

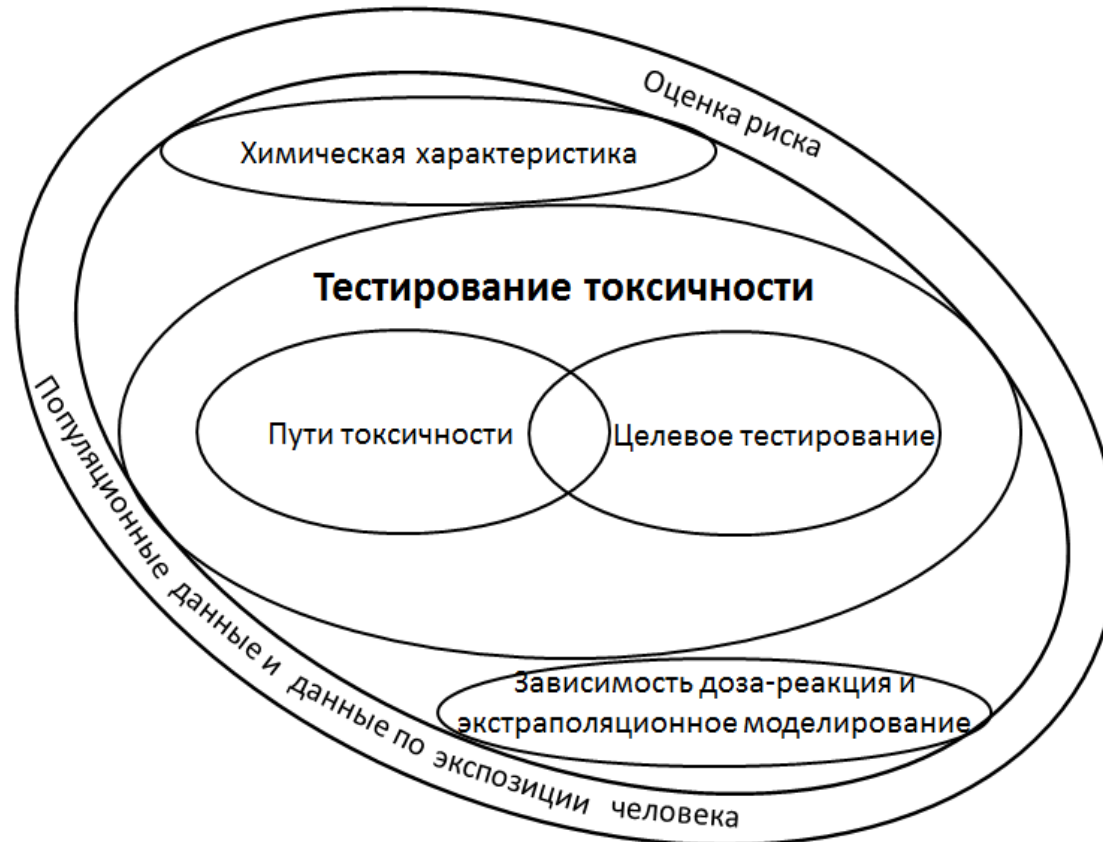
Использование интернет-ресурсов для выяснения путей токсичности нарушаемых химическим веществом.

д.б.н. Суворов Александр Николаевич
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"Объединение Усилей по Обеспечению Химической Безопасности
Будущего" Программа российско-американского партнерского диалога

Новая парадигма тестирования токсичности

- Компонент А: Химическая характеристика
- Компонент В: Тестирование токсичности химических соединений и метаболитов
- Компонент С: Зависимость доза-реакция и экстраполяционное моделирование
- Компонент Д: Популяционные данные и данные по экспозиции человека
- Компонент Е: Оценка риска



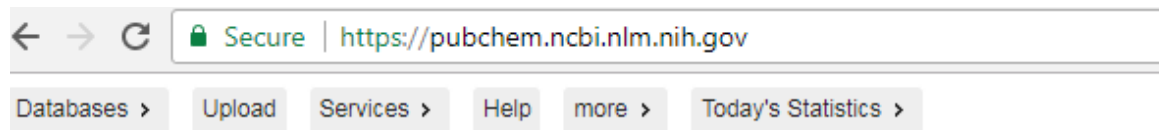
Компонент В: Тестирование токсичности химических соединений и метаболитов

