附表1 AOP wiki 上目前列出的与农药相关的AOPs

Table S1 AOPs related to pesticides currently listed on the AOP wiki

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| --- | --- | --- | --- | --- | --- |
| 毒性分类  Toxicity classification | AOP名称  AOP name | AOP 编号  AOP code | AOP状态  AOP OECD status | 农药  Pesticides | 农药作为该AOP应激源的证据强度水平  AOP stressor evidence level |
| 神经毒性 neurotoxicity | 与离子型GABA受体印防己毒素位点结合导致成人癫痫发作  Binding to the picrotoxin site of ionotropic GABA receptors leading to epileptic seizures in adult brain | 10 | TFHA/WNT 认可  TFHA/WNT Endorsed | 印防己毒素Picrotoxin | 高  high |
| 芬普尼  Fipronil | 高  high |
| 林丹  Lindane | 高  high |
| 狄氏剂  Dieldrin | 高  high |
| 硫丹  Endosulfan | 高  high |
| 七氯  Heptachlor | 高  high |
| 黑质纹状体神经元线粒体复合体I的抑制导致帕金森病运动障碍  Inhibition of the mitochondrial complex I of nigro-striatal neurons leads to parkinsonian motor deficits | 3 | TFHA/WNT 认可  TFHA/WNT Endorsed | 鱼藤酮  Rotenone | 高  high |
| 谷氨酸门控氯离子通道激活导致神经传递抑制相关的死亡  Glutamate-gated chloride channel activation leading to neurotransmission inhibition associated mortality | 161 | 未知  NA | 埃玛菌素  Emamectin  苯甲酸酯  benzoate | 中等  moderate |
| 离子型γ-氨基丁酸受体激活介导的神经传递抑制导致死亡  Ionotropic gamma-aminobutyric acid receptor activation mediated neurotransmission inhibition leading to mortality | 160 | 未知  NA | 埃玛菌素  Emamectin  苯甲酸酯  benzoate | 中等  moderate |
| 甲状腺血清结合蛋白转甲状腺素的干扰及其对人类神经发育的不良影响Interference with thyroid serum binding protein transthyretin and subsequent adverse human neurodevelopmental toxicity | 152 | 在构建中  Under Development | 绿草定  Triclopyr | NA |
| 内分泌干扰endocrine disruption | 幼年激素受体激动诱导产生雄性后代导致种群减少  Juvenile hormone receptor agonism leading to male offspring induction associated population decline | 201 | 未知  NA | 苯虫醚DIOFENOLAN | 中等  moderate |
| 苯氧威fenoxycarb | 中等  moderate |
| 吡丙醚  pyriproxyfen | 中等  moderate |
| 烯虫乙酯(7S)-Hydroprene | 中等  moderate |
| 烯虫炔酯kinoprene | 中等  moderate |
| 蜕皮激素受体激动导致不完全蜕皮相关的死亡  Ecdysone receptor agonism leading to incomplete ecdysis associated mortality | 4 | 未知  NA | 虫酰肼Tebufenozide | 高  high |
| 甲氧虫酰肼Methoxyfenozide | 高  high |
| 氯虫酰肼Halofenozide | 高  high |
| 环虫酰肼Chromafenozide | 高  high |
| 磺酰脲受体结合导致死亡  Sulfonylurea receptor binding leading to mortality | 343 | 未知  NA | 氟苯脲Teflubenzuron | 中等  moderate |
| 除虫脲Diflubenzuron | 中等  moderate |
| 遗传毒性genotoxicity | 抑制剂与拓扑异构酶II结合导致婴儿白血病  Inhibitor binding to topoisomerase II leading to infant leukaemia | 202 | EAGMST正在审查中  EAGMST Under Review | 毒死蜱  Chlorpyrifos | 低  low |
