NO2, -COOH, (C<sub>2</sub>-C<sub>5</sub>)-alkoxycarbonyl, NH<sub>2</sub>, mono-(C<sub>1</sub>-C<sub>4</sub>alkyl)-amino, di-(C<sub>1</sub>-C<sub>4</sub>-alkyl)-amino, or (C<sub>1</sub>-C<sub>4</sub>)-perfluoroalkyl; or wherein B is a CO<sub>2</sub>-G carboxyl radical, where G is a radical of an alcohol G-OH in which G is selected from (C<sub>1</sub>-C<sub>20</sub>)-alkyl radical, (C<sub>3</sub>-C<sub>8</sub>) cycloalkyl radical, (C<sub>2</sub>-C<sub>20</sub>)-alkenyl radical, (C<sub>3</sub>-C<sub>8</sub>)cycloalkenyl radical, retinyl radical, (C<sub>2</sub>-C<sub>20</sub>)-alkynyl radical, (C<sub>4</sub>-C<sub>20</sub>)-alkenynyl radical, where the alkenyl, cycloalkenyl, alkynyl, and alkenynyl radicals contain one or more multiple bonds; (C<sub>6</sub>-C<sub>16</sub>)-carbocyclic aryl radical, (C<sub>7</sub>-C<sub>16</sub>)-carbocyclic aralkyl radical, heteroaryl radical, or heteroaralkyl radical, wherein a heteroaryl radical or heteroaryl moiety of a heteroaralkyl radical contains 5 or 6 ring atoms; and wherein radicals defined for G are substituted by one or more hydroxyl, halogen, cyano, trifluoromethyl, nitro, carboxyl, (C<sub>1</sub>-C<sub>12</sub>)-alkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>5</sub>-C<sub>8</sub>)-cycloalkenyl,  $(C_6-C_{12})$ -aryl,  $(C_7-C_{16})$ -aralkyl,  $(C_2-C_{12})$ -alkenyl,  $(C_2-C_{12})$ -alkynyl,  $(C_1-C_{12})$ -alkoxy,  $(C_1-C_1)$ -al  $C_{12}$ )-alkoxy- $(C_1-C_{12})$ -alkyl,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxy,  $(C_6-C_{12})$ -aryloxy,  $(C_7-C_{16})$ aralkyloxy,  $(C_1-C_8)$ -hydroxyalkyl,  $-O-[CH_2]_x-C_fH_{(2f+1-g)}-F_g$ ,  $-OCF_2CI$ ,  $-OCF_2-CHFCI$ ,  $(C_1-C_8)$ -hydroxyalkyl,  $-O-[CH_2]_x-C_fH_{(2f+1-g)}-F_g$ ,  $-OCF_2CI$ ,  $-OCF_2-CHFCI$ ,  $(C_1-C_8)$ -hydroxyalkyl,  $-O-[CH_2]_x-C_fH_{(2f+1-g)}-F_g$ ,  $-OCF_2CI$ ,  $-OCF_2-CHFCI$ ,  $-OCF_$  $C_{12}$ )-alkylcarbonyl, ( $C_3$ - $C_8$ )-cycloalkylcarbonyl, ( $C_6$ - $C_{12}$ )-arylcarbonyl, ( $C_7$ - $C_{16}$ )aralkylcarbonyl, cinnamoyl, (C<sub>2</sub>-C<sub>12</sub>)-alkenylcarbonyl, (C<sub>2</sub>-C<sub>12</sub>)-alkynylcarbonyl, (C<sub>1</sub>- $C_{12}$ )-alkoxycarbonyl, ( $C_1$ - $C_{12}$ )-alkoxy-( $C_1$ - $C_{12}$ )-alkoxycarbonyl, ( $C_6$ - $C_{12}$ )aryloxycarbonyl, (C<sub>7</sub>-C<sub>16</sub>)-aralkoxycarbonyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkoxycarbonyl, (C<sub>2</sub>-C<sub>12</sub>)alkenyloxycarbonyl, (C2-C12)-alkynyloxycarbonyl, acyloxy, (C1-C12)alkoxycarbonyloxy,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxycarbonyloxy,  $(C_6-C_{12})$ aryloxycarbonyloxy, (C<sub>7</sub>-C<sub>16</sub>) aralkyloxycarbonyloxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkoxycarbonyloxy,

(C<sub>2</sub>-C<sub>12</sub>)-alkenyloxycarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkynyloxycarbonyloxy, carbamoyl, N-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyl, N.N-di(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyl, N-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl-carbamoyl,  $N-(C_6-C_{16})$ -arylcarbamoyl,  $N-(C_7-C_{16})$ -aralkylcarbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_6-C_{16})$ arylcarbamoyl, N-( $C_1$ - $C_{10}$ )-alkyl-N-( $C_7$ - $C_{16}$ )-aralkylcarbamoyl, N-(( $C_1$ - $C_{10}$ )-alkoxy-( $C_1$ - $C_{10}$ )-alkyl)-carbamoyl,  $N-((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ alkyl)-carbamoyl,  $N-((C_7-C_{16})$ aralkyloxy- $(C_1-C_{10})$ -alkyl)-carbamoyl, N- $(C_1-C_{10})$ -alkyl-N- $((C_1-C_{10})$ -alkoxy- $(C_1-C_{10})$ alkyl)-carbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-((C_6-C_{16})$ -aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_1-C_1)$ -alkyl-N $(C_1-C_{10})$ -alkyl-N- $((C_7-C_{16})$ -aralkyloxy- $(C_1-C_{10})$ -alkyl)-carbamoyl, carbamoyloxy, N- $(C_1-C_1)$ -alkyl- $((C_1-C_1)$ - $((C_1-C_1)$ -alkyl- $((C_1-C_1)$ -alkyl- $((C_1-C_1)$ - $((C_1-C_1)$ C<sub>12</sub>)-alkylcarbamoyloxy, N.N-di-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyloxy, N-(C<sub>3</sub>-C<sub>8</sub>)cycloalkylcarbamoyloxy, N-(C<sub>6</sub>-C<sub>12</sub>)-arylcarbamoyloxy, N-(C<sub>7</sub>-C<sub>16</sub>)aralkylcarbamoyloxy, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl-N-(C<sub>6</sub>-C<sub>12</sub>)-arylcarbamoyloxy, N(C<sub>1</sub>-C<sub>10</sub>)-alkyl- $N-(C_7-C_{16})$ -aralkylcarbamoyloxy,  $N-((C_1-C_{10})$ -alkyl)-carbamoyloxy,  $N-((C_6-C_{12})$ aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy, N- $((C_7-C_{16})$ -aralkyloxy- $(C_1-C_{10})$ -alkyl)carbamoyloxy,  $N-(C_1-C_{10})$ -alkyl- $N-((C_1-C_{10})$ -alkoxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy,  $N-(C_1-C_{10})$ -alkyl- $N-(C_1-C_{10})$ -alkyl- $N-(C_1-C_1)$ -alkyl- $(C_1-C_{10})$ -alkyl-N- $((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy, N- $(C_1-C_{10})$ -alkyl-N-((C<sub>7</sub>-C<sub>16</sub>)-aralkyloxy-(C<sub>1</sub>-C<sub>10</sub>)-alkyl)-carbamoyloxy, amino, (C<sub>1</sub>-C<sub>12</sub>)-alkylamino, di-(C<sub>1</sub>- $C_{12}$ )-alkylamino, ( $C_3$ - $C_8$ )-cycloalkylamino, ( $C_2$ - $C_{12}$ )-alkenylamino, ( $C_2$ - $C_{12}$ )alkynylamino, N-(C<sub>6</sub>-C<sub>12</sub>)-arylamino, N-(C-C<sub>11</sub>)-aralkylamino, N-alkyl-aralkylamino, Nalkyl-arylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkoxyamino, (C<sub>1</sub>-C<sub>12</sub>)-alkoxy-N-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino, (C<sub>1</sub>- $C_{12}$ )-alkylcarbonylamino, ( $C_3$ - $C_8$ )-cycloalkylcarbonylamino, ( $C_6$ - $C_{12}$ ) arylcarbonylamino, (C<sub>7</sub>-C<sub>16</sub>)-aralkylcarbonylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkylcarbonyl-N-(C<sub>1</sub>-C<sub>10</sub>)alkylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbonyl-N-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino, (C<sub>6</sub>-C<sub>12</sub>)-arylcarbonyl- $N-(C_1-C_{10})$ alkylamino,  $(C_7-C_{11})$ -aralkylcarbonyl- $N-(C_1-C_{10})$ -alkylamino,  $(C_1-C_{12})$ alkylcarbonylamino-(C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbonylamino-(C<sub>1</sub>-C<sub>8</sub>)alkyl, (C<sub>6</sub>- $C_{12}$ )-arylcarbonylamino- $(C_1-C_8)$ -alkyl,  $(C_7-C_{12})$ -aralkylcarbonylamino $(C_1-C_8)$ -alkyl, amino- $(C_1-C_{10})$ -alkyl, N- $(C_1-C_{10})$  alkylamino- $(C_1-C_{10})$ -alkyl, N.N-di- $(C_1-C_{10})$ alkylamino- $(C_1-C_{10})$ -alkyl,  $(C_3-C_8)$ cycloalkylamino- $(C_1-C_{10})$ -alkyl,  $(C_1-C_{12})$ alkylmercapto,  $(C_1-C_{12})$ -alkylsulfinyl,  $(C_1-C_{12})$ -alkylsulfonyl,  $(C_6-C_{16})$ -arylmercapto,