- Разработка *in vitro* тестов, основанных на клеточных культурах человека для тестирования путей токсичности * = пути негативных исходов (АОР)
- Целенаправленное тестирование на животных для понимания нарушенных клеточных процессов на молекулярном уровне

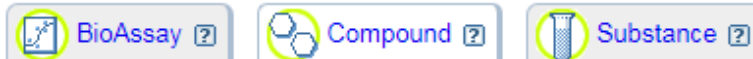
** Путь токсичности - любой нормальный клеточный путь, нарушение которого приводит к неблагоприятным последствиям для здоровья*

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5436-43-1

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10 Biological Test Results

10.1 BioAssay Results

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Go to Bioactivity Analysis Tool

All (745) Active(21) Inconclusive(65) Inactive(653)

1 to 5 of 745 1 2 3 ... 149 Activity

Activity	Activity Value [μM]	Substance SID	BioAssay AID	BioAssay Name
Inactive		84018	155	NCI Yeast Anticancer Drug Screen. Data for the rad50 strain
Inactive		84018	157	NCI Yeast Anticancer Drug Screen. Data for the mec2-1 strain
Inactive		84018	161	NCI Yeast Anticancer Drug Screen. Data for the sgs1 mgt1 strain
Inactive		84018	165	NCI Yeast Anticancer Drug Screen. Data for the cln2 rad14 strain
Inactive		84018	167	NCI Yeast Anticancer Drug Screen. Data for the bub3 strain

from PubChem

- Все биотесты отмеченные красными квадратиками в колонке "Outcome" были активированы или ингибированы Вашим веществом.

PubChem BioAssay [Limits](#) [Advanced search](#) [Help](#)

Bioactivity Data for Compound 4,4'-Oxybis(1,3-dibromobenzene) [CID: 95170], Active in 11 of 339 Targets

BioActivity Outcomes

- Active (21)
- Inconclusive (65)
- Inactive (653)
- Unspecified (8)

BioActivity Cutoffs

- micromolar (2)

BioActivity Types

- Potency (358)
- IC50 (8)

BioAssay Types

- Confirmatory (374)
- Screening (308)
- Summary (37)
- Literature (4)
- Other (22)

BioAssay Categories

- Biochemical (98)
- Cell-based (131)
- Organism-based (9)
- Toxicity (68)
- ADME (2)
- In vivo (1)

Top Targets

- NR_LBD_PPAR (13)
- Androgen_recep (11)
- NR_LBD_ER (11)
- NR_LBD_TR (7)
- NR_LBD_VDR (7)

Detect

- fluor
- biolu
- fluor
- lumir
- fluor

Show entries, displaying 1 to 50 of 745 entries in 692 bioassays ...

