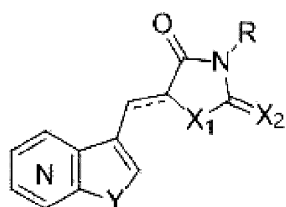


청구범위

[청구항 1]

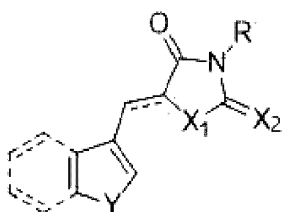
다음의 화학식 I, II, III, IV, 또는 V로 표현되는, 피롤리딘 유도체 또는 이의 약학적으로 허용 가능한 염:

[화학식 I]



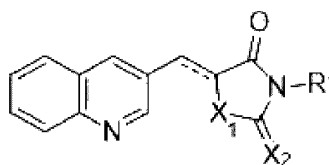
상기 화학식 I에, X1 및 X2는 각각 독립적으로 NH, O, 또는 S이며, Y는 NH 또는 O이고, R은 H 또는 탄소수 1 내지 6개의 알킬기임(6환 고리 내에 표시된 'N'은 고리를 이루는 6개 탄소 중 임의로 선택된 어느 하나를 치환하여 존재함을 나타냄);

[화학식 II]



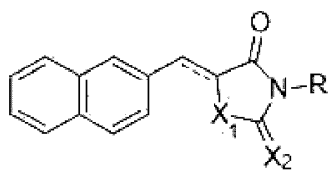
상기 화학식 II에, X1 및 X2는 각각 독립적으로 NH, O, 또는 S이며, Y는 NH, O, 또는 S이고, R은 H 또는 탄소수 1 내지 6개의 알킬기임;

[화학식 III]



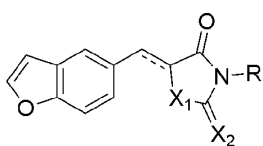
상기 화학식 III에서, X1 및 X2는 각각 독립적으로 NH 또는 S이고, R은 H 또는 탄소수 1 내지 6개의 알킬기임;

[화학식 IV]



상기 화학식 III에서, X1 및 X2는 각각 독립적으로 NH, O 또는 S이고, R은 H 또는 탄소수 1 내지 6개의 알킬기임;

[화학식 V]



상기 화학식 V에서, X1 및 X2는 각각 독립적으로 NH, O 또는 S이고, R은 H 또는 탄소수 1 내지 6개의 알킬기임.

[청구항 2]

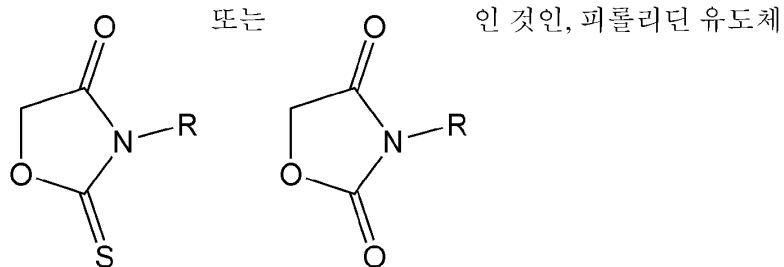
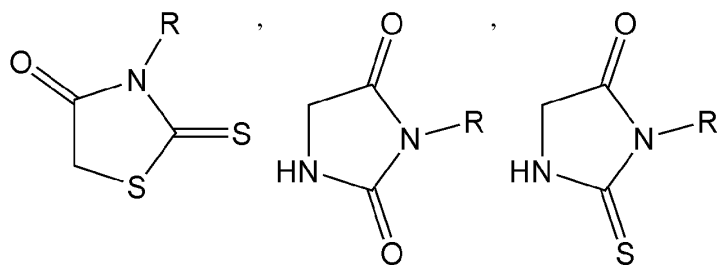
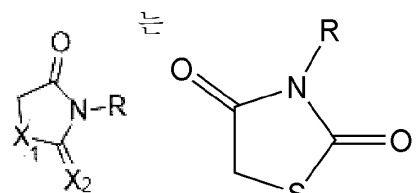
제1항에 있어서,

상기 화학식 I 내지 V의 R은 H 또는 탄소수 1 내지 4의 알킬인 것인, 피롤리딘 유도체 또는 이의 약학적으로 허용가능한 염.