 $(C_6-C_{16})$ -arylsulfinyl,  $(C_6-C_{12})$ -arylsulfonyl,  $(C_7-C_{16})$ -aralkylmercapto,  $(C_7-C_{16})$ aralkylsulfinyl, (C<sub>7</sub>-C<sub>16</sub>)-aralkylsulfonyl, sulfamoyl, N-(C<sub>1</sub>-C<sub>10</sub>)-alkylsulfamoyl, N.Ndi(C<sub>1</sub>-C<sub>10</sub>)-alkylsulfamoyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylsulfamoyl, N-(C<sub>6</sub>-C<sub>12</sub>)-alkylsulfamoyl, N- $(C_7-C_{16})$ -aralkylsulfamoyl, N- $(C_1-C_{10})$ -alkyl-N- $(C_6-C_{12})$ -arylsulfamoyl, N- $(C_1-C_{10})$ -alkyl- $N-(C_7-C_{16})$ -aralkylsulfamoyl,  $(C_1-C_{10})$ -alkylsulfonamido,  $N-((C_1-C_{10})$ -alkyl)- $(C_1-C_{10})$ alkylsulfonamido,  $(C_7-C_{16})$ -aralkylsulfonamido, or N- $((C_1-C_{10})$ -alkyl- $(C_7-C_{16})$ aralkylsulfonamido; wherein radicals which are aryl or contain an aryl moiety, may be substituted on the aryl by one to five identical or different hydroxyl, halogen, cyano, trifluoromethyl, nitro, carboxyl, (C<sub>1</sub>-C<sub>12</sub>)-alkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkyl, (C<sub>6</sub>-C<sub>12</sub>)-aryl, (C<sub>7</sub>- $C_{16}$ )-aralkyl,  $(C_1-C_{12})$ -alkoxy,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ alkyl,  $(C_1-C_{12})$ -alkoxy- $(C_1$  $C_{12}$ )alkoxy, ( $C_6$ - $C_{12}$ )-aryloxy, ( $C_7$ - $C_{16}$ )-aralkyloxy, ( $C_1$ - $C_8$ )-hydroxyalkyl, ( $C_1$ - $C_{12}$ )alkylcarbonyl,  $(C_3-C_8)$ -cycloalkyl-carbonyl,  $(C_6-C_{12})$ -arylcarbonyl,  $(C_7-C_{16})$ aralkylcarbonyl,  $(C_1-C_{12})$ -alkoxycarbonyl,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxycarbonyl,  $(C_6-C_{12})$ -aryloxycarbonyl,  $(C_7-C_{16})$ -aralkoxycarbonyl,  $(C_3-C_8)$ -cycloalkoxycarbonyl,  $(C_2-C_{12})$ -alkenyloxycarbonyl,  $(C_2-C_{12})$ -alkynyloxycarbonyl,  $(C_1-C_{12})$ -alkylcarbonyloxy,  $(C_3-C_8)$ -cycloalkylcarbonyloxy,  $(C_6-C_{12})$ -arylcarbonyloxy,  $(C_7-C_{16})$ -aralkylcarbonyloxy, cinnamoyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkenylcarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkynylcarbonyloxy, (C<sub>1</sub>-C<sub>12</sub>)alkoxycarbonyloxy,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxycarbonyloxy,  $(C_6-C_{12})$ aryloxycarbonyloxy, (C<sub>7</sub>-C<sub>16</sub>)-aralkyloxycarbonyloxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkoxycarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkenyloxycarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkynyloxycarbonyloxy, carbamoyl, N-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyl, N.N-di-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyl, N-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbamoyl,  $N-(C_6-C_{12})$ -arylcarbamoyl,  $N-(C_7-C_{16})$ -aralkylcarbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_6-C_{12})$ arylcarbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_7-C_{16})$ -aralkylcarbamoyl,  $N-((C_1-C_{10})$ -alkoxy- $(C_1-C_1)$ -alky- $(C_1-C_1)$ -alky-(C $C_{10}$ )-alkyl)-carbamoyl,  $N-((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyl,  $N-((C_7-C_{16})$ aralkyloxy- $(C_1-C_{10})$ -alkyl)-carbamoyl, N- $(C_1-C_{10})$ -alkyl-N- $((C_1-C_{10})$ -alkoxy- $(C_1-C_{10})$ alkyl)-carbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_1-C_1)$ - $N-(C_1-C_1)$ -alkyl- $N-(C_1-C_1)$ - $N-(C_1-C_1)$  $(C_1-C_{10})$ -alkyl-N- $((C_7-C_{16})$ -aralkyloxy- $(C_1-C_{10})$ -alkyl)-carbamoyl, carbamoyloxy, N- $(C_1-C_{10})$ -alkyl-N- $(C_1-C_1)$ -C<sub>12</sub>)-alkylcarbamoyloxy, N.N-di-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyloxy, N-(C<sub>3</sub>-C<sub>8</sub>)-