#	Substance	BioActivity			BioAssay	Target	Links
		Outcome	Type	Value [uM]			
1	144207525	■	Antagonist Potency (uM)	10.8818	AID 1259247; qHTS assay to identify small molecule antagonists of the androgen receptor (AR) signaling pathway using the MDA cell line in the presence of 0.5 nM R1881; Summary	Accession AAI32078; AR protein [Homo sapiens]	
2	144207525	■	Potency-Replicate_1	13.6993	AID 1159553; qHTS assay to identify small molecule agonists of the retinoic acid receptor (RAR) signaling pathway	Accession ADZ17337; retinoic acid nuclear receptor alpha variant 1 [Homo sapiens]	
3	144207525	■	Potency-Replicate_1	17.2465	AID 720835; qHTS assay for small molecule disruptors of the mitochondrial membrane potential		
4	144207525	■	Potency-Replicate_1	19.3508	AID 743079; qHTS assay to identify small molecule agonists of the estrogen receptor alpha (ER-alpha) signaling pathway using the BG1 cell line	Accession AEP43755; estrogen nuclear receptor alpha [Homo sapiens]	
5	144207525	■	Ratio Potency (uM)	22.5814	AID 720837; qHTS assay for small molecule disruptors of the mitochondrial membrane potential; Summary		
6	49718201	■	Potency	25.929	AID 540253; qHTS Assay for Inhibitors of RanGTP induced Rango (Ran-regulated importin-beta cargo) - Importin beta complex dissociation	Accession NP_002256; importin subunit beta-1 isoform 1 [Homo sapiens]	
7	49718201	■	Potency	25.929	AID 540253; qHTS Assay for Inhibitors of RanGTP induced Rango (Ran-regulated importin-beta cargo) - Importin beta complex dissociation	Accession NP_005892; snurportin-1 [Homo sapiens]	
8	49718201	■	Potency	25.929	AID 540253; qHTS Assay for Inhibitors of RanGTP induced Rango (Ran-regulated importin-beta cargo) - Importin beta complex dissociation	Accession NP_006316; GTP-binding nuclear protein Ran isoform 1 [Homo sapiens]	
9	144207525	■	Potency-Replicate_1	27.3338	AID 1259243; qHTS assay to identify small molecule antagonists of the androgen receptor (AR) signaling pathway using the MDA cell line in the presence of 0.5 nM R1881	Accession AAI32078; AR protein [Homo sapiens]	
10	144207525	■	Potency-Replicate_1	35.6323	AID 1224835; qHTS assay to identify small molecule inhibitors of firefly luciferase	Accession AAA29795; Luciferase [Photinus pyralis]	
11	17389432	■	Potency-Replicate_1	39.8107	AID 720859; qHTS assay for small molecule activators of the human pregnane X receptor (PXR) signaling pathway	Accession ADZ17384; pregnane X nuclear receptor [Homo sapiens]	
12	144207525	■	Potency-Replicate_1	43.7106	AID 743211; qHTS assay to identify small molecule agonists of the peroxisome proliferator-activated receptor delta (PPARdelta) signaling pathway - cell viability counter screen		
13	144207525	■	Potency-Replicate_1	49.0441	AID 1224888; qHTS RealTime-Glo MT Cell Viability Assay in HEK293 cells - 32 hour		
14	144207525	■	Potency-Replicate_1	49.0441	AID 1224874; qHTS RealTime-Glo MT Cell Viability Assay in HEK293 cells - 40 hour		
15	144207525	■	Potency-Replicate_1	49.0441	AID 1224886; qHTS RealTime-Glo MT Cell Viability Assay in HEK293 cells - 24 hour		
16	144207525	■	Potency-Replicate_1	54.5381	AID 1224839; qHTS assay to identify small molecule agonists of the constitutive androstane receptor (CAR) signaling pathway	Accession AAY56401; nuclear receptor subfamily 1, group 1, member 3 [Homo sapiens]	
17	144207525	■	Potency-Replicate_1	113.211	AID 1224847; qHTS assay to identify small molecule agonists of H2AX - cell viability counter screen		
18	17389432	■			AID 585; Promiscuous and Specific Inhibitors of AmpC Beta-Lactamase (assay without detergent)	Accession 2HDS_A; Chain A, AmpC Beta-Lactamase In Complex With 4-Methanesulfonylamino Benzoic Acid	
19	49718201	■			AID 489031; uHTS Fluorescent assay for identification of activators of Apaf-1	Accession AAI38532; Apoptotic peptidase activating factor 1 [Homo sapiens]	
20	17389432	■			AID 595; qHTS Assay for Disruptors of an Hsp90 Co-Chaperone Interaction		
21	144207525	■			AID 1224892; qHTS assay to identify small molecule agonists of the constitutive androstane receptor (CAR) signaling pathway; Summary	Accession AAY56401; nuclear receptor subfamily 1, group 1, member 3 [Homo sapiens]	
22	144207525	■	Potency-Replicate_1	3.861	AID 1159552; qHTS assay to identify small molecule antagonists of the retinoic acid receptor (RAR) signaling pathway	Accession ADZ17337; retinoic acid nuclear receptor alpha variant 1 [Homo sapiens]	
23	144207525	■	Potency-Replicate_1	6.1193	AID 743083; qHTS assay to identify aromatase inhibitors	Accession EAW77418; cytochrome P450, family 19, subfamily A, polypeptide 1, isoform CRA_a [Homo sapiens]	
24	49718201	■	Potency	7.9433	AID 504333; qHTS Assay for Inhibitors of BA22B	Accession BAA89212; bromodomain adjacent to zinc finger domain 2B [Homo sapiens]	

- Кликавая на синий номер биотеста можно найти описание биотеста.