[청구항 3]

제1항에 있어서,

상기 화학식 I 내지 V의

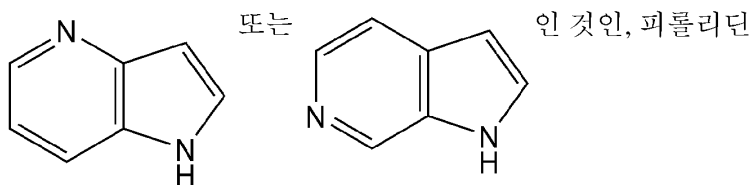
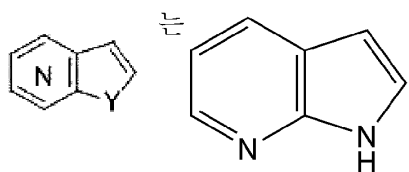


또는 이의 약학적으로 허용가능한 염.

[청구항 4]

제1항에 있어서,

상기 화학식 I의

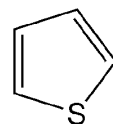
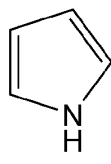
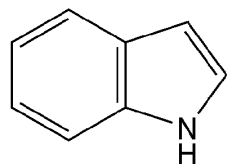
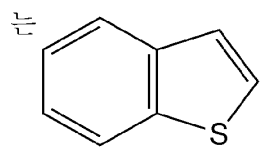
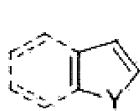


유도체 또는 이의 약학적으로 허용가능한 염.

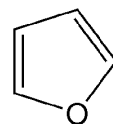
[청구항 5]

제1항에 있어서,

상기 화학식 II의



또는



인 것인,

[청구항 6]

피롤리딘 유도체 또는 이의 약학적으로 허용가능한 염.

제1항에 있어서, 다음으로 이루어진 군에서 선택되는, 피롤리딘 유도체 또는 이의 약학적으로 허용 가능한 염:

(Z)-5-(벤조[b]티오펜-3-일메틸렌)티아졸리딘-2,4-디온

[(Z)-5-(benzo[b]thiophen-3-ylmethylene)thiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)티아졸리딘-2,4-디온

[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)thiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)티아졸리딘-2,4-디온

[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)thiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)티아졸리딘-2,4-디온

[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)thiazolidine-2,4-dione];

5-(벤조[b]티오펜-3-일메틸)티아졸리딘-2,4-디온

[5-(benzo[b]thiophen-3-ylmethyl)thiazolidine-2,4-dione];

5-(벤조[b]티오펜-3-일메틸)-2-티옥소티아졸리딘-4-온

[5-(benzo[b]thiophen-3-ylmethyl)-2-thioxothiazolidin-4-one];

5-((1H-피롤로[2,3-b]피리딘-3-일)메틸)-2-티옥소티아졸리딘-4-온

[5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methyl)-2-thioxothiazolidin-4-one];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-2-티옥소티아졸리딘-4-온

[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-2-thioxothiazolidin-4-one];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-2-티옥소티아졸리딘-4-온

[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-2-thioxothiazolidin-4-one];

(Z)-5-(벤조[b]티오펜-3-일메틸렌)-3-에틸-2-티옥소이미다졸리딘-4-온

[(Z)-5-(benzo[b]thiophen-3-ylmethylene)-3-ethyl-2-thioxoimidazolidin-4-one];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-에틸-2-티옥소이미다졸리딘-4-온

[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-ethyl-2-thioxoimidazolidin-4-one];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-에틸-2-티옥소이미다졸리딘-4-온