cycloalkylcarbamoyloxy, N-(C<sub>6</sub>-C<sub>12</sub>)-arylcarbamoyloxy, N-(C<sub>7</sub>-C<sub>16</sub>)aralkylcarbamoyloxy,  $N-(C_1-C_{10})$ -alkyl- $N-(C_6-C_{12})$ -arylcarbamoyloxy,  $N(C_1-C_{10})$ -alkyl- $N-(C_7-C_{16})$ -aralkylcarbamoyloxy,  $N-((C_1-C_{10})$ -alkyl)-carbamoyloxy,  $N-((C_6-C_{12})$ aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy, N- $((C_7-C_{16})$ -aralkyloxy- $(C_1-C_{10})$ -alkyl)carbamoyloxy, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl-N-((C<sub>1</sub>-C<sub>10</sub>)-alkoxy-(C<sub>1</sub>-C<sub>10</sub>)-alkyl)-carbamoyloxy, N- $(C_1-C_{10})$ -alkyl-N- $((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy, N- $(C_1-C_{10})$ -alkyl-N-((C<sub>7</sub>-C<sub>16</sub>)-aralkyloxy-(C<sub>1</sub>-C<sub>10</sub>)-alkyl)-carbamoyloxy, amino, (C<sub>1</sub>-C<sub>12</sub>)-alkylamino, di-(C<sub>1</sub>- $C_{12}$ )-alkylamino, ( $C_3$ - $C_8$ )-cycloalkylamino, ( $C_3$ - $C_{12}$ )-alkenylamino, ( $C_3$ - $C_{12}$ )alkynylamino, N-(C<sub>6</sub>-C<sub>12</sub>)-arylamino, N-(C<sub>7</sub>-C<sub>11</sub>)-aralkylamino, N-alkylaralkylamino, Nalkyl-arylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkoxyamino, (C<sub>1</sub>-C<sub>12</sub>)-alkoxy-N-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkylcarbonylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbonylamino, (C<sub>6</sub>-C<sub>12</sub>)arylcarbonylamino, (C<sub>7</sub>-C<sub>16</sub>)-alkylcarbonylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkylcarbonyl-N-(C<sub>1</sub>-C<sub>10</sub>)alkylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbonyl-N-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino, (C<sub>6</sub>-C<sub>12</sub>)-arylcarbonyl- $N-(C_1-C_{10})$ -alkylamino,  $(C_7-C_{11})$ -aralkylcarbonyl- $N-(C_1-C_{10})$ -alkylamino,  $(C_1-C_{12})$ alkylcarbonylamino-(C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbonylamino-(C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>6</sub>- $C_{12}$ )-arylcarbonylamino- $(C_1-C_8)$ -alkyl,  $(C_7-C_{16})$ -aralkylcarbonylamino- $(C_1-C_8)$ -alkyl, amino-(C<sub>1</sub>-C<sub>10</sub>)-alkyl, N-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino-(C<sub>1</sub>-C<sub>10</sub>)alkyl, N.N-di-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino- $(C_1-C_{10})$ -alkyl,  $(C_3-C_8)$ -cycloalkylamino- $(C_1-C_{10})$ -alkyl,  $(C_1-C_{12})$ -alkylmercapto,  $(C_1-C_{10})$ -alkyl,  $(C_1-C_{12})$ -alkylmercapto,  $(C_1-C_{10})$ -alkyl,  $(C_1-C_{12})$ -alkylmercapto,  $(C_1-C_{10})$ -alkyl,  $(C_1-C_{12})$ -alkylmercapto,  $(C_1-C_{10})$ -al C<sub>12</sub>)-alkylsulfinyl, (C<sub>1</sub>-C<sub>12</sub>)-alkylsulfonyl, (C<sub>6</sub>-C<sub>12</sub>)-arylmercapto, (C<sub>6</sub>-C<sub>12</sub>)-arylsulfinyl, (C<sub>6</sub>-C<sub>12</sub>)-arylsulfonyl, (C<sub>7</sub>-C<sub>16</sub>)-aralkylmercapto, (C<sub>7</sub>-C<sub>16</sub>)-aralkylsulfinyl, or (C<sub>7</sub>-C<sub>16</sub>)aralkylsulfonyl;

X is O or S;

Q is O, S, NR', or a bond;

where, if Q is a bond, R<sup>4</sup> is halogen, nitrile, or trifluoromethyl;

or where, if Q is O, S, or NR', R<sup>4</sup> is hydrogen, (C<sub>1</sub>-C<sub>10</sub>)-alkyl radical, (C<sub>2</sub>-C<sub>10</sub>)-alkenyl radical, (C<sub>2</sub>-C<sub>10</sub>)-alkynyl radical, wherein alkenyl or alkynyl radical contains one or two

C-C multiple bonds; unsubstituted fluoroalkyl radical of the formula - $[CH_2]_x$ - $C_fH_{(2f+1-g)}$ - $F_g$ , (C<sub>1</sub>-C<sub>8</sub>)-alkoxy-(C<sub>1</sub>-C<sub>6</sub>)-alkyl radical, (C<sub>1</sub>-C<sub>6</sub>)-alkoxy-(C<sub>1</sub>-C<sub>4</sub>)-alkoxy-(C<sub>1</sub>-C<sub>4</sub>)-alkyl radical, aryl radical, heteroaryl radical, (C<sub>7</sub>-C<sub>11</sub>)-aralkyl radical, or a radical of the formula Z

$$-[CH_2]_v-[O]_w-[CH_2]_t-E$$
 (Z)

where

E is a heteroaryl radical, a  $(C_3-C_8)$ -cycloalkyl radical, or a phenyl radical of the formula F

$$R^7$$
  $R^8$   $R^9$   $R^{11}$   $R^{10}$ 

v is 0-6,

w is 0 or 1,

t is 0-3, and

 $R^7$ ,  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  are identical or different and are hydrogen, halogen, cyano, nitro, trifluoromethyl,  $(C_1\text{-}C_6)$ -alkyl,  $(C_3\text{-}C_8)$ -cycloalkyl,  $(C_1\text{-}C_6)$ -alkoxy, -O-[CH<sub>2</sub>]<sub>x</sub>-C<sub>f</sub>H<sub>(2f+1-g)</sub>-F<sub>g</sub>, -OCF<sub>2</sub>-Cl, -O-CF<sub>2</sub>-CHFCl,  $(C_1\text{-}C_6)$ -alkylmercapto,  $(C_1\text{-}C_6)$ -hydroxyalkyl,  $(C_1\text{-}C_6)$ -alkoxy- $(C_1\text{-}C_6)$ -alkoxy- $(C_1\text{-}C_6)$ -alkoxy- $(C_1\text{-}C_6)$ -alkylsulfinyl,  $(C_1\text{-}C_6)$ -alkylsulfonyl,  $(C_1\text{-}C_6)$ -alkylcarbonyl,  $(C_1\text{-}C_8)$ -alkoxycarbonyl, carbamoyl, N-(C<sub>1</sub>-C<sub>8</sub>)-alkylcarbamoyl, or  $(C_7\text{-}C_{11})$ -aralkylcarbamoyl, optionally substituted by fluorine, chlorine, bromine, trifluoromethyl,  $(C_1\text{-}C_6)$ -alkoxy, N- $(C_3\text{-}C_8)$ -cycloalkylcarbamoyl, N- $(C_3\text{-}C_8)$ -cycloalkyl- $(C_1\text{-}C_4)$ -alkylcarbamoyl,  $(C_1\text{-}C_6)$ -alkylcarbonyloxy, phenyl, benzyl, phenoxy, benzyloxy, NR<sup>Y</sup>R<sup>Z</sup> wherein R<sup>y</sup> and R<sup>z</sup> are independently selected from hydrogen,  $(C_1\text{-}C_1)$ -alkyl,  $(C_1\text{-}C_8)$ -alkoxy- $(C_1\text{-}C_8)$ -alkyl,

