

HRAC Mode of Action Classification 2022

Revised January 2022



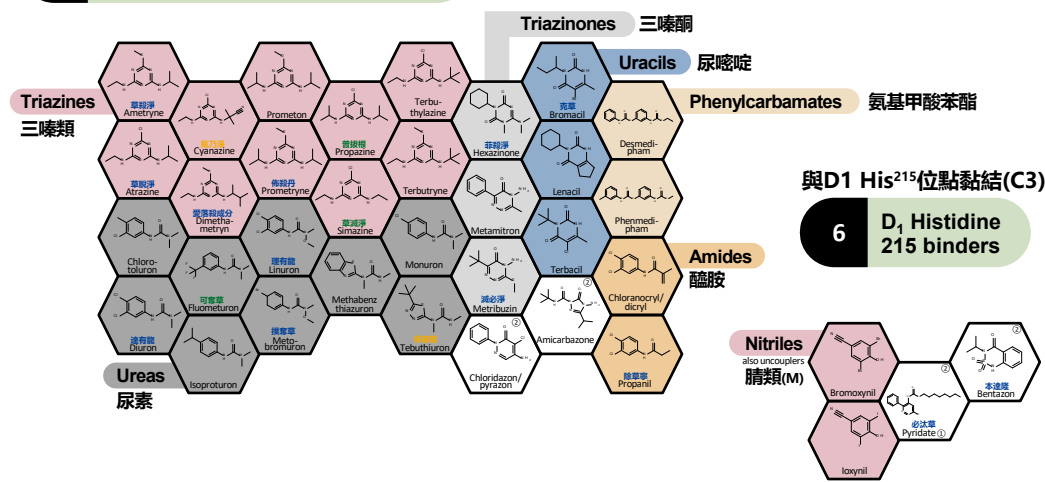
HERBICIDE RESISTANCE ACTION COMMITTEE

Light Activation of ROS^a 光激活ROS

Inhibition of Photosynthesis at PS II 在PSII 抑制光合作用

5 D1 Serine 264 binders (and other non-histidine 215 binders)

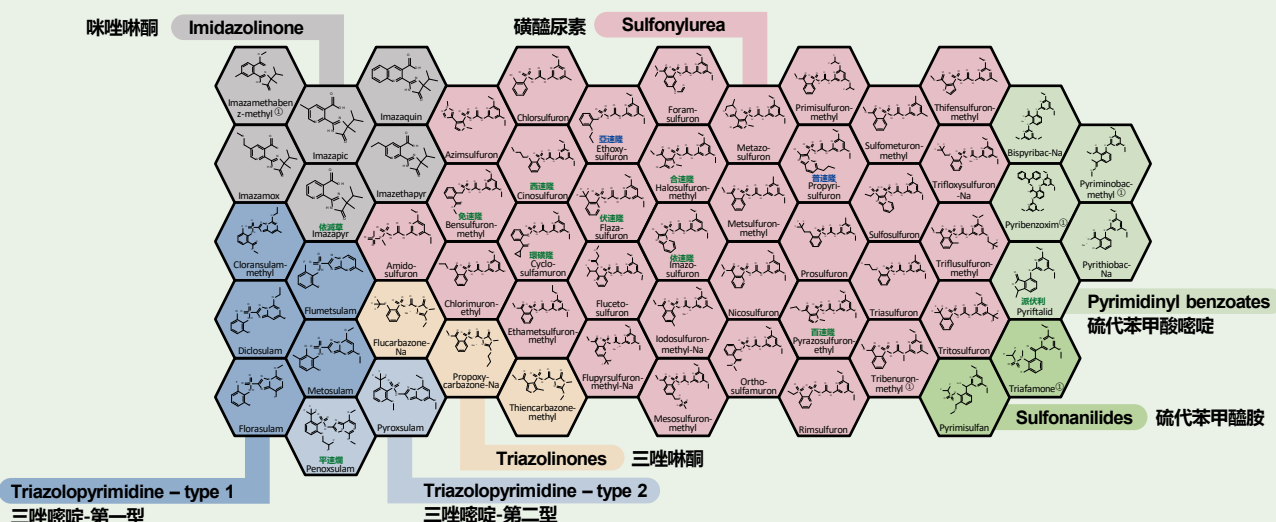
與D1 Ser²⁶⁴ 或His²¹⁵ 以外位點黏結(C1+C2)