[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-ethyl-2-thioxoimidazolidin-4-one];

(Z)-5-(벤조[b]티오펜-3-일메틸렌)-3-메틸이미다졸리딘-2,4-디온

[(Z)-5-(benzo[b]thiophen-3-ylmethylene)-3-methylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-메틸이미다졸리딘-2,4-디온

[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-methylimidazolidine-2,4-dione];

5-(벤조[b]티오펜-3-일메틸렌)-3-메틸-2-티옥소이미다졸리딘-4-온

5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-메틸-2-티옥소이미다졸리딘-4-온

[5-(benzo[b]thiophen-3-ylmethyl)-3-methyl-2-thioxoimidazolidin-4-one];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-2-티옥소티아졸리딘-4-온

[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-2-thioxothiazolidin-4-one];

(Z)-5-(티오펜-3-일메틸렌)티아졸리딘-2,4-디온

[(Z)-5-(thiophen-3-ylmethylene)thiazolidine-2,4-dione];

5-(푸란-3-일메틸)티아졸리딘-2,4-디온

[5-(furan-3-ylmethyl)thiazolidine-2,4-dione];

5-(티오펜-3-일메틸)티아졸리딘-2,4-디온

[5-(thiophen-3-ylmethyl)thiazolidine-2,4-dione];

5-(퀴놀린-3-일메틸)티아졸리딘-2,4-디온

[5-(quinolin-3-ylmethyl)thiazolidine-2,4-dione];

5-((1H-피롤-3-일)메틸)티아졸리딘-2,4-디온

[5-((1H-pyrrol-3-yl)methyl)thiazolidine-2,4-dione];

(Z)-5-((1H-피롤-3-일)메틸렌)-2-티옥소티아졸리딘-4-온

[(Z)-5-((1H-pyrrol-3-yl)methylene)-2-thioxothiazolidin-4-one];