 $(C_7-C_{12})$ -aralkoxy- $(C_1-C_8)$ -alkyl,  $(C_6-C_{12})$ -aryloxy- $(C_1-C_8)$ -alkyl,  $(C_3-C_{10})$ -cycloalkyl,  $(C_3-C_{12})$ -alkenyl,  $(C_3-C_{12})$ -alkynyl,  $(C_6-C_{12})$ -aryl,  $(C_7-C_{11})$ -aralkyl,  $(C_1-C_{12})$ -alkoxy,  $(C_7-C_{12})$ -alkoxy,  $(C_7-C_{12})$ -alkylcarbonyl,  $(C_3-C_8)$ -cycloalkylcarbonyl,  $(C_6-C_{12})$  arylcarbonyl,  $(C_7-C_{16})$ -aralkylcarbonyl; or further wherein  $R^y$  and  $R^z$  together are -  $[CH2]_h$ , in which a  $CH_2$  group can be replaced by O, S, N- $(C_1-C_4)$ -alkylcarbonylimino, or N- $(C_1-C_4)$ -alkoxycarbonylimino; phenylmercapto, phenylsulfonyl, phenylsulfinyl, sulfamoyl, N- $(C_1-C_8)$ -alkylsulfamoyl, or N, N-di- $(C_1-C_8)$ -alkylsulfamoyl; or alternatively  $R^7$  and  $R^8$ ,  $R^8$  and  $R^9$ ,  $R^9$  and  $R^{10}$ , or  $R^{10}$  and  $R^{11}$ , together are a chain selected from - $[CH_2]_n$ - or -CH=CH-CH=CH-, where a  $CH_2$  group of the chain is optionally replaced by O, S, SO,  $SO_2$ , or  $NR^Y$ ; and n is S, S, or S, and if S is a heteroaryl radical, said radical can carry 1-3 substituents selected from those defined for  $R^7$ - $R^{11}$ , or if S is a cycloalkyl radical, the radical can carry one substituent selected from those defined for  $R^7$ - $R^{11}$ ;

or where, if Q is NR',  $R^4$  is alternatively R", where R' and R" are identical or different and are hydrogen,  $(C_6-C_{12})$ -aryl,  $(C_7-C_{11})$ -aralkyl,  $(C_1-C_8)$ -alkyl,  $(C_1-C_1)$ -alkylcarbonyl, optionally substituted  $(C_7-C_{16})$ -aralkylcarbonyl, or optionally substituted  $(C_6-C_{12})$ -arylcarbonyl; or R' and R" together are  $-[CH_2]_h$ , in which a  $CH_2$  group can be replaced by O, S, N-acylimino, or N- $(C_1-C_{10})$ -alkoxycarbonylimino, and h is 3 to 7.

 $R^1$ ,  $R^2$  and  $R^3$  are identical or different and are hydrogen, hydroxyl, halogen, cyano, trifluoromethyl, nitro, carboxyl,  $(C_1-C_{20})$ -alkyl,  $(C_3-C_8)$ -cycloalkyl,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_{12})$ -alkyl,  $(C_3-C_8)$ -cycloalkoxy,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_{12})$ -alkoxy,  $(C_3-C_8)$ -cycloalkyloxy- $(C_1-C_{12})$ -alkoxy,  $(C_3-C_8)$ -cycloalkyloxy- $(C_1-C_{12})$ -alkoxy,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_8)$ -alkoxy- $(C_1-C_6)$ -alkyl,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_8)$ -alkoxy- $(C_1-C_6)$ -alkyl,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -aralkyl,  $(C_2-C_{16})$ -aralkyl,  $(C_3-C_{16})$ -aralkyl