#	Substance	BioActivity			BioAssay
		Outcome ▲	Type	Value [μM]	
1	144207525	■	Antagonist Potency (uM)	10.8818	AID 1259247 ; qHTS assay to identify small molecule antagonists of the androgen receptor (AR) signaling pathway using the MDA cell line in the presence of 0.5 nM R1881: Summary
2	144207525	■	Potency- Replicate_1	13.6993	AID 1159553 ; qHTS assay to identify small molecule agonists of the retinoic acid receptor (RAR) signaling pathway
3	144207525	■	Potency- Replicate_1	17.2465	AID 720635 ; qHTS assay for small molecule disruptors of the mitochondrial membrane potential
4	144207525	■	Potency- Replicate_1	19.3508	AID 743079 ; qHTS assay to identify small molecule agonists of the estrogen receptor alpha (ER-alpha) signaling pathway using the BG1 cell line

qHTS – quantitative high throughput screening - количественный тест с высокой пропускной способностью

Пример описания биотеста

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BioAssay Record for AID 1259247



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QHTS Assay To Identify Small Molecule Antagonists Of The Androgen Receptor (AR) Signaling Pathway Using The MDA Cell Line In The Presence Of 0.5 nM R1881: Summary

► Cite this Record

PubChem AID: 1259247

External ID: MDA364

Source: Tox21

BioAssay Type: Summary

Protein Target: AR protein [Homo sapiens] [More...](#)

Tested Substances: ● All(9667) ● Active(1108) ● Inactive(6571) [Data Table](#)

Version: 1.1 (2017-02-24) [Revision History...](#)

This bioassay record (AID 1259247) represents the assay project "**qHTS assay to identify small molecule antagonists of the androgen receptor (AR) signaling pathway using the MDA cell line in the presence of 0.5 nM R1881: Summary**", which is associated with a total of 2 additional BioAssay records in PubChem.

Пример описания биотеста



QHTS Assay To Identify Small Molecule Antagonists Of...



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+ Contents



- 1 Description
- 2 Protocol
- 3 BioAssay Target
- 4 Data Table
- 5 Comment
- 6 Categorized Comment
- 7 Identity
- 8 Same-Project BioAssays
- 9 Related Targets
- 10 Information Sources

U.S. Environmental Protection Agency [EPA]
U.S. Department of Environmental Health
National Toxicology Program [NTP]
U.S. Food and Drug Administration [FDA]

Tox21 Assay Overview:

Androgen receptor (AR) is an important member of the nuclear receptor family. Its signaling plays a critical role in AR-dependent prostate cancer and other androgen related diseases. Considerable attention has been given in the past decades to develop methods to study and screen for the environmental chemicals that have the potential to interfere with metabolic homeostasis, reproduction, developmental and behavioral functions. Therefore AR binding assay for screening androgen antagonists can be used to identify potential endocrine disruptors.

MDA-kb2 cells (from ATCC, deposited by Wilson et al.) were used to screen for AR inhibitors against Tox21 compound libraries. These cells are human breast carcinoma cells that were stably transfected with a luciferase reporter gene under control of the MMTV promoter that contains response elements for both androgen receptor (AR) and glucocorticoid receptor (GR). The current screening for identification of AR inhibitors against Tox21 libraries used lower concentration of (0.5 nM) R1881 as a stimulator. The cytotoxicity of the Tox21 compound libraries against MDA-kb2 cell line was tested by measuring live-cell protease activity using CellTiter-Fluor assay in the same wells. To differentiate true AR antagonists from cytotoxic substances, the assay is multiplexed with a cell viability assay.

2 Protocol



Please refer to other [AID 1259243](#) and [AID 1259242](#) for detailed assay protocols.