5-(퀴놀린-3-일메틸)-2-티옥소티아졸리딘-4-온

[5-(quinolin-3-ylmethyl)-2-thioxothiazolidin-4-one];
 5-((1H-피롤-3-일)메틸)-2-티옥소티아졸리딘-4-온
 [5-((1H-pyrrol-3-yl)methyl)-2-thioxothiazolidin-4-one];
 5-(푸란-3-일메틸)-2-티옥소티아졸리딘-4-온
 [5-(furan-3-ylmethyl)-2-thioxothiazolidin-4-one];
 (Z)-3-에틸-5-(퀴놀린-4-일메틸렌)-2-티옥소이미다졸리딘-4-온
 [(Z)-3-ethyl-5-(quinolin-4-ylmethylene)-2-thioxoimidazolidin-4-one];
 (Z)-3-에틸-5-(티오펜-3-일메틸렌)-2-티옥소이미다졸리딘-4-온
 [(Z)-3-ethyl-5-(thiophen-3-ylmethylene)-2-thioxoimidazolidin-4-one];
 (Z)-3-에틸-5-(푸란-3-일메틸렌)-2-티옥소이미다졸리딘-4-온
 [(Z)-3-ethyl-5-(furan-3-ylmethylene)-2-thioxoimidazolidin-4-one];
 Z)-5-(벤조푸란-5-일메틸렌)-3-에틸-2-티옥소이미다졸리딘-4-온
 [(Z)-5-(benzofuran-5-ylmethylene)-3-ethyl-2-thioxoimidazolidin-4-one];
 (Z)-5-(이소퀴놀린-4-일메틸렌)-3-메틸이미다졸리딘-2,4-디온
 [(Z)-5-(isoquinolin-4-ylmethylene)-3-methylimidazolidine-2,4-dione];
 (Z)-5-(벤조푸란-7-일메틸렌)-3-메틸이미다졸리딘-2,4-디온
 [(Z)-5-(benzofuran-7-ylmethylene)-3-methylimidazolidine-2,4-dione];
 (Z)-3-메틸-5-(퀴놀린-3-일메틸렌)이미다졸리딘-2,4-디온
 [(Z)-3-methyl-5-(quinolin-3-ylmethylene)imidazolidine-2,4-dione];
 3-메틸-5-(퀴놀린-3-일메틸)이미다졸리딘-2,4-디온
 [3-methyl-5-(quinolin-3-ylmethyl)imidazolidine-2,4-dione];
 5-((1H-인돌-3-일)메틸)-3-메틸이미다졸리딘-2,4-디온
 [5-((1H-indol-3-yl)methyl)-3-methylimidazolidine-2,4-dione];
 (Z)-5-(벤조푸란-6-일메틸렌)-3-메틸이미다졸리딘-2,4-디온
 [(Z)-5-(benzofuran-6-ylmethylene)-3-methylimidazolidine-2,4-dione];
 5-(벤조푸란-5-일메틸)-3-에틸-2-티옥소이미다졸리딘-4-온
 [5-(benzofuran-5-ylmethyl)-3-ethyl-2-thioxoimidazolidin-4-one];
 3-에틸-5-(퀴놀린-4-일메틸)-2-티옥소이미다졸리딘-4-온
 [3-ethyl-5-(quinolin-4-ylmethyl)-2-thioxoimidazolidin-4-one];
 (Z)-5-(벤조[b]티오펜-3-일메틸렌)-2-티옥소티아졸리딘-4-온
 [(Z)-5-(benzo[b]thiophen-3-ylmethylene)-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-인돌-3-일)메틸렌)티아졸리딘-2,4-디온
 [(Z)-5-((1H-indol-3-yl)methylene)thiazolidine-2,4-dione];
 5-((1H-인돌-3-일)메틸)티아졸리딘-2,4-디온
 [5-((1H-indol-3-yl)methyl)thiazolidine-2,4-dione];
 5-((1H-인돌-3-일)메틸)-2-티옥소티아졸리딘-4-온
 [5-((1H-indol-3-yl)methyl)-2-thioxothiazolidin-4-one];

(Z)-5-((1H-인돌-3-일)메틸렌)-3-에틸-2-티옥소이미다졸리딘-4-온
 [(Z)-5-((1H-indol-3-yl)methylene)-3-ethyl-2-thioxoimidazolidin-4-one]
 ;
 (Z)-3-에틸-5-(티오펜-2-일메틸렌)-2-티옥소이미다졸리딘-4-온
 [(Z)-3-ethyl-5-(thiophen-2-ylmethylene)-2-thioxoimidazolidin-4-one];
 (Z)-5-((1H-인돌-3-일)메틸렌)-3-메틸이미다졸리딘-2,4-디온
 [(Z)-5-((1H-indol-3-yl)methylene)-3-methylimidazolidine-2,4-dione];
 (Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-에틸-2-티옥소티아
 졸리딘-4-온
 [(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-ethyl-2-thioxothia
 zolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-에틸-2-티옥소티아
 졸리딘-4-온
 [(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-ethyl-2-thioxothia
 zolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-에틸-2-티옥소티아
 졸리딘-4-온
 [(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-ethyl-2-thioxothia
 zolidin-4-one];
 (Z)-5-(벤조[b]티오펜-3-일메틸렌)-3-에틸-2-티옥소티아졸리딘-4-
 온
 [(Z)-5-(benzo[b]thiophen-3-ylmethylene)-3-ethyl-2-thioxothiazolidin-4-
 -one];
 (Z)-3-에틸-5-(나프탈렌-2-일메틸렌)-2-티옥소티아졸리딘-4-온
 [(Z)-3-ethyl-5-(naphthalen-2-ylmethylene)-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-에틸이미다졸리딘-
 2,4-디온
 [(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-ethylimidazolidin
 e-2,4-dione];
 (Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-에틸이미다졸리딘-
 2,4-디온
 [(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-ethylimidazolidin
 e-2,4-dione];
 (Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-에틸이미다졸리딘-
 2,4-디온
 [(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-ethylimidazolidin
 e-2,4-dione];
 (Z)-5-(벤조[b]티오펜-3-일메틸렌)-3-에틸이미다졸리딘-2,4-디온