 $C_{20}$ )-alkenyl, ( $C_2$ - $C_{20}$ )-alkynyl, ( $C_1$ - $C_{20}$ )-alkoxy, ( $C_2$ - $C_{20}$ )-alkenyloxy, ( $C_2$ - $C_{20}$ )alkynyloxy, retinyloxy,  $(C_1-C_{20})$ -alkoxy- $(C_1-C_{12})$ -alkyl,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxy,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkyl,  $(C_6-C_{12})$ -aryloxy,  $(C_7-C_{16})$ -aralkyloxy,  $(C_6-C_{12})$ -aryloxy- $(C_1-C_6)$ -alkoxy,  $(C_7-C_{16})$ -aralkoxy- $(C_1-C_6)$ -alkoxy,  $(C_1-C_{16})$ hydroxyalkyl,  $(C_6-C_{16})$ -aryloxy- $(C_1-C_8)$ -alkyl,  $(C_7-C_{16})$ -aralkoxy- $(C_1-C_8)$ -alkyl,  $(C_6-C_{12})$ aryloxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_6)$ -alkyl,  $(C_7-C_{12})$ -aralkyloxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_6)$ -alkyl,  $(C_2-C_{20})$ -alkenyloxy- $(C_1-C_6)$ -alkyl,  $(C_2-C_{20})$ -alkynyloxy- $(C_1-C_6)$ -alkyl, retinyloxy- $(C_1-C_6)$ alkyl,  $-O-[CH_2]_xCfH_{(2f+1-g)}F_g$ ,  $-OCF_2Cl$ ,  $-OCF_2-CHFCl$ ,  $(C_1-C_{20})$ -alkylcarbonyl,  $(C_3-C_8)$ cycloalkylcarbonyl, (C<sub>6</sub>-C<sub>12</sub>)-arylcarbonyl, (C<sub>7</sub>-C<sub>16</sub>)-aralkylcarbonyl, cinnamoyl, (C<sub>2</sub>- $C_{20}$ )-alkenylcarbonyl, ( $C_2$ - $C_{20}$ )-alkynylcarbonyl, ( $C_1$ - $C_{20}$ )-alkoxycarbonyl, ( $C_1$ - $C_{12}$ )alkoxy- $(C_1-C_{12})$ -alkoxycarbonyl,  $(C_6-C_{12})$ -aryloxycarbonyl,  $(C_7-C_{16})$ -aralkoxycarbonyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkoxycarbonyl, (C<sub>2</sub>-C<sub>20</sub>)-alkenyloxycarbonyl, retinyloxycarbonyl, (C<sub>2</sub>-C<sub>20</sub>)-alkynyloxycarbonyl, (C<sub>6</sub>-C<sub>12</sub>)-aryloxy-(C<sub>1</sub>-C<sub>6</sub>)-alkoxycarbonyl, (C<sub>7</sub>-C<sub>16</sub>)-aralkoxy- $(C_1-C_6)$ -alkoxycarbonyl,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_6)$ -alkoxycarbonyl,  $(C_3-C_8)$ cycloalkoxy- $(C_1-C_6)$ -alkoxycarbonyl,  $(C_1-C_{12})$ -alkylcarbonyloxy,  $(C_3-C_8)$ cycloalkylcarbonyloxy,  $(C_6-C_{12})$ -arylcarbonyloxy,  $(C_7-C_{16})$ -aralkylcarbonyloxy, cinnamoyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkenylcarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkynylcarbonyloxy, (C<sub>1</sub>-C<sub>12</sub>)alkoxycarbonyloxy,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxycarbonyloxy,  $(C_6-C_{12})$ aryloxycarbonyloxy, (C<sub>7</sub>-C<sub>16</sub>)-aralkyloxycarbonyloxy, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkoxycarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkenyloxycarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkynyloxycarbonyloxy, carbamoyl, N-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyl, N,N-di-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyl, N-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbamoyl, N,N-dicyclo- $(C_3-C_8)$ -alkylcarbamoyl, N- $(C_1-C_{10})$ -alkyl-N- $(C_3-C_8)$ -cycloalkylcarbamoyl,  $N-((C_3-C_8)-cycloalkyl-(C_1-C_6)-alkyl)-carbamoyl, N-(C_1-C_6)-alkyl-N-((C_3-C_8)-cycloalkyl-n-((C_3-C_8)-cycloalkyl-n-((C_3-C_8)-cycloalkyl-n-((C_3-C_8)-cycloalkyl-n-((C_3-C_8)-cycloalkyl-n-((C_3-C_8)-cycloalkyl-n-((C_3-C_8)-cycloalkyl-n-((C_3-C_8)-alkyl-n-((C_3-C_8)-cycloalkyl-n-((C_3-C_8$  $(C_1-C_6)$ -alkyl)-carbamoyl, N-(+)-dehydroabietylcarbamoyl, N- $(C_1-C_6)$ -alkyl-N-(+)dehydroabietylcarbamoyl, N-(C<sub>6</sub>-C<sub>12</sub>)-arylcarbamoyl, N-(C<sub>7</sub>-C<sub>16</sub>)-aralkylcarbamoyl, N- $(C_1-C_{10})$ -alkyl-N- $(C_6-C_{16})$ -arylcarbamoyl, N- $(C_1-C_{10})$ -alkyl-N- $(C_7-C_{16})$ -aralkylcarbamoyl,  $N-((C_1-C_{18})-alkoxy-(C_1-C_{10})-alkyl)-carbamoyl, N-((C_6-C_{16})-aryloxy-(C_1-C_{10})-alkyl)-alkyl-al$ carbamoyl,  $N-((C_7-C_{16})-aralkyloxy-(C_1-C_{10})-alkyl)-carbamoyl, N-(C_1-C_{10})-alkyl-N-((C_1-C_{10})-alkyl)-carbamoyl, N-(C_1-C_{10})-alkyl-N-((C_1-C_{10})-alkyl)-carbamoyl, N-(C_1-C_{10})-alkyl-N-((C_1-C_{10})-alkyl)-carbamoyl, N-(C_1-C_{10})-alkyl-N-((C_1-C_{10})-alkyl)-carbamoyl, N-(C_1-C_{10})-alkyl-N-((C_1-C_{10})-alkyl)-carbamoyl, N-(C_1-C_{10})-alkyl-N-((C_1-C_{10})-alkyl-N-((C_1-C_{10})-alkyl)-carbamoyl, N-(C_1-C_1)-alkyl-N-((C_1-C$ 

 $C_{10}$ )-alkoxy-( $C_1$ - $C_{10}$ )-alkyl)-carbamoyl, N-( $C_1$ - $C_{10}$ )-alkyl-N-(( $C_6$ - $C_{12}$ )-aryloxy-( $C_1$ - $C_{10}$ )-alkyl)-carbamoyl, N-( $C_1$ - $C_{10}$ )-alkyl-N-(( $C_7$ - $C_{16}$ )-aralkyloxy-( $C_1$ - $C_{10}$ )-alkyl)-carbamoyl; CON( $CH_2$ )<sub>h</sub>, in which a  $CH_2$  group can be replaced by O, S, N-( $C_1$ - $C_8$ )-alkylimino, N-( $C_3$ - $C_8$ )-cycloalkyl-( $C_1$ - $C_4$ )-alkylimino, N-( $C_6$ - $C_{12}$ )-arylimino, N-( $C_7$ - $C_{16}$ )-aralkylimino, N-( $C_1$ - $C_4$ )-alkoxy-( $C_1$ - $C_6$ )-alkylimino, and h is from 3 to 7; a carbamoyl radical of the formula R

$$-CO + NR^{***} + R^{V} - T \qquad (R)$$

in which

 $R^x$  and  $R^v$  are each independently selected from hydrogen, ( $C_1$ - $C_6$ )-alkyl, ( $C_3$ - $C_7$ )-cycloalkyl, aryl, or the substituent of an  $\alpha$ -carbon of an  $\alpha$ -amino acid, to which the L-and D-amino acids belong,

s is 1-5,

T is OH, or NR\*R\*\*, and R\*, R\*\* and R\*\*\* are identical or different and are selected from hydrogen,  $(C_6-C_{12})$ -aryl,  $(C_7-C_{11})$ -aralkyl,  $(C_1-C_8)$ -alkyl,  $(C_3-C_8)$ -cycloalkyl, (+)-dehydroabietyl,  $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkyl,  $(C_7-C_{12})$ -aralkoxy- $(C_1-C_8)$ -alkyl,  $(C_6-C_{12})$ -aryloxy- $(C_1-C_8)$ -alkyl,  $(C_1-C_{10})$ -alkanoyl, optionally substituted  $(C_7-C_{16})$ -aralkanoyl, optionally substituted  $(C_6-C_{12})$ -aroyl; or R\* and R\*\* together are -[CH<sub>2</sub>]<sub>h</sub>, in which a CH<sub>2</sub> group can be replaced by O, S, SO, SO<sub>2</sub>, N-acylamino, N- $(C_1-C_{10})$ -alkoxycarbonylimino, N- $(C_1-C_8)$ -alkylimino, N- $(C_3-C_8)$ -cycloalkylimino, N- $(C_3-C_8)$ -cycloalkyl- $(C_1-C_4)$ -alkylimino, N- $(C_6-C_{12})$ -arylimino, N- $(C_7-C_{16})$ -aralkylimino, N- $(C_1-C_4)$ -alkylimino, and h is from 3 to 7;

carbamoyloxy, N-( $C_1$ - $C_{12}$ )-alkylcarbamoyloxy, N,N-di-( $C_1$ - $C_{12}$ )-alkylcarbamoyloxy, N-( $C_3$ - $C_8$ )-cycloalkylcarbamoyloxy, N-( $C_6$ - $C_{12}$ )-arylcarbamoyloxy, N-( $C_7$ - $C_{16}$ )-