| 卵母细胞微管蛋白的化学结合导致非整倍体后代  Chemical binding to tubulin in oocytes leading to aneuploid offspring | 106 | EAGMST正在审查中EAGMST Under Review | 苯菌灵  Benomyl | 高  high |
| 致癌性  carcinogenicity | 肝分解代谢甲状腺激素增强导致大鼠和小鼠甲状腺滤泡细胞腺瘤和癌  Enhanced hepatic clearance of thyroid hormones leading to thyroid follicular cell adenomas and carcinomas in the rat and mouse | 162 | 未知  NA | 噻唑烟酸Thiazopyr | 中等  moderate |
| Pyrethrins and Pyrethroids  除虫菊酯类和拟除虫菊酯类 | 中等  moderate |
| GnRH脉冲破坏导致SD大鼠乳腺腺瘤和癌  GnRH pulse disruption leading to mammary adenomas and carcinomas in the SD rat | 168 | 未知  NA | 莠去津  Atrazine | 中等  moderate |
| GnRH脉冲破坏致SD大鼠垂体腺瘤和垂体癌  GnRH pulse disruption leading to pituitary adenomas and carcinomas in the SD rat | 169 | 未知  NA | 莠去津  Atrazine | 中等  moderate |
| 雄性激素受体激活导致小鼠和大鼠肝细胞腺瘤和癌Constitutive androstane receptor activation leading to hepatocellular adenomas and carcinomas in the mouse and the rat | 107 | EAGMST正在审查中  EAGMST Under Review | 甲氧苄氟菊酯metofluthrin | 高  high |
| 线粒体损伤引起的化学细胞毒性导致尿路上皮癌变  AOP for urothelial carcinogenesis due to chemical cytotoxicity by mitochondrial impairment | 335 | 未知  NA | 敌草隆  Diuron | 中等  moderate |
| 肝毒性  hepatotoxicity | 芳香烃受体激活导致尿卟啉  Aryl hydrocarbon receptor activation leading to uroporphyria | 131 | TFHA/WNT 认可  TFHA/WNT Endorsed | 六氯苯Hexachlorobenzene | 高  high |
| 肾毒性  nephrotoxicity | 环氧合酶1（COX1）抑制导致肾功能衰竭和死亡Cyclooxygenase 1 (COX1) inhibition leading to renal failure and mortality | 177 | 未知  NA | 氟尼辛葡甲胺  Flunixin meglumine | 中等  moderate |
| 循环系统毒性  circulatory toxicity | 抗凝血灭鼠剂抑制维生素K环氧化物还原酶引起凝血和出血  Anticoagulant rodenticide inhibition of vitamin K epoxide reductase resulting coagulopathy and hemorrhage | 187 | 在构建中  Under Development | 氯灭鼠灵  coumachlor | 中等  moderate |
| 华法林  Warfarin | 中等  moderate |
| 杀鼠醚  coumatetralyl | 中等  moderate |
| 氯鼠酮  Chlorophacinone | 中等  moderate |
| 敌鼠  diphacinone | 中等  moderate |
| 杀鼠酮  pindone | 中等  moderate |
| 运动系统毒性  motor system toxicity | 赖氨酰氧化酶的抑制导致鱼类慢性毒性增加  Inhibition of lysyl oxidase leading to enhanced chronic fish toxicity | 242 | 未知  NA | 二甲基二硫代氨基甲酸盐Dimethyl dithiocarbamate | 中等  moderate |
| 福美双  Thiram | 高  high |
| 福美铁  Ferbam | 中等  moderate |
| 棉隆  Dazomet | 低  low |
| 代森锰锌Mancozeb | 低  low |
| 代森钠  Nabam-sodium | 低  low |
| 福美锌  Ziram | 中等  moderate |
| 代森锌  Zineb | 低  low |

注：EAGMST，经合组织分子筛选和毒理基因组学专家咨询小组；TFHA，危害评估工作组；WNT，测试指南计划国家协调员工作组；NA，未知。

Note: EAGMST , OECD Expert Advisory Group on Molecular Screening and Toxicogenomics; TFHA, Task Force for Hazard Assessment; WNT, Working Group of the National Coordinators for the Test Guidelines Programme; NA, Not Available.