Cellular Metabolism 細胞代謝

2 Inhibition of Acetolactate Synthase

B. 抑制支鏈氨基酸合成/ 乙醯乳酸合成酶



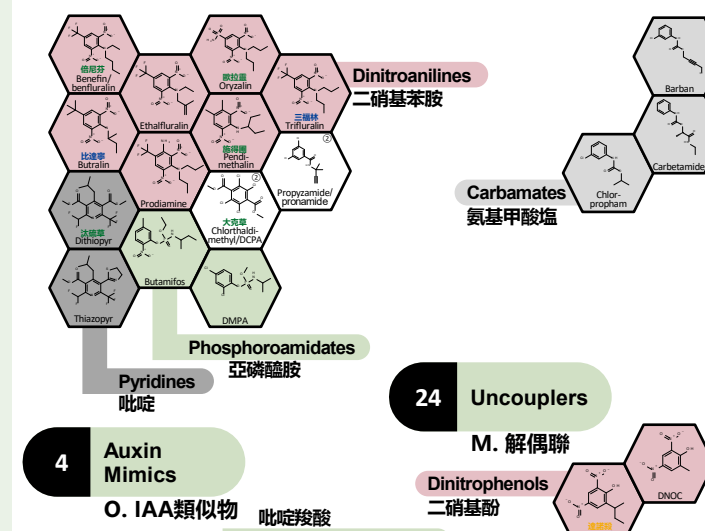
Cell Division and Growth 細胞分裂/生長

3 Inhibition of Microtubule Assembly

K1. 抑制微管組合

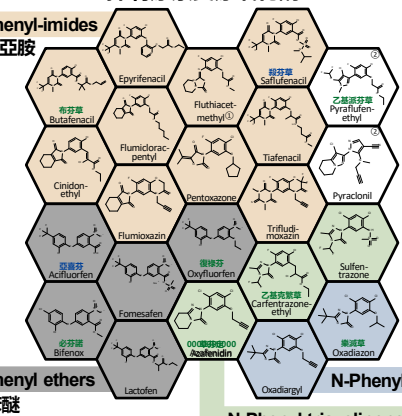
23 Inhibition of Microtubule Organization

K2. 抑制微管組織化



14 Inhibition of Protoporphyrin Oxidase

E. 抑制原葉素原氧化酶PPO

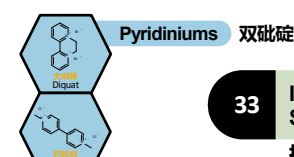


10 Inhibition of Glutamine Synthetase

G. 抑制穀胺醯胺合成酶

22 PS I Electron Diversion

D. PS I 電子轉向



33 Inhibition of Homogentisate Solanelyltransferase

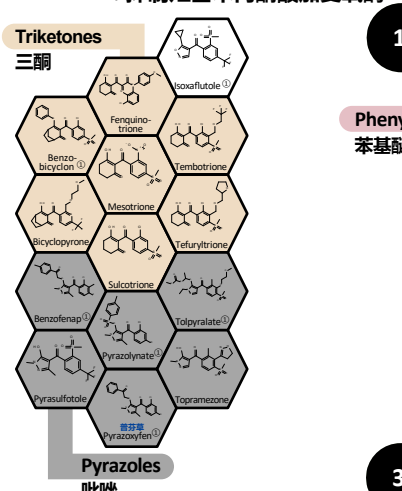
抑制尿黑酸茄基轉移酶

32 Inhibition of Solanelyl Diphosphate Synthase

抑制茄基焦磷酸合成酶

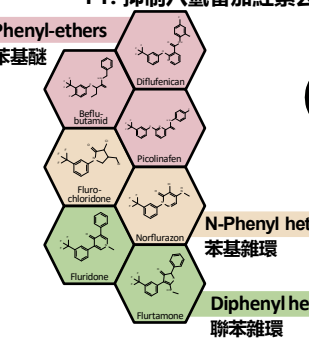
27 Inhibition of Hydroxyphenyl Pyruvate Dioxigenase

F2. 抑制羥基苯丙酮酸加雙氧酶HPPD



12 Inhibition of Phytoene Desaturase

F1. 抑制八氫番茄紅素去飽和酶PDS

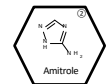


13 Inhibition of Deoxy-D-Xylulose Phosphate Synthase

F4. 抑制脫氧木酮糖-5-磷酸DOXP合成酶

34 Inhibition of Lycopene Cyclase

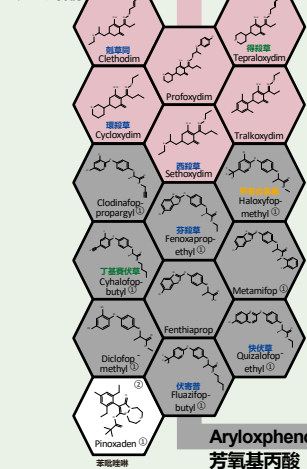
F3. 抑制番茄紅素環化酶



A. 抑制乙醯輔酶A合成酶ACCase

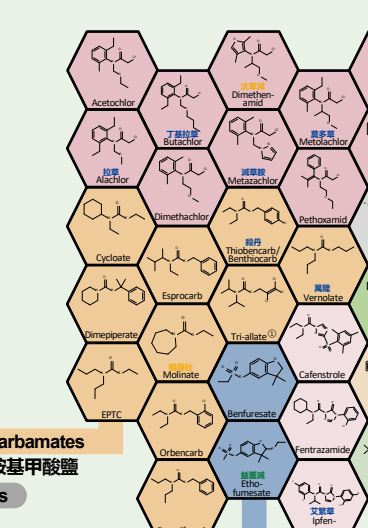
1 Inhibition of Acetyl CoA Carboxylase

Cyclohexanediones (環己烯酮)