aralkylcarbamoyloxy, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl-N-(C<sub>6</sub>-C<sub>12</sub>)-arylcarbamoyloxy, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl- $N-(C_7-C_{16})$ -aralkylcarbamoyloxy,  $N-((C_1-C_{10})$ -alkyl)-carbamoyloxy,  $N-((C_6-C_{12})$ aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy, N- $((C_7-C_{16})$ -aralkyloxy- $(C_1-C_{10})$ -alkyl)carbamoyloxy,  $N-(C_1-C_{10})$ -alkyl- $N-((C_1-C_{10})$ -alkoxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy,  $N-(C_1-C_{10})$ -alkyl- $N-(C_1-C_{10})$ -alkyl- $N-(C_1-C_1)$ -alkyl- $(C_1-C_{10})$ -alkyl-N- $((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ -alkyl)-carbamoyloxy, N- $(C_1-C_{10})$ -alkyl-N-((C<sub>7</sub>-C<sub>16</sub>)-aralkyloxy-(C<sub>1</sub>-C<sub>10</sub>)-alkyl)-carbamoyloxyamino, (C<sub>1</sub>-C<sub>12</sub>)-alkylamino, di-(C<sub>1</sub>-C<sub>12</sub>)-alkylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylamino, (C<sub>3</sub>-C<sub>12</sub>)-alkenylamino, (C<sub>3</sub>-C<sub>12</sub>)alkynylamino,  $N-(C_6-C_{12})$ -arylamino,  $N-(C_7-C_{11})$ -aralkylamino, N-alkyl-aralkylamino, N-alkyl-arylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkoxyamino, (C<sub>1</sub>-C<sub>12</sub>)-alkoxy-N-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkanoylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkanoylamino, (C<sub>6</sub>-C<sub>12</sub>)-aroylamino, (C<sub>7</sub>-C<sub>16</sub>)aralkanoylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkanoyl-N-(C<sub>1</sub>-C<sub>10</sub>)-alkylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkanoyl-N- $(C_1-C_{10})$ -alkylamino,  $(C_6-C_{12})$ -aroyl-N- $(C_1-C_{10})$ -alkylamino,  $(C_7-C_{11})$ -aralkanoyl-N- $(C_1-C_{10})$ -C<sub>10</sub>)-alkylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkanoylamino-(C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkanoylamino- $(C_1-C_8)$ -alkyl,  $(C_6-C_{12})$ -aroylamino- $(C_1-C_8)$ -alkyl,  $(C_7-C_{16})$ -aralkanoylamino- $(C_1-C_8)$ alkyl, amino- $(C_1-C_{10})$ -alkyl, N- $(C_1-C_{10})$ -alkylamino- $(C_1-C_{10})$ -alkyl, N,N-di $(C_1-C_{10})$ alkylamino- $(C_1-C_{10})$ -alkyl,  $(C_3-C_8)$ -cycloalkylamino $(C_1-C_{10})$ -alkyl,  $(C_1-C_{20})$ alkylmercapto, (C<sub>1</sub>-C<sub>20</sub>)-alkylsulfinyl, (C<sub>1</sub>-C<sub>20</sub>)-alkylsulfonyl, (C<sub>6</sub>-C<sub>12</sub>)-arylmercapto,  $(C_6-C_{12})$ -arylsulfinyl,  $(C_6-C_{12})$ -arylsulfonyl,  $(C_7-C_{16})$ -aralkylmercapto,  $(C_7-C_{16})$ aralkylsulfinyl,  $(C_7-C_{16})$ -aralkylsulfonyl,  $(C_1-C_{12})$ -alkylmercapto- $(C_1-C_6)$ -alkyl,  $(C_1-C_{12})$ alkylsulfinyl-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>1</sub>-C<sub>12</sub>)-alkylsulfonyl-(C<sub>1</sub>-C<sub>6</sub>)-alkyl, (C<sub>6</sub>-C<sub>12</sub>)-arylmercapto- $(C_1-C_6)$ -alkyl,  $(C_6-C_{12})$ -arylsulfinyl- $(C_1-C_6)$ -alkyl,  $(C_6-C_{12})$ -arylsulfonyl- $(C_1-C_6)$ -alkyl,  $(C_7-C_{16})$ -aralkylmercapto- $(C_1-C_6)$ -alkyl,  $(C_7-C_{16})$ -aralkylsulfinyl- $(C_1-C_6)$ -alkyl,  $(C_7-C_{16})$ aralkylsulfonyl- $(C_1-C_6)$ -alkyl, sulfamoyl, N- $(C_1-C_{10})$ -alkylsulfamoyl, N,N-di- $(C_1-C_{10})$ alkylsulfamoyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylsulfamoyl, N-(C<sub>6</sub>-C<sub>12</sub>)-arylsulfamoyl, N-(C<sub>7</sub>-C<sub>16</sub>)aralkylsulfamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_6-C_{12})$ -arylsulfamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_7-C_{10})$ - $C_{16}$ )-aralkylsulfamoyl,  $(C_1-C_{10})$ -alkylsulfonamido, N- $((C_1-C_{10})$ -alkyl)- $(C_1-C_{10})$ alkylsulfonamido, (C<sub>7</sub>-C<sub>16</sub>)-aralkylsulfonamido, and N-((C<sub>1</sub>-C<sub>10</sub>)-alkyl-(C<sub>7</sub>-C<sub>16</sub>)aralkylsulfonamido; where an aryl radical may be substituted by 1 to 5 substituents