[(Z)-5-(benzo[b]thiophen-3-ylmethylene)-3-ethylimidazolidine-2,4-dione];
 (Z)-3-에틸-5-(나프탈렌-2-일메틸렌)이미다졸리딘-2,4-디온
 [(Z)-3-ethyl-5-(naphthalen-2-ylmethylene)imidazolidine-2,4-dione];
 (Z)-5-(푸란-3-일메틸렌)티아졸리딘-2,4-디온
 [(Z)-5-(furan-3-ylmethylene)thiazolidine-2,4-dione];
 (Z)-5-((1H-인돌-3-일)메틸렌)-2-티옥소티아졸리딘-4-온
 [(Z)-5-((1H-indol-3-yl)methylene)-2-thioxothiazolidin-4-one];
 (Z)-5-(푸란-3-일메틸렌)-2-티옥소티아졸리딘-4-온
 [(Z)-5-(furan-3-ylmethylene)-2-thioxothiazolidin-4-one];
 (Z)-5-(티오펜-3-일메틸렌)-2-티옥소티아졸리딘-4-온
 [(Z)-5-(thiophen-3-ylmethylene)-2-thioxothiazolidin-4-one];
 5-(티오펜-3-일메틸)-2-티옥소티아졸리딘-4-온
 [5-(thiophen-3-ylmethyl)-2-thioxothiazolidin-4-one];
 (Z)-5-(벤조푸란-5-일메틸렌)-2-티옥소티아졸리딘-4-온
 [(Z)-5-(benzofuran-5-ylmethylene)-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-인돌-3-일)메틸렌)-3-메틸이미다졸리딘-2,4-디온
 [(Z)-5-((1H-indol-3-yl)methylene)-3-methylimidazolidine-2,4-dione];
 (Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-메틸-2-티옥소옥사
 졸리딘-4-온
 [(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-methyl-2-thioxoo
 xazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-메틸-2-티옥소옥사
 졸리딘-4-온 [(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-meth
 yl-2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-메틸-2-티옥소옥사
 졸리딘-4-온 [(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-meth
 yl-2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-에틸-2-티옥소옥사
 졸리딘-4-온 [(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-ethyl
 -2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-에틸-2-티옥소옥사
 졸리딘-4-온 [(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-ethyl
 -2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-에틸-2-티옥소옥사
 졸리딘-4-온 [(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-ethyl
 -2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-메틸티아졸리딘-2,

4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-methylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-메틸티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-methylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-메틸티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-methylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-메틸티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-methylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-에틸티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-ethylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-에틸티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-ethylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)oxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)oxazolidine-2,4-dione];

;

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)oxazolidine-2,4-dione];

;

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)oxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-메틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-methyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-메틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-methyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-메틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-methyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-메틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-methyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-에틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-ethyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-에틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-ethyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-에틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-ethyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-에틸옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-ethyloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-이소프로필옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-isopropylloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-이소프로필옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-isopropylloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-이소프로필옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-isopropylloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-이소프로필옥사졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-isopropylloxazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)imidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)imidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)imidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)imidazolidine-2,4-

dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-메틸이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-methylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-메틸이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-methylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-메틸이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-methylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-ethyl이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-ethylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-이소프로필이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-isopropylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-이소프로필이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-isopropylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-이소프로필이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-isopropylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-이소프로필이미다졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-isopropylimidazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-2-thioxothiazolidin-4-one];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-2-thioxothiazolidin-4-one];

(Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-메틸-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-methyl-2-thioxothiazolidin-4-one];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-메틸-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-methyl-2-thioxothiazolidin-4-one];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-메틸-2-티옥소티아

졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-methyl-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-메틸-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-methyl-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-에틸-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-ethyl-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-isopropyl-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-isopropyl-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-isopropyl-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소티아졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-isopropyl-2-thioxothiazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소옥사졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-isopropyl-2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소옥사졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-isopropyl-2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소옥사졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-isopropyl-2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소옥사졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-isopropyl-2-thioxooxazolidin-4-one];
 (Z)-5-((1H-피롤로[2,3-b]피리딘-3-일)메틸렌)-3-이소프로필티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-b]pyridin-3-yl)methylene)-3-isopropylthiazolidine-2,4-dione];
 (Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-이소프로필티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-isopropylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-이소프로필티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-isopropylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-이소프로필티아졸리딘-2,4-디온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-isopropylthiazolidine-2,4-dione];

(Z)-5-((1H-피롤로[2,3-c]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소이미다졸리딘-4-온[(Z)-5-((1H-pyrrolo[2,3-c]pyridin-3-yl)methylene)-3-isopropyl-2-thioxoimidazolidin-4-one];

(Z)-5-((1H-피롤로[3,2-c]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소이미다졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-c]pyridin-3-yl)methylene)-3-isopropyl-2-thioxoimidazolidin-4-one]; 및

(Z)-5-((1H-피롤로[3,2-b]피리딘-3-일)메틸렌)-3-이소프로필-2-티옥소이미다졸리딘-4-온[(Z)-5-((1H-pyrrolo[3,2-b]pyridin-3-yl)methylene)-3-isopropyl-2-thioxoimidazolidin-4-one].

[청구항 7]

제1항에 있어서, 단백질 분해 표적화 키메라 화합물의 제조용인 것인, 피롤리딘 유도체 또는 이의 약학적으로 허용가능한 염.

[청구항 8]

제1항의 피롤리딘 유도체 또는 이의 약학적으로 허용가능한 염을 포함하는 단백질 분해 표적화 키메라(PROTAC) 화합물.

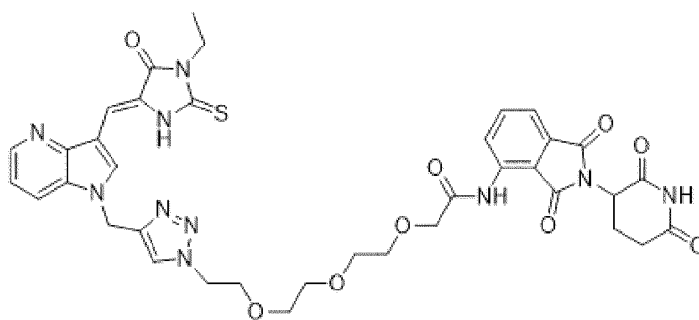
[청구항 9]

제8항에 있어서, 상기 피롤리딘 유도체 또는 이의 약학적으로 허용가능한 염과 함께 타겟 결합 리간드 및 연결기를 더 포함하는 것인, 단백질 분해 표적화 키메라 화합물.

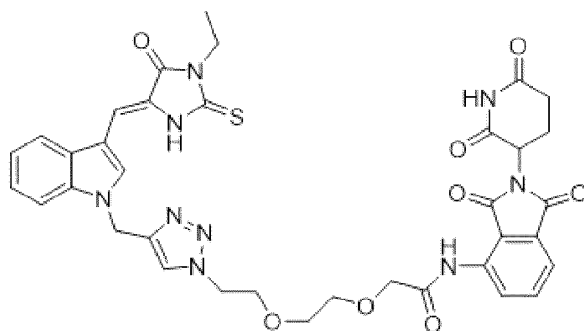
[청구항 10]

제8항에 있어서, 화학식 VI로 표시되는 TAU-1 화합물 또는 화학식 VII로 표시되는 TAU-2 화합물인 것인, 단백질 분해 표적화 키메라 화합물:

[화학식 VI]



[화학식 VII]