K3+N. 抑制超長鏈脂肪酸合成

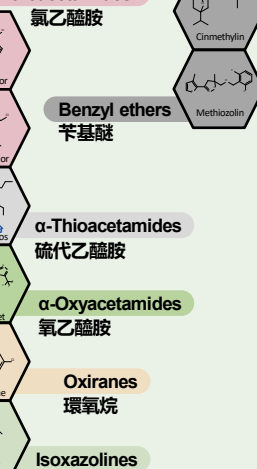
15 Inhibition of Very Long-Chain Fatty Acid Synthesis



抑制脂肪酸硫酯酶

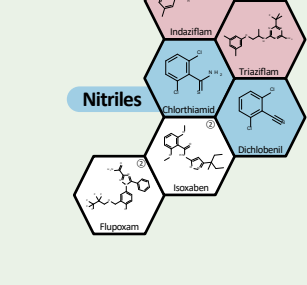
30 Inhibition of Fatty Acid Thioesterase

α-Chloroacetamides (α-氯乙醯胺)



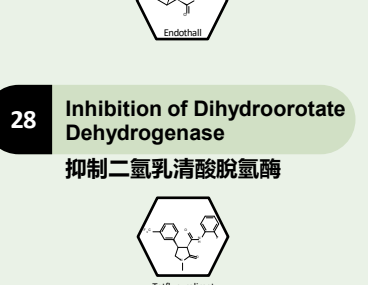
29 Inhibition of Cellulose Synthesis

Alkylazines (烷基嗪)



31 Inhibition of Serine Threonine Protein Phosphatase

抑制絲胺酸/蘇胺酸蛋白磷酸酶



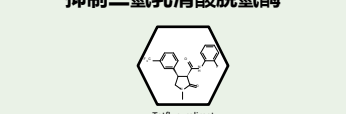
9 Inhibition of Enolpyruvyl Shikimate Phosphate Synthase

G. 抑制內烯醇丙酮基莽草素磷酸合成酶



28 Inhibition of Dihydroorotate Dehydrogenase

抑制二氫乳清酸脫氫酶



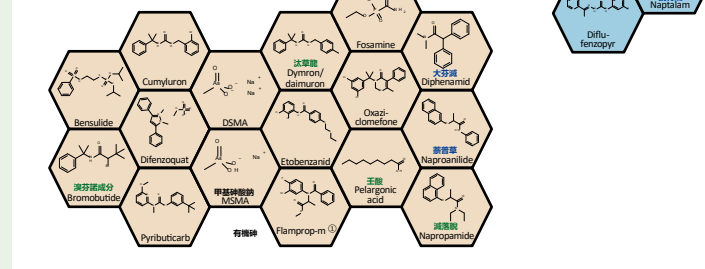
18 Inhibition of Dihydropterotate Synthase

I. 抑制二氫喋呤合成酶 DHP



Unknown Mode of Action

Z 未知作用機制



HRAC	Legacy HRAC	Inhibition of ACCase	HRAC	Legacy HRAC	Auxin transport inhibitors
1	A	Inhibition of ACCase	19	P	Auxin transport inhibitors
2	B	Inhibition of ALS	22	D	PS I electron diversion
3	K1	Inhibition of microtubule assembly	23	K2	Inhibition of microtubule organization
4	O	Auxin mimics	24	M	Uncouplers
5	C1,2	Inhibition of photosynthesis PS II - Serine 264	27	F2	Inhibition of HPPD
6	C3	Inhibition of photosynthesis PS II - Histidine 215	28	none	Inhibition of dihydroorotate dehydrogenase
9	G	Inhibition of EPSP synthase	29	L	Inhibition of cellulose synthesis
10	H	Inhibition of glutamine synthetase	30	Q	Inhibition of fatty acid thioesterase
12	F1	Inhibition of PDS	31	R	Inhibition of serine threonine protein phosphatase
13	F4	Inhibition of DOXP synthase	32	S	Inhibition of solanelyl diphosphate synthase
14	E	Inhibition of PPO	33	T	Inhibition of homogentisate solanelyltransferase
15	K3	Inhibition of VLCFAs	34	F3	Inhibition of lycopene cyclase
18	I	DHP inhibition	∅	Z	Unknown mode of action

^a Reactive oxygen species
① Indicates pro-herbicide
② HRAC's recommendation is not to include a chemical family name when there is one active in the family. Actives without chemical family names are indicated with a white background