selected from hydroxyl, halogen, cyano, trifluoromethyl, nitro, carboxyl, (C<sub>2</sub>-C<sub>16</sub>)-alkyl,  $(C_3-C_8)$ -cycloalkyl,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_{12})$ -alkyl,  $(C_3-C_8)$ -cycloalkoxy,  $(C_3-C_8)$ cycloalkyl- $(C_1-C_{12})$ -alkoxy,  $(C_3-C_8)$ -cycloalkyloxy- $(C_1-C_{12})$ -alkyl,  $(C_3-C_8)$ -cycloalkyloxy- $(C_1-C_{12})$ -alkoxy,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_8)$ -alkyl- $(C_1-C_6)$ -alkoxy,  $(C_3-C_8)$ -cycloalkyl $(C_1-C_8)$ -alkoxy,  $(C_3-C_8)$ -cycloalkyl $(C_1-C_8)$ -alkoxy,  $(C_3-C_8)$ -cycloalkyl $(C_1-C_8)$ -alkoxy,  $(C_3-C_8)$ -cycloalkyl $(C_1-C_8)$ -alkoxy  $C_8$ )-alkoxy- $(C_1-C_6)$ -alkyl,  $(C_3-C_8)$ -cycloalkyloxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_6)$ -alkyl,  $(C_3-C_8)$ cycloalkoxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_8)$ -alkoxy,  $(C_6-C_{12})$ -aryl,  $(C_7-C_{16})$ -aralkyl,  $(C_2-C_{16})$ alkenyl,  $(C_2-C_{12})$ -alkynyl,  $(C_1-C_{16})$ -alkoxy,  $(C_1-C_{16})$ -alkenyloxy,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{16})$ -alkoxy- $(C_$  $C_{12}$ )-alkyl,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxy,  $(C_1-C_{12})$ -alkoxy $(C_1-C_8)$ -alkoxy- $(C_1$ alkyl,  $(C_6-C_{12})$ -aryloxy,  $(C_7-C_{16})$ -aralkyloxy,  $(C_6-C_{12})$ -aryloxy- $(C_1-C_6)$ -alkoxy,  $(C_7-C_{16})$ aralkoxy- $(C_1-C_6)$ -alkoxy,  $(C_1-C_8)$ -hydroxyalkyl,  $(C_6-C_{16})$ -aryloxy- $(C_1-C_8)$ -alkyl,  $(C_7-C_{16})$ aralkoxy- $(C_1-C_8)$ -alkyl,  $(C_6-C_{12})$ -aryloxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_6)$ -alkyl,  $(C_7-C_{12})$ aralkyloxy- $(C_1-C_8)$ -alkoxy- $(C_1-C_6)$ -alkyl, -O- $[CH_2]_xC_fH_{(2f+1-q)}F_q$ , -OCF<sub>2</sub>Cl, -OCF<sub>2</sub>-CHFCl,  $(C_1-C_{12})$ -alkylcarbonyl,  $(C_3-C_8)$ -cycloalkylcarbonyl,  $(C_6-C_{12})$ -arylcarbonyl,  $(C_7-C_{16})$ aralkylcarbonyl,  $(C_1-C_{12})$ -alkoxycarbonyl,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ -alkoxycarbonyl,  $(C_6-C_{12})$ -aryloxycarbonyl,  $(C_7-C_{16})$ -aralkoxycarbonyl,  $(C_3-C_8)$ -cycloalkoxycarbonyl,  $(C_2-C_{12})$ -alkenyloxycarbonyl,  $(C_6-C_{12})$ -alkynyloxycarbonyl,  $(C_6-C_{12})$ -aryloxy- $(C_1-C_6)$ alkoxycarbonyl,  $(C_7-C_{16})$ -aralkoxy- $(C_1-C_6)$ -alkoxycarbonyl,  $(C_3-C_8)$ -cycloalkyl- $(C_1-C_6)$ alkoxycarbonyl,  $(C_3-C_8)$ -cycloalkoxy- $(C_1-C_6)$ -alkoxycarbonyl,  $(C_1-C_{12})$ alkylcarbonyloxy,  $(C_3-C_8)$ -cycloalkylcarbonyloxy,  $(C_6-C_{12})$ -arylcarbonyloxy,  $(C_7-C_{16})$ aralkylcarbonyloxy, cinnamoyloxy, (C<sub>2</sub>-C<sub>12</sub>)-alkenylcarbonyloxy, (C<sub>2</sub>-C<sub>12</sub>)alkynylcarbonyloxy,  $(C_1-C_{12})$ -alkoxycarbonyloxy,  $(C_1-C_{12})$ -alkoxy- $(C_1-C_{12})$ alkoxycarbonyloxy, (C<sub>6</sub>-C<sub>12</sub>)-aryloxycarbonyloxy, (C<sub>7</sub>-C<sub>16</sub>)-aralkyloxycarbonyloxy, (C<sub>3</sub>- $C_8$ )-cycloalkoxycarbonyloxy, ( $C_2$ - $C_{12}$ )-alkenyloxycarbonyloxy, ( $C_2$ - $C_{12}$ )alkynyloxycarbonyloxy, carbamoyl,  $N-(C_1-C_{12})$ -alkylcarbamoyl,  $N,N-di(C_1-C_{12})$ alkylcarbamoyl, N-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkylcarbamoyl, N,N-dicyclo-(C<sub>3</sub>-C<sub>8</sub>)-alkylcarbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-(C_3-C_8)$ -cycloalkylcarbamoyl,  $N-((C_3-C_8)$ -cycloalkyl- $(C_1-C_6)$ alkyl)carbamoyl,  $N-(C_1-C_6)$ -alkyl- $N-((C_3-C_8)$ -cycloalkyl- $(C_1-C_6)$ -alkyl)carbamoyl, N-(+)dehydroabietylcarbamoyl, N-(C<sub>1</sub>-C<sub>6</sub>)-alkyl-N-(+)-dehydroabietylcarbamoyl, N-(C<sub>6</sub>-C<sub>12</sub>)- arylcarbamoyl, N-(C<sub>7</sub>-C<sub>16</sub>)-aralkylcarbamoyl, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl-N-(C<sub>6</sub>-C<sub>16</sub>)arylcarbamoyl, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl-N-(C<sub>7</sub>-C<sub>16</sub>)-aralkylcarbamoyl, N-((C<sub>1</sub>-C<sub>16</sub>)-alkoxy-(C<sub>1</sub>- $C_{10}$ )-alkyl)carbamoyl, N-(( $C_6$ - $C_{16}$ )-aryloxy-( $C_1$ - $C_{10}$ )-alkyl)carbamoyl, N-(( $C_7$ - $C_{16}$ )aralkyloxy- $(C_1-C_{10})$ -alkyl)carbamoyl, N- $(C_1-C_{10})$ -alkyl-N- $((C_1-C_{10})$ -alkoxy- $(C_1-C_{10})$ alkyl)carbamoyl,  $N-(C_1-C_{10})$ -alkyl- $N-((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ -alkyl)carbamoyl,  $N-(C_1-C_{10})$  $C_{10}$ )-alkyl-N-(( $C_7$ - $C_{16}$ )-aralkyloxy-( $C_1$ - $C_{10}$ )-alkyl)-carbamoyl, CON(CH<sub>2</sub>)<sub>h</sub>, in which a CH<sub>2</sub> group can be replaced by, O, S, N-(C<sub>1</sub>-C<sub>8</sub>)-alkylimino, N-(C<sub>3</sub>-C<sub>8</sub>)-cycloalkylimino,  $N-(C_3-C_8)$ -cycloalkyl- $(C_1-C_4)$ -alkylimino,  $N-(C_6-C_{12})$ -arylimino,  $N-(C_7-C_{16})$ -aralkylimino,  $N-(C_1-C_4)$ -alkoxy- $(C_1-C_6)$ -alkylimino, and h is from 3 to 7; carbamoyloxy,  $N-(C_1-C_{12})$ alkylcarbamoyloxy, N,N-di-(C<sub>1</sub>-C<sub>12</sub>)-alkylcarbamoyloxy, N-(C<sub>3</sub>-C<sub>8</sub>)cycloalkylcarbamoyloxy, N-(C<sub>6</sub>-C<sub>16</sub>)-arylcarbamoyloxy, N-(C<sub>7</sub>-C<sub>16</sub>)aralkylcarbamoyloxy, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl-N-(C<sub>6</sub>-C<sub>12</sub>)-arylcarbamoyloxy, N-(C<sub>1</sub>-C<sub>10</sub>)-alkyl- $N-(C_7-C_{16})$ -aralkylcarbamoyloxy,  $N-((C_1-C_{10})$ -alkyl)carbamoyloxy,  $N-((C_6-C_{12})$ -aryloxy- $(C_1-C_{10})$ -alkyl)carbamoyloxy, N- $((C_7-C_{16})$ -aralkyloxy- $(C_1-C_{10})$ -alkyl)carbamoyloxy, N- $(C_1-C_{10})$ -alkyl-N- $((C_1-C_{10})$ -alkoxy- $(C_1-C_{10})$ -alkyl)carbamoyloxy, N- $(C_1-C_{10})$ -alkyl-N- $((C_6-C_{12})-aryloxy-(C_1-C_{10})-alkyl)$ carbamoyloxy, N- $(C_1-C_{10})-alkyl-N-((C_7-C_{16})-alkyl)$ aralkyloxy- $(C_1-C_{10})$ -alkyl)carbamoyloxy, amino,  $(C_1-C_{12})$ -alkylamino, di- $(C_1-C_{12})$ alkylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkylamino, (C<sub>3</sub>-C<sub>12</sub>)-alkenylamino, (C<sub>3</sub>-C<sub>12</sub>)-alkynylamino, N-(C<sub>6</sub>-C<sub>12</sub>)-arylamino, N-(C<sub>7</sub>-C<sub>11</sub>)-aralkylamino, N-alkyl-aralkylamino, N-alkylarylamino,  $(C_1-C_{12})$ -alkoxyamino,  $(C_1-C_{12})$ -alkoxy-N- $(C_1-C_{10})$ -alkylamino,  $(C_1-C_{12})$ alkanoylamino, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkanoylamino, (C<sub>6</sub>-C<sub>12</sub>)-aroylamino, (C<sub>7</sub>-C<sub>16</sub>)aralkanoylamino,  $(C_1-C_{12})$ -alkanoyl-N- $(C_1-C_{10})$ -alkylamino,  $(C_3-C_8)$ -cycloalkanoyl-N- $(C_1-C_{10})$ -alkylamino,  $(C_6-C_{12})$ -aroyl-N- $(C_1-C_{10})$ -alkylamino,  $(C_7-C_{11})$ -aralkanoyl-N- $(C_1-C_{10})$ -C<sub>10</sub>)-alkylamino, (C<sub>1</sub>-C<sub>12</sub>)-alkanoylamino-(C<sub>1</sub>-C<sub>8</sub>)-alkyl, (C<sub>3</sub>-C<sub>8</sub>)-cycloalkanoylamino- $(C_1-C_8)$ -alkyl,  $(C_6-C_{12})$ -aroylamino- $(C_1-C_8)$ -alkyl,  $(C_7-C_{16})$ -aralkanoylamino- $(C_1-C_8)$ alkyl, amino- $(C_1-C_{10})$ -alkyl, N- $(C_1-C_{10})$ -alkylamino- $(C_1-C_{10})$ -alkyl, N,N-di- $(C_1-C_{10})$ alkylamino- $(C_1-C_{10})$ -alkyl,  $(C_3-C_8)$ -cycloalkylamino- $(C_1-C_{10})$ -alkyl,  $(C_1-C_{12})$ alkylmercapto,  $(C_1-C_{12})$ -alkylsulfinyl,  $(C_1-C_{12})$ -alkylsulfonyl,  $(C_6-C_{16})$ -arylmercapto,