- [청구항 11] 제1항 내지 제7항 중 어느 한 항의 피롤리딘 유도체 및 이의 약학적으로 허용 가능한 염, 및 제8항에 따른 단백질 분해 표적화 키메라 화합물로 이루어지는 군으로부터 선택되는 1종 이상을 유효성분으로 포함하는, 베타-아밀로이드 응집 억제용 조성물.
- [청구항 12] 제1항 내지 제7항 중 어느 한 항의 피롤리딘 유도체 및 이의 약학적으로 허용 가능한 염, 및 제8항에 따른 단백질 분해 표적화 키메라 화합물로 이루어지는 군으로부터 선택되는 1종 이상을 유효성분으로 포함하는, 타우 단백질 응집 억제용 조성물.
- [청구항 13] 제1항 내지 제7항 중 어느 한 항의 피롤리딘 유도체 및 이의 약학적으로 허용 가능한 염, 및 제8항에 따른 단백질 분해 표적화 키메라 화합물로 이루어지는 군으로부터 선택되는 1종 이상을 유효성분으로 포함하는, 베타-아밀로이드 응집체 분해용 조성물.
- [청구항 14] 제1항 내지 제7항 중 어느 한 항의 피롤리딘 유도체 및 이의 약학적으로 허용 가능한 염, 및 제8항에 따른 단백질 분해 표적화 키메라 화합물로 이루어지는 군으로부터 선택되는 1종 이상을 유효성분으로 포함하는, 타우 단백질 응집체 분해용 조성물.
- [청구항 15] 제1항 내지 제7항 중 어느 한 항의 피롤리딘 유도체 및 이의 약학적으로 허용 가능한 염, 및 제8항에 따른 단백질 분해 표적화 키메라 화합물로 이루어지는 군으로부터 선택되는 1종 이상을 유효성분으로 포함하는, 베타-아밀로이드 응집 억제용 조성물.
- [청구항 16] 제1항 내지 제7항 중 어느 한 항의 피롤리딘 유도체 및 이의 약학적으로 허용 가능한 염, 및 제8항에 따른 단백질 분해 표적화 키메라 화합물로 이루어지는 군으로부터 선택되는 1종 이상을 유효성분으로 포함하는, 뇌신경세포 보호용 조성물.
- [청구항 17] 제16항에 있어서, 상기 뇌신경세포 보호는 뇌신경세포를 베타-아밀로이드 또는 타우 단백질의 응집 또는 축적에 의한 손상으로부터 보호하는 것인, 뇌신경세포 보호용 조성물.
- [청구항 18] 제1항 내지 제7항 중 어느 한 항의 피롤리딘 유도체 및 이의

약학적으로 허용 가능한 염, 및 제8항에 따른 단백질 분해 표적화 키메라 화합물로 이루어지는 군으로부터 선택되는 1종 이상을 유효성분으로 포함하는, 베타-아밀로이드 또는 타우 단백질의 응집 또는 축적과 관련된 질병의 예방 또는 치료용 조성물.

[청구항 19] 제18항에 있어서, 상기 베타-아밀로이드 또는 타우 단백질의 응집 또는 축적과 관련된 질병은 알츠하이머병(Alzheimer's disease), 혈관성 치매, 경도인지장애 (mild cognitive impairment), 대뇌 아밀로이드 맥관병증, 다운증후군, 아밀로이드성 뇌졸중(stroke), 전신성 아밀로이드병, 더취(Dutch)형 아밀로이드증, 타우병증, 루이소체치매(Dementia with Lewy Bodies, DLB), 다발성 경색치매(Multi-Infarct Dementia, MID), 전두측두엽변성증(frontotemporal lobar degeneration, FTLD), 픽병(Pick's disease), 피질기조퇴행 (Corticobasal degeneration, CBD), 퇴행성 핵상마비 (progressive supranuclear palsy, PSP), 파킨슨병, 또는 헌팅톤병인, 조성물.