 $(C_6-C_{16})$ -arylsulfinyl,  $(C_6-C_{16})$ -arylsulfonyl,  $(C_7-C_{16})$ -aralkylsulfinyl, or  $(C_7-C_{16})$ -aralkylsulfonyl;

or wherein  $R^1$  and  $R^2$ , or  $R^2$  and  $R^3$  form a chain  $[CH_2]_o$ , which is saturated or unsaturated by a C=C double bond, in which 1 or 2 CH<sub>2</sub> groups are optionally replaced by O, S, SO, SO<sub>2</sub>, or NR', and R' is hydrogen,  $(C_6-C_{12})$ -aryl,  $(C_1-C_8)$ -alkyl,  $(C_1-C_8)$ -alkyl, optionally substituted  $(C_1-C_8)$ -aralkanoyl, or optionally substituted  $(C_1-C_1)$ -aroyl; and o is 3, 4 or 5;

or wherein the radicals R<sup>1</sup> and R<sup>2</sup>, or R<sup>2</sup> and R<sup>3</sup>, together with the pyridine or pyridazine carrying them, form a 5,6,7,8-tetrahydroisoquinoline ring, a 5,6,7,8-tetrahydroquinoline ring, or a 5,6,7,8-tetrahydrocinnoline ring;

or wherein R<sup>1</sup> and R<sup>2</sup>, or R<sup>2</sup> and R<sup>3</sup> form a carbocyclic or heterocyclic 5- or 6membered aromatic ring;

or where R<sup>1</sup> and R<sup>2</sup>, or R<sup>2</sup> and R<sup>3</sup>, together with the pyridine or pyridazine carrying them, form an optionally substituted heterocyclic ring system selected from thienopyridines, furanopyridines, pyridopyridines, pyrimidinopyridines, imidazopyridines, thiazolopyridines, oxazolopyridines, quinoline, isoquinoline, and cinnoline;

or wherein the radicals R¹ and R², together with the pyridine carrying them, form a compound of Formula Id:

$$R^{26}$$
  $R^{25}$ 
 $R^{27}$ 
 $R^{24}$ 
 $Q-R^4$ 
 $NH-A-B$ 

where V is S, O, or NR<sup>k</sup>, and R<sup>k</sup> is selected from hydrogen, (C<sub>1</sub>-C<sub>6</sub>)-alkyl, aryl, or benzyl; where an aryl radical may be optionally substituted by 1 to 5 substituents as defined above; and  $\mathsf{R}^{24},\,\mathsf{R}^{25},\,\mathsf{R}^{26},\,$  and  $\mathsf{R}^{27}$  in each case independently of each other have the meaning of  $R^1$ ,  $R^2$  and  $R^3$ ; f is 1 to 8; g is 0 or 1 to (2f+1); x is 0 to 3; and h is 3 to 7; or a physiologically active salt derived therefrom. The mimetic of claim 8 for the use of that claim, wherein A is C<sub>1</sub>-alkylene; B is -CO<sub>2</sub>H; Q is O; R<sup>4</sup> is hydrogen; X is O; Y is CR3; and R1, R2 and R3 are as defined above; including physiologically active salts derived therefrom.

8-10. The mimetic of claim 7-8 for the use of that claim, wherein the mimetic is a compound of Formula (Ia), (Ib), or (Ic):

and the substituents  $R^{12}$  to  $R^{23}$  in each case independently of each other have the meaning of  $R^1$ ,  $R^2$  and  $R^3$ .

<u>9\_11A</u>. The mimetic of any one of claims <u>1-4</u>-6- for the use of that claim, wherein the anemia is anemia of chronic disease, and the mimetic is for use in: increasing the amount of iron available to make new red blood cells; increasing reticulocytes; increasing mean corpuscular cell volume; increasing mean corpuscular hemoglobin; increasing hematocrit; increasing hemoglobin; or increasing red blood cell count.

12A. The mimetic of any of claims 4, 2, 8, and 9 and 11, for the use of that claim, wherein the mimetic is for use in increasing mean corpuscular cell volume.

The mimetic of any one of claims 1, 4-5, 5-6 or 6-7 for the use of that claim, wherein the mimetic is selected from the group consisting of [(1-Chloro-4-hydroxy-isoquinoline-3-carbonyl)-amino]-acetic acid, [(4-Hydroxy-7-phenoxy-isoquinoline-3-carbonyl)-amino]-acetic acid, [(4-Hydroxy-7-phenylsulfanyl-isoquinoline-3-carbonyl)-amino]-acetic acid, and 3-{[4-(3,3-Dibenzyl-ureido)-benzenesulfonyl]-[2-(4-methoxy-phenyl)-ethyl]-amino}-N-hydroxy-propionamide.

44\_14. The mimetic of any preceding claim for the use of that claim, wherein the mimetic is for oral administration.

15A. The mimetic of any preceding claim for the use of that claim, wherein the mimetic is for decreasing hepcidin expression.